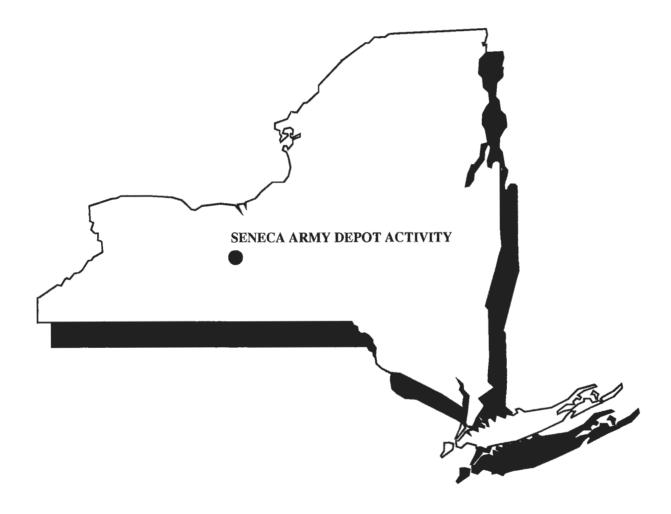
U.S. ARMY ENGINEER DIVISION

HUNTSVILLE, ALABAMA









DRAFT

FEASIBILITY STUDY AT THE ABANDONED DEACTIVATION FURNACE (SEAD-16) AND THE ACTIVE DEACTIVATION FURNACE (SEAD-17)

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1.0 <u>INTRODUCTION</u>

1.1 PURPOSE AND ORGANIZATION OF REPORT

This Feasibility Study (FS) report for the Abandoned Deactivation Furnace (SEAD 16) and the Active Deactivation Furnace (SEAD 17) sites at the Seneca Army Depot Activity (SEDA) is a continuation of the Remedial Investigation/Feasibility Study (RI/FS) process required for compliance with the Comprehensive Environmental Response and Compensation Liability Act (CERCLA) of 1980 and the Superfund Amendments Reauthorization Act (SARA) of 1986. This program has been performed under the guidance of the US Environmental Protection Agency (EPA), Region II, and the New York Department of Environmental Conservation (NYSDEC). The RI was completed in 1996 and the final draft RI report was submitted to EPA and NYSDEC. The purpose of the RI was to fully characterize the nature and extent of human health and environmental risks posed by the SEAD-16 and 17 sites.

SEDA is under the command control of the Tobyhanna Army Depot in Tobyhanna, PA. SEDA is currently an active Army facility, however, the depot has been placed on the closure list for BRAC 95. SEAD-16 (inactive since the mid-1960s) and SEAD-17 (inactive since 1989) are part of SEDA. Both sites are in proximity to the SEDA complex. SEAD 16 is abandoned with no current site uses. Site use at SEAD 17 is temporarily discontinued. The current intended future land use of the SEAD-16 and 17 has been determined by the Local Redevelopment Authority (LRA) in conjunction with the Army to be industrial/commercial. As required by CERCLA and Army regulations, if control of parcels at SEDA is released or transferred and the site-use changes, the Army must perform any remedial actions necessary to ensure that the site conditions resulting from a change is land use are protective of human health and the environment.

A baseline risk assessment (BRA) was conducted for the RI at the SEAD-16 and 17. The risk assessment included an analysis of four receptor categories. These are: 1) current on-site worker, 2) future on-site construction workers, and 3) future on-site industrial workers, and 4) future trespassers. A hazard index and cancer risk were calculated for each applicable receptor exposure route, and a total receptor risk was also calculated. The risk calculations, presented in the RI report and summarized in **Table 1-1** for SEAD-16 and **Table 1-2** for SEAD-17, indicate that under the current land use scenarios for current on-site workers, the risks are within the acceptable levels defined by EPA. For SEAD-16, under the future industrial site use scenario, the site risks exceed the EPA defined target levels for future site construction and industrial workers. Site risks are within acceptable EPA levels for future trespassers under the future industrial site use scenario for SEAD-16. These risks are almost entirely due to the ingestion of

TABLE 1-1

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS
REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX	CANCER RISK
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	6.90E-02	6.94E-11
	Ingestion of Onsite Soils	1.45E-02	1.30E-06
	Dermal Contact to Onsite Soils	8.78E-04	6.50E-08
TOTAL RECEPTOR RISK (Nc & Car)		8.44E-02	1.36E-06
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Indoor Air	5.72E-01	0.00E+00
	Ingestion of Indoor Dust	8.68E+00	3.17E-05
	Dermal Contact to Indoor Dust	2.65E+00	8.04E-06
	Ingestion of Onsite Soils	1.45E-02	1.30E-06
	Dermal Contact to Onsite Soils	8.78E-04	6.50E-08
TOTAL RECEPTOR RISK (Nc & Car)		1.19E+01	4.11E-05
FUTURE ON-SITE	Inhalation of Dust in Ambient Air	8.62E-01	3.47E-11
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	8.71E-01	3.12E-06
	Dermal Contact to Onsite Soils	I.10E-02	3.25E-08
TOTAL RECEPTOR RISK (Ne & Car)		1,74E+00	3.15E-06
FUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	4.83E-02	9.72E-12
	Ingestion of Onsite Soils	2.03E-01	2.50E-06
	Dermal Contact to Onsite Soils	2.44E-03	3.61E-08
	Ingestion of Onsite Surface Water while Wading	2.89E-02	6.81E-08
	Dermal Contact to Surface Water while Wading	1.79E-03	4.58E-07
	Ingestion of Onsite Sediment	3.67E-01	8.98E-07
	Dermal Contact to Sediment while Wading	1.46E-02	3.27E-08
TOTAL RECEPTOR RISK (Nc & Car)		6.66E-01	4.00E-06

TABLE 1-2

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 17

RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX	CANCER RISK
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	6.90E-02	6.94E-11
	Ingestion of Onsite Soils	1.45E-02	1.30E-06
	Dermal Contact to Onsite Soils	8.78E-04	6.50E-08
TOTAL RECEPTOR RISK (Nc & Car)		8.44E-02	1.36E-06
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	8.86E-03	3.98E-07
	Ingestion of Onsite Soils	2.19E-02	1.79E-06
	Dermal Contact to Onsite Soils	4.84E-02	6.55E-08
TOTAL RECEPTOR RISK (Nc & Car)		7.92E-02	2.25E-06
FUTURE ON-SITE CONSTRUCTION WORKERS	Inhalation of Dust in Ambient Air	8.86E-03	1.59E-08
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	5.16E-01	1.08E-06
	Dermal Contact to Onsite Soils	4.30E-03	1.17E-08
TOTAL RECEPTOR RISK (Nc & Car)		5.29E-01	1.11E-06
FUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	4.96E-04	4.45E-09
	Ingestion of Onsite Soils	7.67E-02	1.25E-06
	Dermal Contact to Onsite Soils	3.36E-02	9.09E-09
	Ingestion of Onsite Surface Water while Wading	1.04E-02	7.33E-08
	Dermal Contact to Surface Water while Wading	8.91E-06	2.34E-09
	Ingestion of Onsite Sediment	9.57E-02	5.61E-07
	Dermal Contact to Sediment while Wading	4.76E-03	0.00E+00
TOTAL RECEPTOR RISK (Nc & Car)		2.22E-01	1.90E-06

and dermal contact to site soils. For SEAD-17, site risks for future land use scenarios for all potential receptors are within acceptable EPA target levels.

This FS will focus on the current and intended future land uses as the basis for remedial action decisions. This report is organized in accordance with "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," EPA/540/G-89/004, October 1988 and the New York State Department of Conservation's "Revised TAGM—Selection of Remedial Actions at Inactive Hazardous Waste Sites." Section 1.0 is divided into five subsections which provide an overview of site conditions, including a brief review of the RI report. Section 1.2 describes the site background. Sections 1.2.1 and 1.2.2 describe the site history, including a site description and the local geologic and hydrogeologic setting. Section 1.3 summarizes the nature and extent of contamination. Section 1.4 discusses the contaminant fate and transport, and Section 1.5 presents the conclusions of the Baseline Risk Assessment (BRA).

Section 2.0 identifies and describes the initial screening of the remedial technologies. Remedial action objectives are developed for each media of concern (e.g., surface soils), and general response actions are considered which meet the remedial objectives for each media. The remedial technologies within each response category are screened for technical feasibility and implementation at SEAD-16 and 17. The discussion of remedial technologies are divided into focused on soil/sediment treatment technologies. The same technologies are applicable at both SEAD-16 and 17. Because of the small volumes for remediation, it is assumed that both sites will be remediated as a unit.

Technologies remaining from the initial screening are combined into remedial alternatives and are presented in Section 3.0. Alternatives for each media are evaluated through preliminary screening to determine their relative merit for use in the remedial action. These alternatives assume implementation at SEAD-16 and 17 as a unit. Separate programs are not considered for either site independently. Section 4.0 describes the treatability testing that may be necessary for alternatives that include innovative technologies prior to their implementation of the remedial actions. In Section 5.0, the remedial action alternatives are screened and evaluated in detail. Also included in Section 5.0 are detailed descriptions of the technologies and their implementation, as well as cost estimates.

1.1.1 Operable Units

In order to facilitate the remedial actions, both SEAD-16 and SEAD-17 have been combined into separate operable units from several operable units. An operable unit, as defined by EPA (40 CFR 300.5) is:

"a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site may be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different portions of the site."

SEAD-16 has been combined into one Solid Waste Management Unit (SWMU), as has SEAD-17.

1.2 SITE BACKGROUND

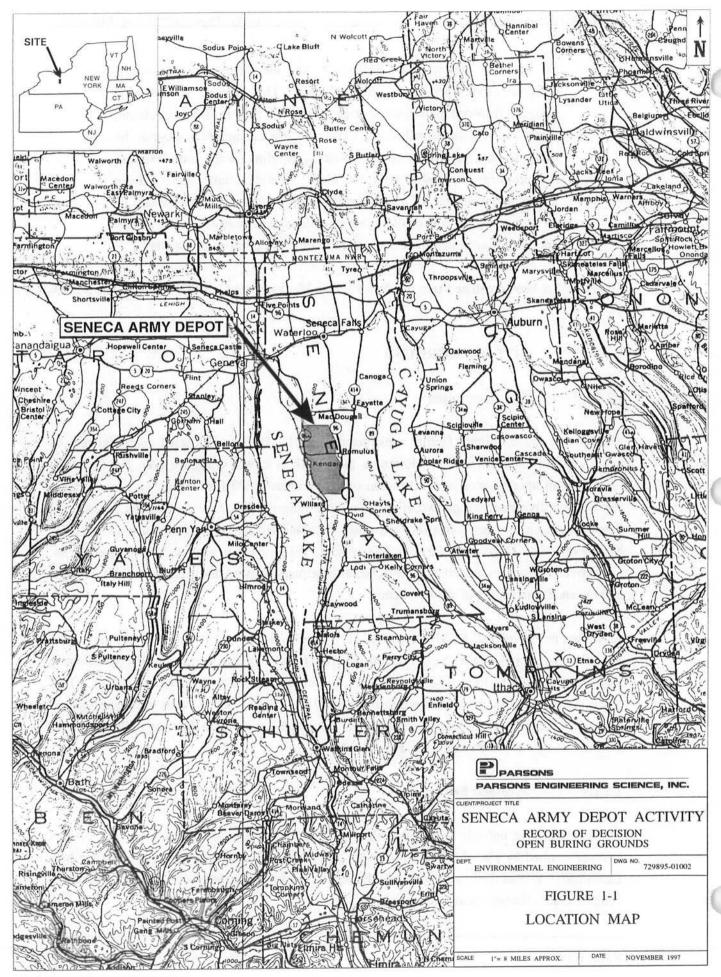
1.2.1 <u>Site Description</u>

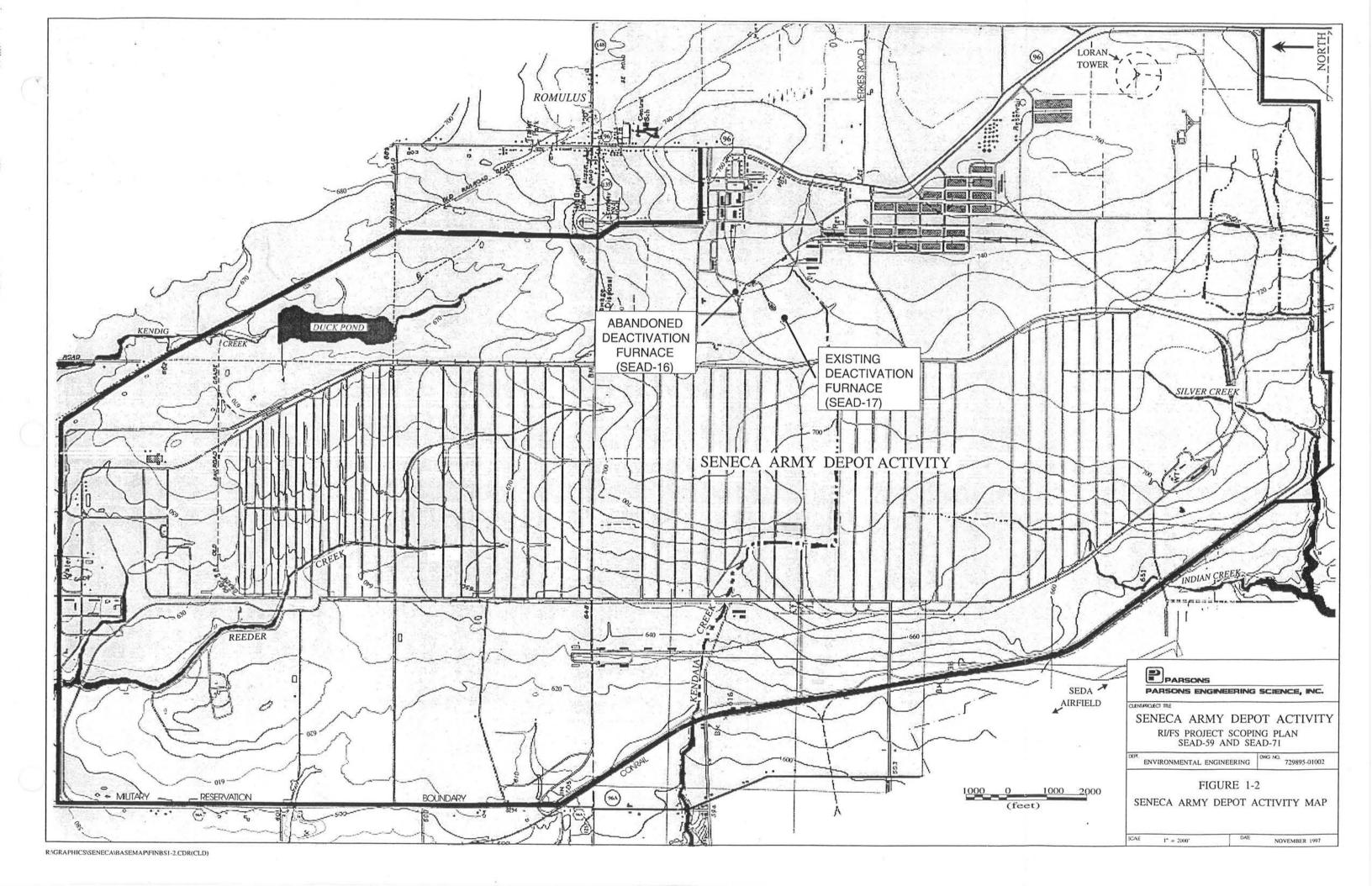
SEDA is an active military facility constructed in 1941. The site is located approximately 40 miles south of Lake Ontario, near Romulus, New York as shown in **Figure 1-1**. The facility is located in an uplands area, at an elevation of approximately 600 feet Mean Sea Level (MSL), that forms a divide separating two of the New York Finger Lakes, Cayuga Lake on the east and Seneca Lake on the west. Sparsely populated farmland covers most of the surrounding area. New York State Highways 96 and 96A adjoin SEDA on the east and west boundaries, respectively. Since its inception in 1941, SEDA's primary mission has been the receipt, storage, maintenance, and supply of military items.

As shown in Figure 1-2, SEAD-16 and SEAD 17 comprise only a few acres within the 10,587 acres that make up the entire SEDA facility. SEAD-16 and 17 were previously used by the Army for munitions deactivation. SEAD-16 is located in the east-central portion of SEDA. It is characterized by 2.6 acres of fenced land (Figure 1-3). SEAD 17 is located in the east-central portion of SEDA. It is characterized by an elongated deactivation furnace building that is surrounded by a crushed shale road (Figure 1-4).

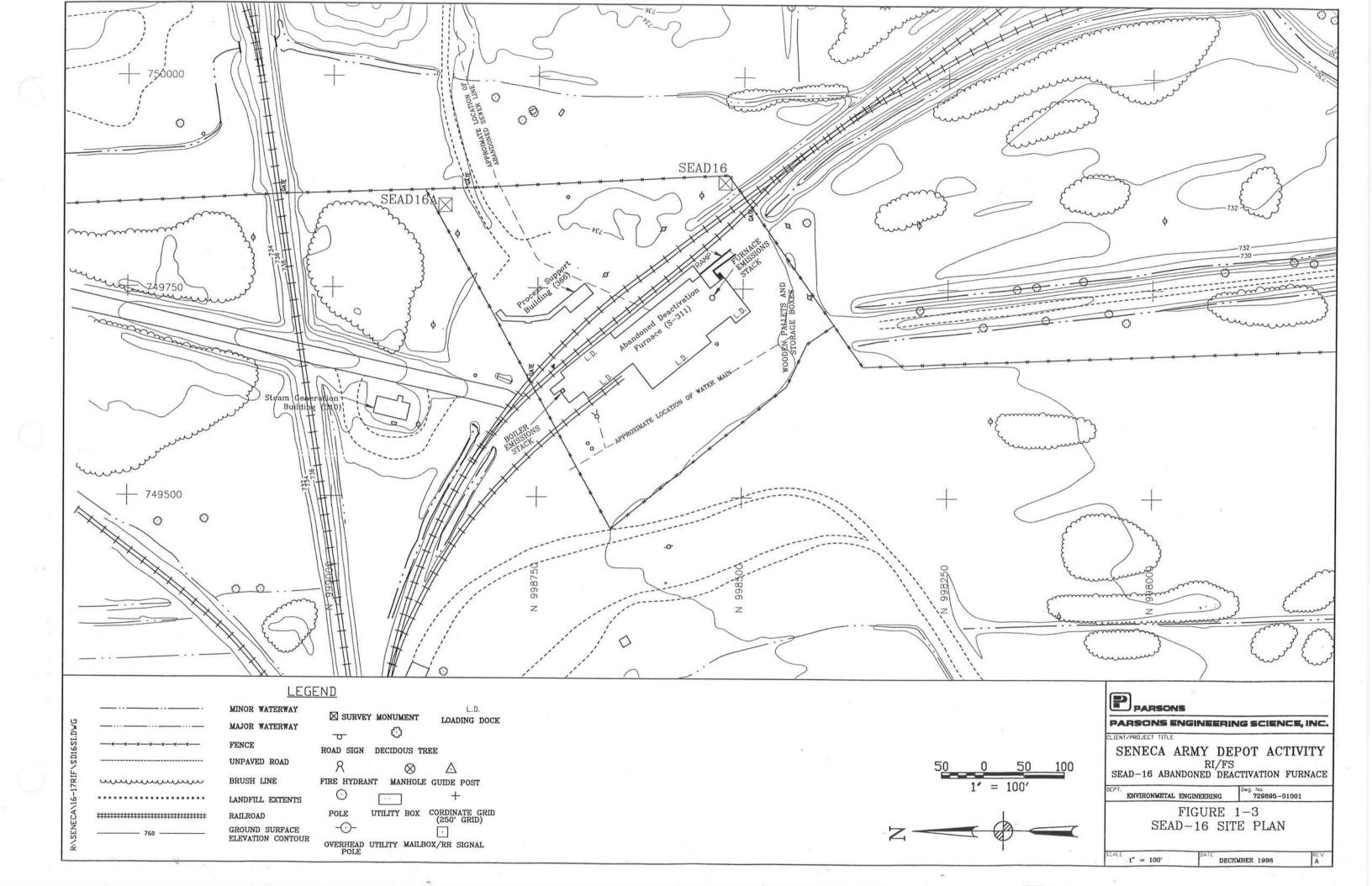
1.2.1.1 Geologic Setting

The Finger Lakes uplands area is underlain by a broad north-to-south trending series of rock terraces mantled by glacial till. As part of the Appalachian Plateau, the region is underlain by a tectonically undisturbed sequence of Paleozoic rocks consisting of shales, sandstones, conglomerates, limestones and dolostones.





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The Hamilton Group, 600 to 1500 feet thick, is divided into four formations. They are, from oldest to youngest, the Marcellus, Skaneateles, Ludlowville, and Moscow formations. The western portion of SEDA is generally located in the Ludlowville Formation while the eastern portion is located in the younger Moscow Formation. The Ludlowville and Moscow formations are characterized by gray, calcareous shales and mudstones and thin limestones with numerous zones of abundant invertebrate fossils that form geographically widespread encrinites, coral-rich layers, and complex shell beds. The Ludlowville Formation is known to contain brachiopods, bivalves, trilobites, corals and bryozoans (Gray, 1991). In contrast, the lower two formations (Skaneateles and Marcellus) consist largely of black and dark gray sparsely fossiliferous shales (Brett et al., 1991). Locally, the shale is soft, gray, and fissile.

The predominant surficial geologic unit present at the site is dense till. The till is distributed across the entire Depot and generally ranges in thickness from 3 feet to approximately 15 feet, although it is generally between 6 and 10 feet thick; at a few locations the thickness of the till is greater than 30 feet. The till is generally characterized as brown to olive-gray silt and clay, with little fine sand and variable amounts of fine to coarse gravel-sized inclusions of dark gray shale. Larger diameter clasts of shale (as large as 6 inches in diameter) are sometimes present in the basal portion of the till and are probably rip-up clasts removed from the weathered shale zone and incorporated into the till by the once-active glacier. Grain size analyses of the till show a wide distribution of particle sizes within the till (Metcalf & Eddie, 1989), however, there is a high percentage of silt and clay with the balance comprised of coarser particles. The porosities of 5 gray-brown silt clay (i.e., till) samples ranged from 34.0 percent to 44.2 percent with an average of 37.3 percent (USAEHA, 1985).

Darien silt-loam soils, 0 to 18 inches thick, have developed over the Wisconsin age till at both SEAD-16 and SEAD-17. These soils are poorly drained and have a silt clay loam and a clay subsoil. In general, the topographic relief associated with these soils is 3 to 8 percent.

Regionally, four distinct hydrologic units have been identified within Seneca County (Mozola, 1951). These include two distinct shale formations, a series of limestone units, and unconsolidated beds of Pleistocene glacial drift. Overall, the groundwater in the county is very hard, and therefore, the quality is minimally acceptable for use as potable water. Regionally, the water table aquifer of the unconsolidated surficial glacial deposits of the region would be expected to flow in a direction consistent with the dropping ground surface elevations. Geologic cross-sections from Seneca Lake and Cayuga Lake have been constructed by the State of New York, (Mozola, 1951). This cross-section information, along with groundwater flow directions established at numerous sites on SEDA and stream drainage patterns in the area, suggests that a groundwater divide exists approximately half way between the two finger lakes; the divide is believed to run approximately parallel to Route 96 near the eastern boundary of SEDA. Further evidence for the divide is

provided in Parsons ES (1995). SEDA is located on the western slope of this divide and, therefore, regional groundwater flow on the depot is expected to be west toward Seneca Lake.

The geologic information reviewed indicates that the upper portions of the shale formation would be expected to yield small, yet adequate, supplies of water for domestic use. For mid-Devonian shales such as those of the Hamilton group, the average yields, (which are less than 15 gpm), are consistent with what would be expected for shales (LaSala, 1968). The deeper portions of the bedrock, (i.e., at depths greater than 235 feet) have provided yields up to 150 gpm. At these depths the high well yields may be attributed to the effect of solutioning on the Onondaga limestone, which is at the base of the Hamilton Group. Based on well yield data, the degree of solutioning is affected by the type and thickness of overlying material (Mozola, 1951). Solution effects on limestones (and on shales which contain gypsum) in the Erie-Niagara have been reported by LaSala (1968). This source of water is considered to comprise a separate source of groundwater for the area. Very few wells in the region adjacent to SEDA utilize the limestone as a source of water, which may be due to the drilling depths required to intercept this water.

1.2.2 Site History

SEDA was constructed in 1941 and has been owned by the United States Government and operated by the Department of the Army since this time. Prior to construction of the depot, the site was used for farming. The Abandoned Deactivation Furnace (SEAD-16) has been in use from approximately 1945 to the mid-1960s. Small arms munitions, both obsolete and unserviceable, were destroyed by incineration. There were no air pollution or dust control devices installed on the furnace during the time that it operated. The overhead pipes connecting Building S-311 and 366 were used to convey propellants in the deactivation process; it is also likely that propellants were stored in these buildings.

1.2.2.1 Previous Investigations

SEAD-16 and 17 are described in four previous reports. The first report is a SWMU Classification Report (Parsons ES, 1994a) that describes and evaluates the Solid Waste Management Units at SEDA. This report was intended to provide a cursory evaluation of all the SWMUs at SEDA. The second report is the Work Plan for CERCLA Expanded Site Inspection (ESI) of Ten Solid Waste Management Units written by Parsons Main, Inc. in January 1993. This report detailed the site work and sampling to be performed under the Expanded Site Investigation (ESI) The third report, the SWMU Classification Report (Parsons ES, 1995a), presents the results of a more detailed investigation of SEAD-16 and SEAD-17. The fourth report, which only applies to SEAD-16, is a Final Closure Report for the Underground Storage Tank Removal at Seneca Army Depot Activity, Romulus, New York (Science Applications International Corporation, May 1994). This report

describes the removal, sampling, and conformatory laboratory analysis activities for two USTs at SEAD-16.

All previous investigations of the SEAD-16 and 17 site are summarized in chronological order in the RI.

1.3 NATURE AND EXTENT OF CONSTITUENTS OF CONCERN

The nature and extent of the chemicals of concern at the SEAD-16 and 17 were evaluated through a comprehensive field investigation program. Primary media investigated at the SEAD-16 and 17 included building materials, indoor air quality, surface and subsurface soil (from borings), surface water and sediment (from on-site ditches and drainage swales), and groundwater (from monitoring wells).

Concentrations above the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) clean-up guidelines were measured in this area at all depths from land surface to the top of the weathered shale. TAGMS are used by NYSDEC for establishing cleanup guidelines. The TAGMS are not promulgated standards and therefore are not ARARs but rather are To Be Considered (TBC) guidelines. As such, remedy selection will be based upon other enforceable standards that are ARARs. However, if appropriate, TAGMs may be used to help determine treatment volumes such as cubic yards of soil.

Surface water at SEAD-16 and 17 have not been classified by NYSDEC. However, because the drainage ditches near SEAD 16 and SEAD-17 form the headwaters for Kendaia Creek, the lower portion of which is designated as Class C surface water by NYSDEC, the Class C standards were used to provide a basis of comparison for the on-site surface water chemical data. The Class C Standards are not strictly applicable to the surface water found at SEAD-16.

Sediment results were compared to the most conservative New York State Guidelines for sediment, including: New York State lowest effect level (NYS LEL), New York State human health bioaccumulation criteria (NYS HHB), New York State benthic aquatic life acute and chronic toxicity criteria (NYS BALAT and NYS BALCT, respectively), and New York State wildlife bioaccumulation criteria (NYS WB).

All analytical results and their respective guidance values have been included in Appendix A.

SEAD-16

On the basis of the analytical results obtained for the 7 media at SEAD-16, the most significant impact to the site is from metals. Impacts from SVOCs and pesticides were also identified.

In the soil at SEAD-16, metals and SVOCs, predominantly PAH compounds, were found to be pervasive, particularly in the surface and subsurface soils adjacent to the Abandoned Deactivation Furnace. Lead, copper, arsenic, and zinc were detected in almost all of the surface soil samples at concentrations above their respective TAGM values. On the basis of the surface soil data, the highest concentrations of metals were clearly located in the area between the Abandoned Deactivation Furnace Building (S-311) and the Process Support Building (366). In the subsurface soil, copper and lead were found to be the most pervasive. The highest concentrations of PAH compounds in surface soils were detected in samples from locations adjacent to the northwestern corner of the Abandoned Deactivation Furnace Building. Nitroaromatic compounds were also present in the surface and subsurface soil near both buildings. Impacts from pesticides, PCBs, and herbicides in soil were less significant than the impacts from SVOCs and metals.

In the shallow groundwater aquifer, seven metals were detected above their respective NYS Class GA or federal MCL standards. Impacts from SVOCs and nitroaromatics were less significant. No VOCs, pesticides, or PCBs were detected in groundwater at SEAD-16.

Generally, surface water impacts were from metals, six of which were found at concentrations that exceeded their standards at several locations. The metals included lead, copper, zinc, cadmium, selenium, and iron. Three of these metals (lead, copper and zinc) were also found to be widely distributed in surface soils on-site, and thus, surface soils are a likely source area for the metals found in the surface water samples. SVOCs were found in a few surface water samples, but only one was above the NYS Class C standard. Many of the other chemical constituents analyzed for were not present in the samples. No VOCs, pesticides, PCBs, or nitroaromatics were detected in the samples

Sediment impacts were primarily from SVOCs and pesticides, which were pervasive. Several pesticide compounds exceeded their respective NYS sediment criteria and by far the most significant exceedences were in the sediment sample, SW/SD16-1, which was collected from the northeastern corner of the Abandoned Deactivation Furnace. Several metals were detected at concentrations above the NYS LEL with the highest concentrations found at SW/SD16-3 and SW/SD16-10. Impacts from nitroaromatics were less significant.

In the building material samples collected from the Abandoned Deactivation Furnace Building (S-311) and the Process Support Building (366), metals, SVOCs, and nitroaromatics were detected above their TAGM values. The metals antimony, copper, lead, and zinc were detected in all 12 of the building material samples at concentrations above their respective TAGM values. The SVOCs found were mostly PAHs, and among these benzo(a)pyrene was found at the highest concentration (1,500 μ g/Kg). The maximum concentration of total carcinogenic PAHs was 54,000 μ g/Kg, which was found in a propellant residue sample (BS-10). The highest concentrations of nitroaromatics were found in the vacuum system recovery vats in Building 366, where 2,4-dinitrotoluene was found at concentrations of 19,000,000 μ g/Kg and 3,700,000 μ g/Kg. Impacts from VOCs, pesticides, PCBs, and herbicides were less significant. Asbestos was detected at 13 locations in the two buildings in such materials as pipe insulation, roofing material, and floor tiles.

SEAD-17

On the basis of the analytical results obtained for the five media at SEAD-17, the most significant impacts to the site are from metals. Impacts from SVOCs, pesticides, PCBs, herbicides, and nitroaromatics were also found..

In the soil at SEAD-17, metals were found to be pervasive in the surface and subsurface soils.. Twenty-one metals were detected in the surface soils at concentrations above their respective TAGM values. Antimony, arsenic, copper, lead, mercury, and zinc were detected in almost all of the surface soil samples at concentrations above their respective TAGM values. In the subsurface soils, lead was detected in all samples at concentrations above the TAGM value. The metals were generally evenly distributed around Building 367 at SEAD-17, although some of the highest concentrations were located immediately to the southwest of the building. A potential source for some the high concentrations of metals in this area of the site is a discharge pipe, which has an outfall near location SS17-18, that drains the retort inside Building 367. Impacts from VOCs, SVOCs, pesticides, PCBs, herbicides, and nitroaromatics in soil were less significant than the impacts from metals.

Generally, the groundwater at SEAD-17 has not been significantly impacted by any of the chemical constituents. Low concentrations of SVOCs were detected. Two metals did exceed their criteria values. Additionally, no VOCs, pesticides, PCBs, or nitroaromatics were detected in the groundwater.

Surface water impacts were not widespread and many of the chemical constituents analyzed for were not present in the samples. Most of the impacts from metals occurred in the surface water

samples from the drainage ditch south of the Deactivation Furnace. No VOCs, pesticides, PCBs, or nitroaromatics were detected in the samples.

Sediment impacts were from SVOCs, pesticides, and metals. Impacts from SVOCs were most significant at one location in the drainage ditch in the northeastern corner of the site. Pesticides were found in the drainage ditches in the western and northeastern portions of the site. Metals impacts were found at SW/SD17-3, which is located in the drainage ditch in the eastern portion of the site. No PCBs or nitroaromatics were detected.

1.4 FATE AND TRANSPORT

Analysis of the fate and transport mechanisms for the chemicals of concern at the SEAD-16 and 17 considered site specific factors as well as expected chemical and physical behaviors of the contaminants. Soil, sediment, and surface water samples collected off-site, and downstream of the site were used to quantify the extent of impacts to various media.

Based on the distributions and concentrations of parameters measured on the sites, inorganics are believed to be the most significant in terms of determining their transport. On this basis, cursory transport modeling or inorganics was performed. This modeling was intended to provide some insight as to which organics may pose a future threat to groundwater at both SEAD-16 and SEAD-17. It may also be used to provide a focus and direction for future, more detailed modeling at SEAD-16 and SEAD-17. Transport modeling of the other constituents was not performed.

Inorganics of concern at SEAD-16 and SEAD-17 are Arsenic, Antimony, Copper, Cadmium, Lead, Silver, and Zinc. These metals are transported primarily by leaching and groundwater flow. Soil and groundwater samples collected during the RI confirm that these materials are present in the surface and subsurface soils as well as in the groundwater. Once these materials have entered the subsurface, they may migrate through the unsaturated vadose zone and/or infiltrate into the groundwater system. A series of publicly available models was used to evaluate the transport of inorganics at SEAD-16 and SEAD-17. These models are used and accepted by the USEPA to conservatively estimate soil inorganic contributions to underlying groundwater via the leaching pathway. A detailed discussion of these numerical models and their application, assumptions used, input parameters, and sensitivity analyses is included in the RI Report (Parsons ES, 1997) and in Appendix E. The following summarizes model results.

SEAD-16

The results of the model indicate that base case maximum leaching concentrations were for lead and copper (55.73 mg/l and 65.27 mg/l, respectively), each of which is above its applicable groundwater standard. The times for these maximum concentrations to occur were predicted to be 785 years for lead and 170 years for copper. The second highest maximum concentration was for zinc, at 26.45 mg/l in 130 years. A sensitivity analysis showed that worst case scenario leaching concentrations could be as much as 305.12 mg/l in 145 years for lead and 194.66 mg/l in 60 years for copper. The worst case concentration for zinc was predicted to be 170.05 mg/l in 20 years.

The concentrations above were assumed to be concentrations of solute at the unsaturated-saturated zone interface in order to predict worst-case concentrations that will impact the groundwater. Modeling results indicate that lead will exceed its EPA MCL of 15 μ g/l in 205 years, and reach a maximum concentration in groundwater of 2,721 μ g/l in approximately 785 years. Copper will exceed its EPA MCL of 200 μ g/l in 85 years, and reach a maximum concentration in groundwater of 3,190 μ g/l in approximately 175 years. Zinc will exceed its EPA MCL of 300 μ g/l in 65 years, and reach a maximum concentration in groundwater of 1,428 μ g/l in approximately 130 years.

SEAD-17

The results of the model indicate that base case maximum leaching concentration was for zinc, at 8.20 mg/l, which is above its applicable groundwater standard. The second highest maximum concentrations were for lead and copper at 3.60 mg/l and 3.41 mg/l, respectively, which is also above their applicable groundwater standards. The times for these maximum concentrations to occur were predicted to be 120 years for zinc, 170 years for copper, and 785 years for lead. A sensitivity analysis showed that worst case scenario leaching concentrations for zinc, copper, and lead could be as much as 52.01 mg/l in 20 years, 10.07 mg/l in 55 years, and 19.72 mg/l in 145 years, respectively.

The concentrations above were assumed to be concentrations of solute at the unsaturated-saturated zone interface in order to predict worst-case concentrations that will impact the groundwater. Modeling results indicate that lead and zinc will exceed their respective EPA MCLs of 15 μ g/l and 300 μ g/l in 340 years and 50 years. Maximum concentrations in groundwater will reach 274 μ g/l in approximately 785 years for lead and 578 μ g/l in 120 years for zinc. Although cadmium concentrations at the unsaturated-saturated zone interface were only predicted to reach a maximum of 0.59 μ g/l in 20 years (worst case), because of the large

area over which cadmium was detected, it is expected to exceed its groundwater standard of 5 μ g/l 30 years, and to reach a maximum of 14.64 μ g/l in approximately 55 years. The high concentration of copper predicted at the unsaturated-saturated zone interface is not expected to exceed its groundwater standard of 200 μ g/l.

1.5 RISK ASSESSMENT

The objectives of the baseline risk assessment are to: help determine whether additional response actions are necessary at the site, to provide a basis for determining residual chemical levels that are adequately protective of human health and the environment, to provide a basis for comparing potential health impacts of various remedial alternatives, and to evaluate selection of the "No Action" remedial alternative, where appropriate. To meet these objectives, the *Risk Assessment Guidance for Superfund* (RAGS) (USEPA, 1989a) was followed wherever possible and applicable.

The baseline risk assessment is divided into two basic components: the human health evaluation and the ecological risk assessment evaluation. Separate risk calculations are presented for current and future on-site land-use scenarios.

1.5.1 Baseline Human Health Risk Assessment

The current and future intended land use for SEAD-16 and 17 will not change from current land use which is industrial. There are no current plans to use this site for residential purposes. The future intended use of the site was determined by the BRAC process in July 1995.

Human health risk assessments were calculated for four exposure scenarios:

- current on-site worker;
- 2) future on-site worker; and
- future on-site construction worker; and
- future potential trespasser.

SEAD-16

Future on-site industrial and on-site construction workers are the receptors exhibiting a potential for adverse noncarcinogenic health threats above the USEPA target level. As shown on Table 1-1, the RME hazard index of 11.9 calculated for the future industrial worker scenario is due primarily to ingestion of indoor dust. The RME hazard index of 1.74 calculated for the future on-site construction worker scenario is due to both ingestion of outdoor dust and ingestion of on-

site soils. The cancer risks for all receptors and pathways are below USEPA target levels. The highest calculated RME cancer risk is 3.17 x 10⁻⁵ for ingestion of indoor dust by future industrial workers.

SEAD-17

Potential receptors exhibiting the greatest risk for adverse noncarcinogenic health threats are future on-site construction workers. As shown on Table 1-2, the RME hazard index of 0.839 is due primarily to ingestion of on-site soil for future on-site construction workers. This is below the USEPA target level of 1.0. The cancer risks for all receptors and pathways are also below UESPA target levels. The highest calculated RME cancer risk is 1.79 x 10⁻⁶ for ingestion of on-site soils by future industrial workers.

1.5.2 Baseline Ecological Risk Assessment

The ecological risk assessment was performed following the guidance presented in the New York State Division of Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (NYSDEC 1994), the Framework for Ecological Risk Assessment (EPA, 1992f), and the Procedural Guidelines for Ecological Risk Assessment at U.S. Army Sites, Vol. 1 (Wentsel et al., 1994). The results of the ERA indicate that the COPCs identified at SEAD-16 and 17 are considered to pose a negligible risk to the ecosystem surrounding the site.

The SEAD-16 and 17 ERA has included both a qualitative and quantitative assessment of the ecological status of the Unit. Phase I field evaluations included the characterization and description of the local wildlife habitat and ecological conditions within the study area. The conclusions determined from these field efforts indicated a diverse and healthy aquatic and terrestrial environment. No overt acute toxic impacts were evidenced during the field evaluation.

Quantitative sediment and surface water analytical data were compared to USEPA and NYSDEC guidelines for the protection of aquatic and macroinvertebrate life in sediments and surface water. Additionally, as a supplement to specific guidelines, criteria, which are protective of terrestrial wildlife and vegetation in soils, were also considered.

The quantitative ecological risk evaluation, which involved comparisons of the ecological assessment endpoint exposures with the toxicity reference values, initially suggested that a slight possibility exists for the COPCs to present a small potential for environmental effects. In addition, six inorganic elements and two endosulfan compounds at SEAD-16 present a potential for greater exposure to result in environmental effects. However, the effects from these analytes have not been observed during fieldwork, i.e. the ecological community appears diverse and

normal. Furthermore, upon considering the weight of evidence presented in the Ecological Risk Summary section (Sections 6.6.4.3.1 and 7.6.4.3.1 of the RI, Parsons ES, 1997) and the very conservative assumptions used in the ERA, the COPCs identified at SEAD-16 and 17 are considered to pose a low risk to the ecosystem of the SEAD-16 and a negligible risk to the ecosystem of the SEAD-17 study area.

2.0 IDENTIFICATION AND SCREENING OF TECHNOLOGIES

2.1 INTRODUCTION

The purpose of this section is to develop and screen an appropriate range of remedial technologies that will eventually be combined as remedial alternatives and undergo further screening in **Section 3.0**. Technologies were developed following the standard USEPA method of identifying and screening technologies/processes. The approach consists of six steps:

- Develop remedial action objectives that specify media of interest, chemical constituents of concern, and the results of the BRA in Sections 6.0 and 7.0 of the SEAD-16 and 17 RI.
- Develop general response actions for each medium of interest that will satisfy each remedial action objective for the site.
- Estimate quantities of media to which general response actions will be applied to meet remedial action objectives.
- Identify remediation technologies/processes associated with each general response action. Screen and eliminate technologies/processes based on technical implementibility.
- Evaluate technologies/processes and retain processes that are representative of each technology.
- Assemble and further screen the retained technologies/processes into a range of alternatives as appropriate. In Section 5.0 the remaining alternatives are analyzed in detail.

This six-step approach to technology screening and alternatives development is described in the following subsections.

2.2 REMEDIAL ACTION OBJECTIVES

2.2.1 General Remedial Action Objectives

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) clean-up process is a risk based process when considering remedial action. It requires that the overall objective of any remedial response is to reduce the environmental and human health risks of the chemicals present in the various environmental media to within established EPA target ranges. Remedial action objectives are developed to meet this overall objective, and specify media of concern, potential exposure pathways, and remediation goals. These goals establish acceptable exposure levels that are used as a basis for developing remedial alternatives.

The National Contingency Plan (NCP) requires that CERCLA remedial actions comply with applicable or relevant and appropriate requirements (ARARs). ARARs are promulgated standards that are applicable to the process of site clean-up after a remedial action has been chosen for implementation. Chemical specific standards, action specific standards, location specific standards, and federal and state environmental regulations are all examples of potential ARARs. However, there are currently no promulgated state or federal standards that establish soil or sediment quality, which are the media of interest at SEAD-16 and 17 as discussed in the following sections.

In addition, CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, requires that a CERCLA remedial action must:

- Use remedial alternatives that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances;
- Select remedial actions that protect human health and the environment, are cost effective, and involve permanent solutions, alternative solutions and resource recovery technologies to the maximum extent possible;
- Avoid off-site transport and disposal of untreated hazardous substances or contaminated materials where practical technologies exist to treat these materials on-site.

Remedial action objectives for SEAD-16 and 17 have been developed which consist of medium specific objectives designed to be protective of human health and the environment. Where practicable, consideration was given to the NCP preference for permanent solutions. These objectives are:

The remedial action objectives for the SEAD-16 and 17 operable units are as follows:

- Prevent public or other persons from direct contact with adversely impacted soils, sediments, solid waste and surface water that may present a health risk.
- Eliminate or minimize the migration of hazardous constituents from soil to groundwater and downgradient surface water.
- Prevent off-site migration of constituents above levels protective of public health and the environment.
- Restore soil, and sediments to levels that are protective of public health and the environment.

The following sections describe how these general remedial action objectives were determined and the development of remedial actions to attain these objectives. Technologies capable of accomplishing the remedial action objectives have been screened for applicability and are assembled into remedial alternatives in Section 3.0.

2.2.2 Media of Interest

The selection of the media of interest was based upon two general remedial action objectives: those media that contribute the greatest risk and cause an exceedance of an EPA target risk level, and those media that do not comply with ARARs. The remedial investigation has examined all media at SEAD-16 and 17. Discrete samples of the on-site and off-site surface water, the on-site sediment, the on-site soil and the on-site groundwater and Buildings S-311 and 366 at SEAD-16 have been sampled and analyzed using EPA and NYSDEC established analytical techniques. This process has yielded high quality data meeting all established Data Quality Objectives (DQO's) which has been used to determine the need for and extent of remediation.

The media of interest and the locations that may require a remedial action were selected by evaluating the benefits gained by implementing such an action. The benefits of a CERCLA remedial effort is defined by the extent that a proposed action will eliminate or decrease the risk to within acceptable levels. Reasonable decisions are then possible regarding the media and the

extent of specific areas that need to be addressed. In this manner, if the conclusion is reached to perform a remedial action then the volume of material to be treated and the benefits produced by such an action are clear.

Although lead, a heavy metal found in the site soils and sediments at both sites, was not part of the risk analysis, it should be considered. Lead was not considered in the risk assessment because the EPA has withdrawn the allowable Reference Dose (RfD) values for lead. However, based on prior discussion and agreement between the Army and the EPA regarding lead in soils at the OB Grounds at SEDA (Parsons ES, 1997), a negotiated value of 500 mg/kg in soils is considered the EPA guidance value for lead in soils at SEDA. This value is used to evaluate the extent of remediation at SEAD-16 and 17. Similarly, a value of 31 mg/kg for lead in sediments will be used to evaluate remediation of sediments at SEAD-16 and 17. This value is based on the NYSDEC Lower Exposure Limit, which is not a promulgated regulation but a guidance value used for evaluation of SEDA sites as agreed between the Army and the EPA.

Based on the results of the BRA and an evaluation of lead concentrations, surface soil, subsurface soil, and sediment were determined to require Remedial Action Objectives (RAOs) at both sites. In addition, at SEAD-16, the indoor air and surfaces inside the abandoned Buildings S-311 and 366 also require RAOs. **Tables 2-1** summarizes RAOs for SEAD-16, and **Table 2-2** summarizes RAOs for SEAD-17.

2.2.2.1 Soil

In the soil at SEAD-16, metals and SVOCs, predominantly PAH compounds, were found to be pervasive, particularly in the surface and subsurface soils adjacent to the Abandoned Deactivation Furnace. Of the metals that were detected, 14 metals were considered to be more toxic. Lead, copper, arsenic, and zinc were detected in almost all of the surface soil samples at elevated concentrations. On the basis of the surface soil data, the highest concentrations of metals were clearly located in the area between the Abandoned Deactivation Furnace Building (S-311) and the Process Support Building (366). In the subsurface soils, copper and lead were found to be most pervasive. The highest concentrations of PAH compounds in surface soils were detected in samples collected from locations adjacent to the northwestern corner of the Abandoned Deactivation Furnace Building. Nitroaromatic compounds were also present in the surface and subsurface soils near both buildings. Impacts from pesticides, PCBs, and herbicides in soil were less significant than the impacts from SVOCs and metals. This media has therefore been retained as a media of interest.

SEAD-16 AREAS FOR REMEDIATION

					_		
SAMPLING LOCATIONS REMEDIATED OR EXCAVATED ³	FS16-1, FS16-2, FS16-3, FS16- 4, FS16-5, FS16-6, FS16-7, FS16 8, BS-10, BS-11, FS-50	SS16-2 through 5, SS16-8, SS16-11, SS16-14, SS16-16, SS16-19 through 24, SS16-26 through 28, SS16-26 through 28, SS16-30	SS16-35, SB16-1	SS16-2 through 5, SS16-8, SS16- 11, SS16-14, SS16-16, SS16-19 through 24, SS16-26 through 28,	SS16-30, SS16-35, SB16-1, SD/SW16-1 through 10	SS16-2 through 5, SS16-8, SS16- 11, SS16-14, SS16-16, SS16-19 through 24, SS16-26 through 28,	SS16-30, SS16-35, SB16-1, SD/SW16-1 through 10, SB16-2, SB16-5
VOLUME (yd³)	100	<u>675</u>	775	37.1	1,146	97	1,222
DEPTH (in)	NA	ဖ		ဖ		24	
AREA ² (ff²)	26,139	36,452		20,018		1,375	
DESCRIPTION OF AREA TO BE REMEDIATED ¹	Material and Debris Inside Buildings S 311 and 366	Surface Soils on East and Southeast Sides of Building S-311	Cumulative Volume	Sediment in Drainage Ditches on Southeast Corner of S-311	Cumulative Volume	Subsurface soil on Southeast and Northeast Side of Bldg S-311	Cumulative Volume
CLEAN UP GOAL	NA	Pb <500 mg/kg		Pb <31 mg/kg		Pb <500 mg/kg	
BASIS	a) Protection of Future On-Site Workers	a) Protection of Current and Future On-site Workers	b) Protection of Surface Water	a) Protection of Terrestrial and Aquatic Ecology	b) Protection of Surface Water	 a) Protection of Current and Future On-site Workers b) Protection of Ground Water 	
CASE REMEDIAL ACTION OBJECTIVES	Prevent ingestion/direct contact with indoor building surfaces and debris with excess heavy metals	a) Prevent ingestion/direct contact with surface soil having excess heavy Future On-site Workers metals	 b) Prevent surface soil migration to drainage ditches and Kendaia Creek 	Prevent ingestion/direct contact with sediment having excess heavy metals	 b) Prevent sediment migration in surface water 	Prevent ingestion/direct contact with subsurface soil having excess heavy metals	 b) Minimize potential for leaching to groundwater
CASE	L 0 > 0	2	<u></u> 0	m	(/)	4	

1) For Case 4, area to be remediated/excavated includes an additional 24 inches in depth within the areas considered by Case 1 (see Figure 2-1).

2) Areas for case 1 is the total plan areas of Buidings S-311 and 366 and is not necessarily related to volume to be removed; Areas for

Cases 2-4 are surface extent of soils/sediments to be excavated.

3) Bold items in Sampling Location Column are additional locations to be remediated/excavated when the case is considered.

Table 2-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 AREAS FOR REMEDIATION

SAMPLING LOCATIONS REMEDIATED OR EXCAVATED ²	SS17-1, SS17-4 through 9, SS17-12 through 14, SS17-16, SS17-18, SS17-26, SS17-27, SS17-28, SS17-35, SS17-36, SS17-37	SS17-1, SS17-4 through 9, SS17-12 through 14, SS17-16, SS17-18, SS17-26, SS17-27, SS17-28, SS17-35, SS17-36, SS17-37, SD/SW-17-1 through	SS17-1, SS17-4 through 9, SS17-12 through 14, SS17-16, SS17-18, SS17-26, SS17-27, SS17-28, SS17-35, SS17-36, SS17-37, SD/SW-17-1 through 8, SB17-2
DEPTH VOLUME (in)	<u>842</u> 842	923	<u>35</u> 958
DEPTH (in)	9	ဖ	24
AREA (ft²)	45,475	4,350	475
DESCRIPTION OF AREA TO BE REMEDIATED'	Surface Soils North and Northeast of Bldg 367, Southwest Corner and Southeast of Bldg 367 Cumulative Volume	Sediments in Drainage Ditches East and Pb <31 mg/kg Northeast, West and Northwest of Building 367 Cumulative Volume	Sursurface Soils North and Northwest of Building 367 Cumulative Volume
CLEAN UP GOAL	Pb <500 g	Pb <31 mg/kg	Pb <500 mg/kg
BASIS	 a) Protection of Current and Future On-site Workers b) Protection of Surface Water 	 a) Protection of Terrestrial and Aquatic Ecology b) Protection of Surface Water 	a) Protection of Current and Future On-site Workers b) Protection of Ground Water
REMEDIAL ACTION OBJECTIVES	a) Prevent ingestion/direct contact with surface soil having excess heavy metals b) Prevent migration of soil to drainage ditches and Kendaia Creek	vent ingestion/direct it with sediment having s heavy metals vent sediment migration in e water to drainage ditches endaia Creek	 a) Prevent ingestion/direct contact with subsurface soil having excess heavy metals b) Minimize potential for leaching to groundwater
CASE	-	7	m

1) For Case 3, area to be remediated/excavated includes an additional 24 inches in depth within the areas considered by Case 1 (see Figure 2-1).

2) Bold items in Sampling Location Column are additional locations to be remediated/excavated when the case is considered.

In the soil at SEAD-17, metals were found to be pervasive in the surface and subsurface soils.. Twenty-one metals were detected in the surface soils at elevated concentrations, including antimony, arsenic, copper, lead, mercury, and zinc. In the subsurface soils, lead was detected in all samples at elevated concentrations. The metals were generally evenly distributed around Building 367 at SEAD-17, although some of the highest concentrations were located immediately to the southwest of the building. A potential source for some the high concentrations of metals in this area of the site is a discharge pipe, which has an outfall near location SS17-18, that drains the retort inside Building 367. Impacts from VOCs, SVOCs, pesticides, PCBs, herbicides, and nitroaromatics in soil were less significant than the impacts from metals.

A detailed description of soil analytical results can be found in the SEAD-16 and 17 RI (Parsons ES, 1997).

2.2.2.2 Sediment

At SEAD-16, sediment impacts were primarily from SVOCs, metals, and pesticides, which were pervasive. Several pesticide compounds exceeded their respective NYS sediment criteria and by far the most significant exceedences were in the sediment sample, SW/SD16-1, which was collected from the northeastern corner of the Abandoned Deactivation Furnace. Several metals were detected at concentrations above the NYS LEL with the highest concentrations found at SW/SD16-3 and SW/SD16-10. Impacts from nitroaromatics were less significant.

At SEAD-17 sediment impacts were also from SVOCs, pesticides, and metals. Impacts from SVOCs were most significant in the drainage ditch in the northeastern corner of the site. Pesticides were found in the drainage ditches in the western and northeastern portions of the site. Metals impacts were found at SW/SD17-3, which is located in the drainage ditch in the eastern portion of the site. No PCBs or nitroaromatics were detected.

A detailed description of soil analytical results for sediment can be found in the SEAD-16 and 17 RI (Parsons ES, 1997).

2.2.2.3 Groundwater

In the groundwater at SEAD-16 seven metals were detected above the respective NYS Class GA or federal MCL standards. Impacts from SVOCs and nitroaromatics were less significant. No VOCs, pesticides, or PCBs were detected in the groundwater at SEAD-16.

The groundwater at SEAD-17 has not been significantly impacted by any of the chemical constituents. Low concentrations of SVOCs were detected. Two metals, lead and thallium did exceed their Federal EPA MCL values. Additionally, no VOCs, pesticides, PCBs, or nitroaromatics were detected in the groundwater.

A detailed discussion of analytical results for groundwater can be found in the SEAD-16 and 17 RI.

Although lead was detected in groundwater, from a risk standpoint there are no exposure pathways for groundwater that would increase risk for human receptors. In addition, several site factors inhibit the movement of contaminants in groundwater and preclude the likelihood that groundwater could acquire an exposure pathway.

Hydraulic conductivities in both the till/weathered shale and in competent shale are low. Groundwater velocities calculated in Section 3.0 of the RI are between 0.4 and 1.4 feet per day, which is 151-504 feet per year. Groundwater moving at this speed will travel one mile in 10-35 years and the nearest drinking water will is located well outside of a one mile radius around the site.

A similar situation exists for SEAD-17. Hydraulic conductivities are low, and groundwater velocities calculated in Section 3.0 of the RI are between 1.0 and 1.3 feet per day, or 365-475 feet per year. The time to travel one mile is 11-14 years, and any drinking water wells in the area are located well outside a one-mile radius of the site.

Although metals may be subject to movement with soil water and in this way be transported to groundwater, the rate of migration does not equal the rate of water movement due to fixation and adsorption reactions (Dragun, 1988). Metals may become immobilized by mechanisms of adsorption and precipitation, which prevent movement. In the case of lead, which is a primary constituent of concern at SEAD-16 and 17, soluble lead added to soil reacts with clays, phosphates, sulfates, carbonates, hydroxides and organic matter such that its mobility is greatly reduced. Reduced mobility of lead coupled with low hydraulic conductivities, therefore,

extremely limit the likelihood that lead will travel far enough to pose risks to human health or the environment.

In addition, the future land use of SEAD-16 and 17 has been designated for industrial purposes, not as a residential area. From the standpoint of land use, it is unlikely that private wells would be installed in the overburden/weathered shale aquifer at SEAD-16 and 17 for the purpose of extracting groundwater to drink.

Further, even if in the unlikely event that groundwater was to be used as a source of drinking water, it is unlikely that the aquifer could be used for that purpose. For groundwater to be used as a reasonable source of drinking water, requirements for quality and quantity must be satisfied. These requirements are established the NYS Department of Health (NYSDOH) and are detailed in the bulletin titled *Rural Water Supply*, which sets forth the requirements for an individual water supply system. NYSDOH indicates that a private well should be developed from a water bearing formation at a depth greater than 20 feet below the ground surface. In the case of SEAD-16 and 17 a depth greater that 20 feet would be below the overburden/shale aquifer where all groundwater measurements have been obtained from. Water at depths greater than 20 feet would be less available than water in the shallower overburden/shale formation due to the poor hydraulic characteristics of the bedrock. Typical water wells in the area drilled to depths in the bedrock approaching 200 feet or more.

Therefore, groundwater is not a media of interest. However, limiting contaminant sources in soil that may migrate has been considered in the formulation of the remedial action objectives.

2.2.2.4 Surface Water

Generally, surface water impacts at SEAD-16 were from metals, six of which were found at concentrations that exceeded their standards at several locations. The metals included lead, copper, zinc, cadmium, selenium, and iron. Three of these metals (lead, copper and zinc) were also found to be widely distributed in surface soils on-site, and thus, surface soils are a likely source area for the metals found in the surface water samples. SVOCs were found in a few surface water samples, but only one was above the NYS Class C standard. Many of the other chemical constituents analyzed for were not present in the samples. No VOCs, pesticides, PCBs, or nitroaromatics were detected in the samples.

Surface water impacts at SEAD-17 were not widespread and many of the chemical constituents analyzed for were not present in the samples. Most of the impacts from metals occurred in the surface water samples from the drainage ditch south of the Deactivation Furnace. No VOCs, pesticides, PCBs, or nitroaromatics were detected in the samples.

Since the impacts to surface water appear to be caused by contaminants in soils at both sites, protection of surface water is a remedial action objective. However, due to the limited extent of impacts to surface water, it is not retained as a media of interest.

2.2.2.5 Building Materials

In the building material samples collected from the Abandoned Deactivation Furnace Building (S-311) and the Process Support Building (366) at SEAD-16, SVOCs and nitroaromatics were detected at elevated levels. The metals antimony, copper, lead, and zinc were also detected in all 12 of the building material samples at elevated concentrations. The SVOCs found were mostly PAHs, and among these benzo(a)pyrene was found at the highest concentration (1,500 μ g/Kg). The maximum concentration of total carcinogenic PAHs was 54,000 μ g/Kg, which was found in a propellant residue sample (BS-10). The highest concentrations of nitroaromatics were found in the vacuum system recovery vats in Building 366, where 2,4-dinitrotoluene was found at concentrations of 19,000,000 μ g/Kg and 3,700,000 μ g/Kg. Impacts from VOCs, pesticides, PCBs, and herbicides were less significant. Asbestos was detected at 13 locations in the two buildings in such materials as pipe insulation, roofing material, and floor tiles. The surfaces of the buildings are therefore retained as media of interest. A detailed discussion of analytical results for building materials can be found in the SEAD-16 and 17 RI (Parsons ES, 1997).

2.2.2.6 Air

Both ambient air and air inside Building S-311 at SEAD-16 were evaluated as a potential media of interest. Ambient air was discounted as a media of interest for the following reasons. As part of the risk assessment process, the human health impacts due to the inhalation of fugitive dust in ambient air was considered using EPA approved atmospheric dispersion models of the on-site soil material. This evaluation indicated that ingestion of fugitive dust was generally at least of magnitude lower in carcinogenic risk than the most significant risk pathway, which was ingestion of on-site soil. For example, for the current industrial on-site worker at SEAD-16, the carcinogenic risk due to inhalation of dust is 6.94 x 10⁻¹¹, whereas the carcinogenic risk due to ingestion of soil is 1.30 x 10⁻⁶ (see **Table 1-1**). Although non-carcinogenic risk was about the

same and even if this pathway was considered significant, the focus of any risk reduction efforts would be with the on-site surface soils rather than the ambient air.

The indoor air samples form the abandoned Building S-311 at SEAD-16 show similar risk assessment results to ambient air in that ingestion and dermal contact of indoor dust contribute much more significantly to human health risk. In addition, the source of contaminants in indoor air is likely particles and dust from indoor surfaces, which are the focus of risk reduction efforts rather than the indoor air itself. Therefore, indoor air has been discounted as a media of interest.

2.2.3 Potential Exposure Pathways

As described in the BRA in Sections 6.0 and 7.0 of the RI and summarized in Section 1.0 of this report, the risks at SEAD-16 and 17 are primarily due to ingestion of site soils and inhalation of dust from site soils and building debris. Pathways considered for the future trespasser receptor scenario included surface water ingestion and dermal contact, as well as sediment ingestion and dermal contact. However, the risks calculated from these exposure pathyways were well below acceptable levels. There are no exposure pathyways for groundwater. Accordingly, the remedial action objectives focus on site soils and sediments.

2.2.4 Remedial Action Objective Summary and Site Specific Goals

Because the hazard index at SEAD-16 for future industrial and construction workers is above the EPA acceptable level of 1.0, remedial action must be undertaken to reduce human health risk. In addition, lead is present in soils above the action levels previously discuss of 500 mg/kg at both sites. This level is the clean up goal for surface soil and subsurface soils at both sites. In addition, 31 mg/kg is the clean up goal for sediment. Because ingestion and inhalation of dust in Buildings S-311 and 366 at SEAD-16 contribute significantly to risk to future industrial workers, removal of debris from these buildings to decrease hazardous dust particles causing unacceptable risk is warranted. There is no chemical-specific clean up goal for the buildings, however, confirmatory sampling is included in the remedial alternatives to ensure that removal is effective in reducing risk to acceptable levels in the buildings.

Tables 2-1 and 2-2 summarize the remedial action objectives and clean up goals. A detailed discussion of these goals and the resulting degree of risk reduction is presented in Section 2.4.

2.3 RESPONSE ACTIONS

This section presents the general response actions that have been considered applicable at SEAD-16 and 17. These actions will be used to identify specific remedial technologies that would achieve the RAOs described in previous sections.

Based upon the characteristics of the waste and the site conditions determined during the RI, the appropriateness of an action is based upon effectiveness, implementabilty and cost. Appropriate response actions are those actions that involve control of inorganics in soil and sediment. Controlling the inorganics will assure that exposure to humans and ecological receptors are prevented and will accomplish the remedial action goals for soil and sediments. Since groundwater, surface water and air are not media of concern, general response actions for these media other than prevention of further degradation of the quality of these media have not been considered. Unlike actions for organics compounds, response actions for inorganic constituents do not involve breaking down the components via a treatment process to a less innocuous substance. Instead, the actions that are appropriate for metals are those that prevent exposure by isolation, such as within a landfill, or by chemically or physically binding the metals into a stabilized matrix. In some cases, if site conditions are favorable, it is possible to accomplish this in-situ, otherwise some excavation and consolidation of materials from disperse locations will be required prior to isolation or treatment.

The screening process has identified the following general response actions as applicable for site remediation at both SEAD-16 and 17:

- No Action,
- Institutional Control Actions,
- Containment Actions,
- In-situ Treatment Actions,
- Excavation/Removal/Ex-situ Treatment Actions and
- Excavation/Removal/Disposal Actions.

A brief synopsis of the screening process and the reasons for selecting these general response actions is provided.

No Action involves leaving the site in the current conditions and allowing unrestricted use of the property. This action does not involve additional monitoring, security or any measures to minimize the risk to ecological receptors or human health. Since No Action does not involve

any remedial action, there are no remedial technologies or process options that are applicable. This action has been retained for further consideration because it will provide a baseline for comparing the benefits of implementing other actions. This action will not reduce human or ecological risks.

Institutional control actions represent the lowest level of response activity and consists of monitoring, security, physical restrictions such as fencing, and land use restrictions such as deed restrictions. Institutional control actions minimize the possibility of receptor contact with wastes by removing the receptor or modifying the exposure pathway. Since institutional control actions are only applicable to the receptor, they do not involve reductions in the volume, toxicity or control of wastes at the site, and would not reduce risk to ecological receptors.

Unlike many CERCLA sites that are abandoned, SEAD-16 and 17 located within the boundaries of the an active military installation. Consequently, land use is restricted to authorized personnel. Security measures are currently in place that prevent unauthorized use of the site. In addition, there are institutional controls currently in-place that require the Army to disclose the conditions of the site and restrict land use, as appropriate, to meet the risks associated with the future use of the site. These requirements include: CERCLA, 42 United States Code Section 120 (h)(1), as amended by the Community Environmental Response Facilitation Act (CERFA) (Public Law 102-426), which requires that any prospective owner of a site regulated under CERCLA must be notified that hazardous substances were stored and Army Regulation; and AR 200-1, paragraph 12-5, which requires that the Army must perform an Environmental Baseline Study (EBS) prior to the transfer of any Army property and must provide disclosure to the potential owner of all the potential hazards. The EBS follows similar processes required under CERCLA and includes an assessment of the risks associated with the use of the property to be transferred. These regulations are intended to assure that agreements between the Army and prospective property owners have considered the risks associated with future land use. Deed restrictions as part of an agreement for the transfer of property are actions that will allow limited, yet productive, use of the property.

The risk analysis is essential in determining what exposure scenarios are allowable for future land uses. It can be used as a basis for a land use restriction in the property deed or, if the exposure scenario indicates unacceptable risk in one portion of a parcel, then that portion can be restricted for use by limiting access via a physical barrier, security or other means. In general, some form of monitoring will be associated with this action to assure that the conditions remain constant. However, land use restrictions will not reduce ecological risk.

Containment actions are applicable to source control actions by restricting the movement or migrations of waste materials and minimizing potential impacts to receptors. These actions involve placement of a physical barrier that may include both horizontal and vertical barriers to isolate the waste materials. Some consolidation of materials may be required to minimize the area that will require isolation. The range of containment technologies include capping, slurry walls, sheet pilings or horizontal barriers using the block displacement method of grouting. Since these actions do not involve volume or toxicity reductions they will require a monitoring program to assure the integrity of the action.

In-situ treatment actions have been identified as applicable general response actions. This effort generally involves either in-situ mixing the waste with an agent preventing further migration or could include in-situ heating of the waste/soil matrix until vitrification is achieved. In either case, the soil/waste matrix is transformed into a stabilized, non-leaching, mass, without excavation. Vendors with specialized equipment are required to achieve the proper mixing with solidification agents or the high temperatures required to achieve vitrification.

Removal of debris and cleaning of Buildings S-311 and 366 at SEAD-16 are applicable as source control actions to reduce unacceptable risks from indoor dust and air. These actions would involve removal of all excess and unnecessary materials from both buildings. Cleaning procedures range from simple actions such as sweeping or high pressure wash to more complex solutions such as sand blasting or frozen CO₂ decontamination. These actions are evaluated in the next section. Confirmation testing will be required to ensure the effectiveness of the applied action. Removal of debris will be conducted in conjunction with excavation activities.

General response actions that involve excavation followed by treatment using either solidification/stabilization or soil washing techniques was also identified as applicable. These actions involve technologies that treat the waste/soil matrix in a treatment train. This train involves unit operations combined in a manner that produces the desired affect, be it solidification via mixing with an appropriate admixture, volume reduction via soil washing or acid leaching.

Another action that was considered viable for consideration at this facility is excavation followed by disposal in a landfill. The landfill can be either an off-site facility or a facility that will be constructed on-site. Under such an action, waste materials will be excavated, placed in the landfill and monitored. If a landfill facility were to be constructed on-site, a facility siting study will be required to assure compliance with the requirements of 6 NYCRR Part 360.

2.4 ESTIMATE OF QUANTITIES TO BE REMEDIATED

The amount of material that will require a remedial action has been estimated by considering how various volume scenarios, i.e. cases, will meet the remedial action objectives. As part of this effort, Parsons ES has quantified the reduction in risk, for both non-carcinogenic and carcinogenic. The remedial action objectives involve reducing the concentration of the on-site soil and sediment to the clean-up levels in **Tables 2-1 and 2-2**.

The data analysis has been structured to consider a logical progression of adding material to be remediated until the final goal is achieved. This analysis has determined the volume of soil requiring a remedial action as well as the corresponding reductions in risk and lead levels achieved by removing this volume of soil. Additionally, the analysis includes the indoor building area to be remediated and the corresponding reduction in risk. As a consequence to meeting the remedial action objectives that are based primarily on lead, other compounds not specifically identified as part of the remedial action objectives are also reduced. The most significant contributor of carcinogenic risk in soil is the class of semivolatile organic compounds called Polynuclear Aromatic Hydrocarbons (PAH)s. Several of these compounds, identified by EPA as carcinogens, have been detected in the on-site surface soil samples. The presence of these compounds are not unexpected since PAHs are produced as Products of Incomplete Combustion (PIC)s. It is known that the processes performed at SEAD-16 and 17 burning of munitions and therefore it is likely that this process resulted in the formation of these residual burning products. The data is also consistent with the conceptual site model which predicted the occurrence of compounds as predominately a surface phenomenon. In all cases, the samples which contained the highest concentrations of these compounds were collected in the surface soil to the site buildings where the burning occurred.

The most significant contributors to the non-carcinogenic risk in the risk assessment are the metals, such as Ba, Cu and Zn. The risk analysis indicates that the non-carcinogenic risk levels are below the EPA target value of a HI less than 1 for current land use exposure scenarios considered. However, the risk levels are above the EPA target value for future land use scenarios at SEAD-16. An analysis of the effects of remediation on risk reduction is presented in **Tables 2-3 and 2-4**. This analysis provides an indication of the additional reductions in the non-carcinogenic risk produced by each case.

SEAD-16

Four cases have been considered in determining the areas and volume of material that will require remedial attention. Three of these scenarios are based upon a logical progression of

TABLE 2-3a Seneca Army Depot Activity SEAD-16 AND 17 FEASIBILITY STUDY

CALCULATION OF TOTAL NONCARCINOGENIC RISKS REASONABLE MAXIMUM EXPOSURE (RME) SEAD-16 ALTERNATIVE CASES FOR SOIL REMEDIATION RISK ASSESSMENT

	n G	70				HA	HAZARD INDEX	EX				
CASE	EXPOSURE SCENARIO	Inhalation - Dust-Amb Air	Ingestion On-site soil	Dermal On-site soil	Inhalation Dust-Indoor	Ingestion Dust-Indoor	Dermal Dust-Indoor	Ingestion Surf Water	Dermal Surf Water	Ingestion	Dermal	TOTAL HAZARD INDEX
	Current Site Worker	6.9E-02	1.5E-02	8.8E-04	la mon	,	i v d v dore				*	8.4E-02
BASE	Future Industrial Worker	T I	1.5E-02	8.8E-04	5.7E-01	8.7E+00	2.7E+00	19		od In	•	1.2E+01
	Future On-Site Construction Worker	8.6E-01	8.7E-01	1.1E-02				200		ngo ma	ř	1.7E+00
	Future Child Trespasser	4.8E-02	2.0E-01	2.4E-03	1		100 17 (2.9E-02	1.8E-03	3.7E-01	1.5E-02	6.7E-01
	Current Site Worker	6.9E-02	1.5E-02	8.8E-04	31 - 8				Hy M		i i	8.4E-02
~	Future Industrial Worker	1	1.5E-02	8.8E-04	0.0E+00	0.0E+00	0.0E+00		•			1.5E-02
	Future On-Site Construction Worker	8.6E-01	8.7E-01	1.1E-02	700			•		16	Ţ	1.7E+00
	Future Child Trespasser	4.8E-02	2.0E-01	2.4E-03	offin Oren	(y)	i	2.9E-02	1.8E-03	3.7E-01	1.5E-02	6.7E-01
	Current Site Worker	6.9E-02	2.1E-04	0.0E+00	ten mi		n a ai k				TOP	6.9E-02
7	Future Industrial Worker	,	2.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00		•	2		2.1E-04
	Future On-Site Construction Worker	8.6E-01	2.4E-01	0.0E+00				·	que		3	1.1E+00
	Future Child Trespasser	4.8E-02	2.5E-03	0.0E+00	mi n	·		2.9E-02	1.8E-03	3.7E-01	1.5E-02	4.6E-01
	Current Site Worker	6.9E-02	2.1E-04	0.0E+00				,		ï		6.9E-02
ო	Future Industrial Worker		2.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00		·		t	2.1E-04
	Future On-Site Construction Worker	8.6E-01	2.4E-01	0.0E+00				1.7			c	1.1E+00
	Future Child Trespasser	4.8E-02	2.5E-03	0.0E+00				2.9E-02	1.8E-03	0.0E+00	0.0E+00	8.1E-02
	Current Site Worker	6.9E-02	1.6E-04	0.0E+00						1121	,	6.9E-02
4	Future Industrial Worker		1.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00				C)	1.6E-04
	Future On-Site Construction Worker	8.6E-01	1.3E-01	0.0E+00				leu.		•		9.9E-01
	Future Child Trespasser	4.8E-02	1.8E-03	0.0E+00			,	2.9E-02	1.8E-03	0.0E+00	0.0E+00	8.1E-02

Note: Values in boldface exceed the USEPA defined targets

TABLE 2-3b Seneca Army Depot Activity SEAD-16 AND 17 FEASIBILITY STUDY

CALCULATION OF TOTALCARCINOGENIC RISKS REASONABLE MAXIMUM EXPOSURE (RME) SEAD-16 ALTERNATIVE CASES FOR SOIL REMEDIATION RISK ASSESSMENT

						22	CANCER RISK	X				
CASE	EXPOSURE SCENARIO	Inhalation Dust-Amb Air	Ingestion On-site soil	Dermal On-site soil	Inhalation Dust-Indoor	Ingestion Dust-Indoor	Dermal Dust-Indoor	Ingestion Surf Water	Dermal Surf Water	Ingestion	Dermal	TOTAL CANCER RISK
	Current Site Worker	6.9E-11	1.3E-06	6.5E-08		a			•		19	1.4E-06
BASE	Future Industrial Worker	1	1.3E-06	6.5E-08	0.0E+00	3.2E-05	8.0E-06		Ē		ri	4.1E-05
	Future On-Site Construction Worker	3.5E-11	3.1E-06	3.2E-08	•		٠	ĸ			I.	3.1E-06
	Future Child Trespasser	9.7E-12	2.5E-06	3.6E-08	3	1	ì	6.8E-08	4.6E-07	9.0E-07	3.3E-08	4.0E-06
	Current Site Worker	2.3E-11	3.4E-06	1.5E-08	3	ĸ		3.6		r	340	3.4E-06
~	Future Industrial Worker	3 31 1	3.4E-06	1.5E-08	0.0E+00	0.0E+00	0.0E+00	*			ic.	3.4E-06
	Future On-Site Construction Worker	1.1E-11	8.2E-06	7.5E-09	•	•					¥	8.2E-06
	Future Child Trespasser	3.2E-12	7.6E-06	8.4E-09		a		6.8E-08	4.6E-07	9.0E-07	3.3E-08	9.1E-06
	Current Site Worker	2.3E-11	3.4E-06	1.5E-08			,	Ş 1	,	8	31	3.4E-06
7	Future Industrial Worker		3.4E-06	1.5E-08	0.0E+00	0.0E+00	0.0E+00			ě	63	3.4E-06
	Future On-Site Construction Worker	1.1E-11	8.2E-06	7.5E-09	•		•		ž.	•	E	8.2E-06
	Future Child Trespasser	3.2E-12	7.6E-06	8.4E-09	•		•	6.8E-08	4.6E-07	9.0E-07	3.3E-08	9.1E-06
	Current Site Worker	2.3E-11	3.4E-06	1.5E-08		30	34	g"	7	34	,	3.4E-06
က	Future Industrial Worker	,	3.4E-06	1.5E-08	0.0E+00	0.0E+00	0.0E+00					3.4E-06
	Future On-Site Construction Worker	1.1E-11	8.2E-06	7.5E-09	٠				•			8.2E-06
	Future Child Trespasser	3.2E-12	7.6E-06	8.4E-09		×		6.8E-08	4.6E-07	0.0E+00	0.0E+00	8.1E-06
	Current Site Worker	1.8E-11	3.7E-06	1.5E-08		a			a		3	3.7E-06
4	Future Industrial Worker	٠	3.7E-06	1.5E-08	0.0E+00	0.0E+00	0.0E+00		K	,	e	3.7E-06
	Future On-Site Construction Worker	8.9E-12	8.9E-06	7.6E-09		*		Y		i	×	8.9E-06
	Future Child Trespasser	2.5E-12	8.3E-06	8.4E-09	i.		ì	6.8E-08	4.6E-07	0.0E+00	0.0E+00	8.8E-06

Note: Values in boldface exceed the USEPA defined targets

TABLE 2-4a Seneca Army Depot Activity

CALCULATION OF TOTAL NONCARCINOGENIC RISKS REASONABLE MAXIMUM EXPOSURE (RME) SEAD-17 ALTERNATIVE CASES FOR SOIL REMEDIATION RISK ASSESSMENT

					HAZARD INDEX) INDEX			
CASE	EXPOSURE SCENARIO	Inhalation Dust-Amb Air	Ingestion On-site soil	Dermal On-site soil	Ingestion Surf Water	Dermal Surf Water	Ingestion Sediment	Dermal Sediment	TOTAL HAZARD INDEX
	Current Site Worker	7.1E-04	5.5E-03	1.2E-02		1	1/	,	1.8E-02
BASE	Future Industrial Worker	8.9E-03	2.2E-02	4.8E-02	30)	910		3	7.9E-02
	Future On-Site Construction Worker	8.9E-03	5.2E-01	4.3E-03					5.3E-01
	Future Child Trespasser	5.0E-04	7.7E-02	3.4E-02	1.0E-02	8.9E-06	9.6E-02	4.8E-03	2.2E-01
	Current Site Worker	5.2E-04	3.7E-03	3.1E-03	1	31		,	7.4E-03
1	Future Industrial Worker	6.5E-03	1.5E-02	1.2E-02		.10	1	,	3.4E-02
	Future On-Site Construction Worker	6.5E-03	2.8E-01	0.0E+00	1	ı	í	į	2.8E-01
	Future Child Trespasser	3.7E-04	5.2E-02	8.7E-03	1.0E-02	8.9E-06	9.6E-02	4.8E-03	1.7E-01
	Current Site Worker	5.2E-04	3.7E-03	3.1E-03	Ľ		ı	NP)	7.4E-03
2	Future Industrial Worker	6.5E-03	1.5E-02	1.2E-02	(00)	•		212	3.4E-02
	Future On-Site Construction Worker	6.5E-03	2.8E-01	0.0E+00			•	1	2.8E-01
	Future Child Trespasser	3.7E-04	5.2E-02	8.7E-03	1.0E-02	8.9E-06	0.0E+00	0.0E+00	7.2E-02
	Current Site Worker	5.2E-04	3.9E-03	3.1E-03	ı	i	ť	T.	7.5E-03
က	Future Industrial Worker	6.5E-03	1.6E-02	1.2E-02		•0	100	10	3.4E-02
	Future On-Site Construction Worker	6.5E-03	2.8E-01	0.0E+00	•	•	3	•	2.9E-01
	Future Child Trespasser	3.7E-04	5.4E-02	8.6E-03	1.0E-02	8.9E-06	0.0E+00	0.0E+00	7.4E-02

TABLE 2-4b Seneca Army Depot Activity

CALCULATION OF TOTAL CARCINOGENIC RISKS REASONABLE MAXIMUM EXPOSURE (RME) SEAD-17 ALTERNATIVE CASES FOR SOIL REMEDIATION RISK ASSESSMENT

	Harries of the second s	orga.			CANCE	CANCER RISK		L-S	
CASE	EXPOSURE SCENARIO	Inhalation Dust-Amb Air	Ingestion On-site soil	Dermal On-site soil	Ingestion Surf Water	Dermal Surf Water	Ingestion Sediment	Dermal Sediment	TOTAL CANCER RISK
BASE	Current Site Worker Future Industrial Worker Future On-Site Construction Worker	3.2E-08 4.0E-07 1.6E-08	4.5E-07 1.8E-06 1.1E-06	1.6E-08 6.6E-08 1.2E-08				day de	5.0E-07 2.3E-06 1.1E-06
	Future Child Trespasser	4.5E-09	1.3E-06	9.1E-09	7.3E-08	2.3E-09	5.6E-07	0.0E+00	1.9E-06
	Current Site Worker	2.0E-08	4.5E-07	2.0E-08	T _e		ine) Higgs		4.9E-07
~	Future Industrial Worker	2.6E-07	1.8E-06	8.2E-08	1		•	1	2.1E-06
	Future On-Site Construction Worker	1.0E-08	1.1E-06	1.0E-08	£				1.1E-06
	Future Child Trespasser	2.9E-09	1.3E-06	1.1E-08	7.3E-08	2.3E-09	5.6E-07	0.0E+00	1.9E-06
	Current Site Worker	2.0E-08	4.5E-07	2.0E-08		. 1			4.9E-07
2	Future Industrial Worker	2.6E-07	1.8E-06	8.2E-08	i i	ä		7	2.1E-06
	Future On-Site Construction Worker	1.0E-08	1.1E-06	1.0E-08	L	•			1.1E-06
	Future Child Trespasser	2.9E-09	1.3E-06	1.1E-08	7.3E-08	2.3E-09	0.0E+00	0.0E+00	1.3E-06
	Current Site Worker	2.0E-08	4.5E-07	2.1E-08	orud 1944 1941	io a ACA MEI	SOT Page No.	la l	4.9E-07
က	Future Industrial Worker	2.5E-07	1.8E-06	8.3E-08	k		nie	E /	2.2E-06
	Future On-Site Construction Worker	1.0E-08	1.1E-06	1.0E-08	1		•	1	1.1E-06
	Future Child Trespasser	2.9E-09	1.3E-06	1.2E-08	7.3E-08	2.3E-09	0.0E+00	0.0E+00	1.4E-06
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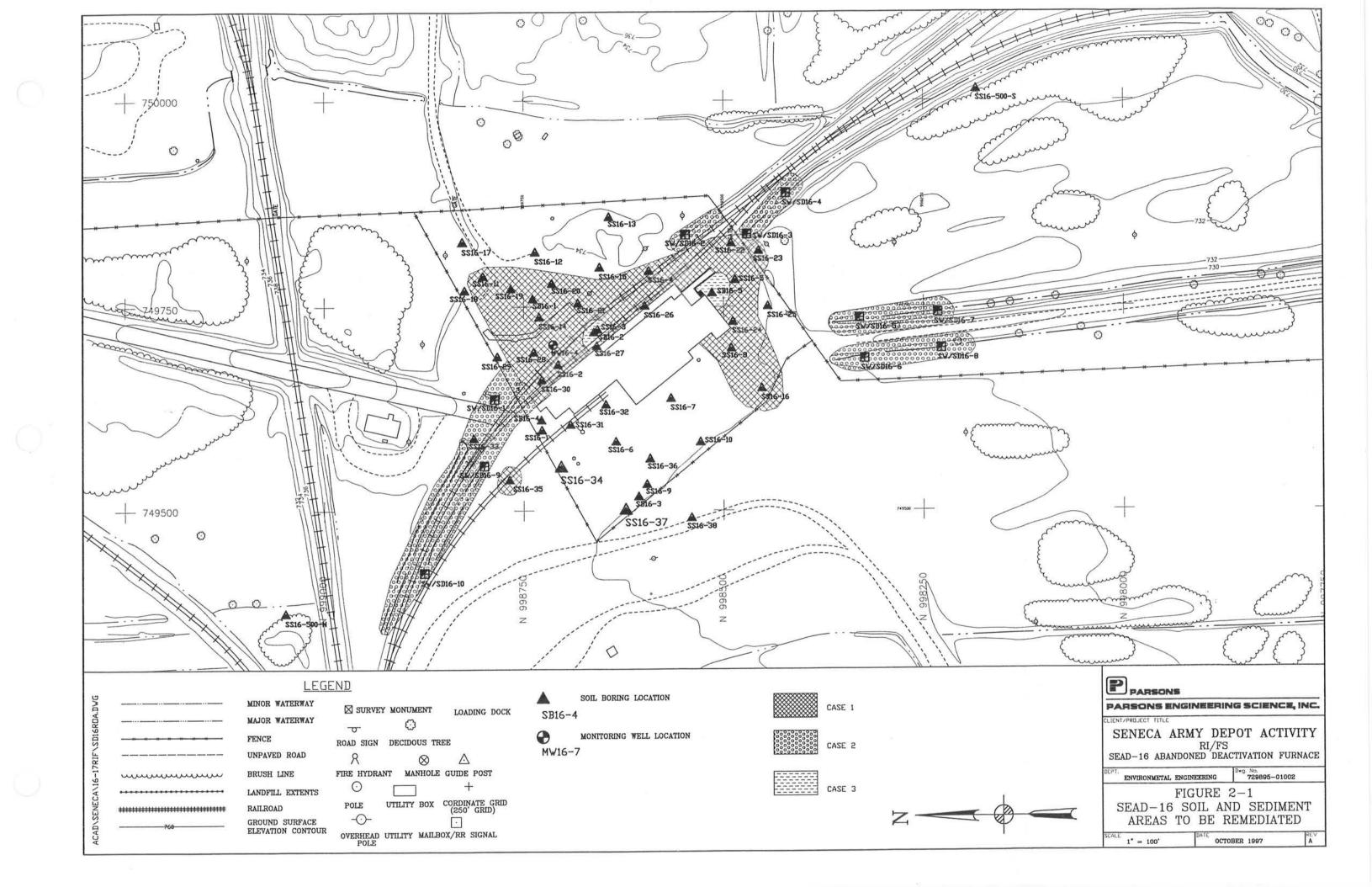
increasing soil volumes and are provided on **Table 2-1** and shown in **Figure 2-1**. The first case is only relevant to Buildings S-311 and 366 and does not consider soils. Cases 2 through 4 add soil remediation scenarios. As shown in **Table 2-9**, as the building debris and soil volumes associated with the various remedial strategies depicted as Cases 1 through Case 4 are removed. The non-carcinogenic and carcinogenic risks are reduced. As shown on **Table 2-3A**, all cases must be carried out to reduce the non-carcinogenic risk to acceptable levels.

Case 1 includes contaminated building materials and debris from abandoned Buildings S-311 and 266 at SEAD-16. The contaminated materials in the buildings are identified in the RI include soil piles and soil/sludge covering concrete floors, shell casings, filter drums, ash residues in the furnace area, and miscellaneous construction debris. The volume of material to be removed is estimated to be approximately 100 CY based on visual inspections during field investigations. It is assumed that when the contaminated materials and debris are removed from the buildings, the hazardous components in dust and indoor air will also be removed. Confirmation sampling inside the buildings will confirm this assumption. The resulting decrease in risk to future industrial workers from Case 1 is shown on **Table 2-3**.

Case 2 includes surface soil volume, which have lead concentrations greater than 500 mg/kg. The location of these areas are shown on **Figure 2-1** and described on **Table 2-1**. The volume removed is approximately 675 CY of soil. Removal of Case 2 soils will result in a maximum lead concentration of 460 mg/kg for on-site soils, which is below the clean up goal of 500 mg/kg for human health protection.

Case 3 includes the soil volume from Cases 2 and building remediation from Case 1, plus sediments which have lead concentrations above 31 mg/kg. The areas are shown on Figure 2-1 and are described in Table 2-1. The sediments will be removed to a depth of 6" in the drainage swales where the samples were collected to 50 feet downgradient as well as sediments upgradient that come from SEAD-16. The cumulative total volume to be remediated for Case 3 is approximately 1,153 CY of material. The maximum lead concentration for on-site soils remains at 44 mg/kg. Table 2-3 indicates the decrease in non-carcinogenic and carcinogenic risk.

Case 4 adds subsurface soils with lead concentrations above 500 mg/kg to the Cases 2 and 3 soil volumes and the building remediation from Case 1. The areas are depicted on **Figure 2-1** and are described in **Table 2-1**. The cumulative total volume to be remediated for Case 4 is approximately 1,262 CY of material. The maximum lead concentration is decreased to 21.4



mg/kg. In addition, the concentrations of the metals barium, copper, and zinc are reduced. The decrease in non-carcinogenic and carcinogenic risk is presented on **Table 2-3**.

SEAD-17

Three cases have been considered in determining the areas and volume of material that will require remedial attention. These scenarios are based upon a logical progression of increasing soil volumes and are provided on **Table 2-2** and shown in **Figure 2-2**. The impacts of Cases 1 to 3 upon the carcinogenic and non-carcinogenic risk values are presented in **Table 2-4**.

Case 1 includes surface soil volume, which have lead concentrations greater than 500 mg/kg. The location of these areas are shown on **Figure 2-2** and described on **Table 2-2**. The total cumulative volume removed is approximately 842 CY of soil. Removal of Case 1 soils will result in a maximum lead concentration of 460 mg/kg for on-site soils, which is below the clean up goal of 500 mg/kg for human health protection.

Case 2 includes the soil volume from Cases 1 and 2 plus sediments which have lead concentrations above 31 mg/kg. The areas are shown on **Figure 2-2** and are described in **Table 2-2**. The sediments will be removed to a depth of 6" in the drainage swales where the samples were collected to 50 feet downgradient as well as sediments upgradient that come from SEAD-16. The cumulative total volume to be remediated for Case 3 is approximately 1,379 CY of material. The maximum lead concentration for on-site soils remains at 44 mg/kg. **Table 2-4** indicates the decrease in non-carcinogenic and carcinogenic risk.

Case 3 adds subsurface soils with lead concentrations above 500 mg/kg to the Cases 1 and 2 soil volumes. The areas are depicted on **Figure 2-2** and are described in **Table 2-2**. The cumulative total volume to be remediated for Case 4 is approximately 1,434 CY of material. The maximum lead concentration is decreased to 21.4 mg/kg. In addition, the concentrations of the metals barium, copper, and zinc were reduced. The decrease in non-carcinogenic and carcinogenic risk is presented on **Table 2-4**.

2.5 IDENTIFICATION AND SCREENING OF TECHNOLOGIES

This section describes identification and initial screening of technologies. Detailed screening of alternatives is discussed in Section 3.0.

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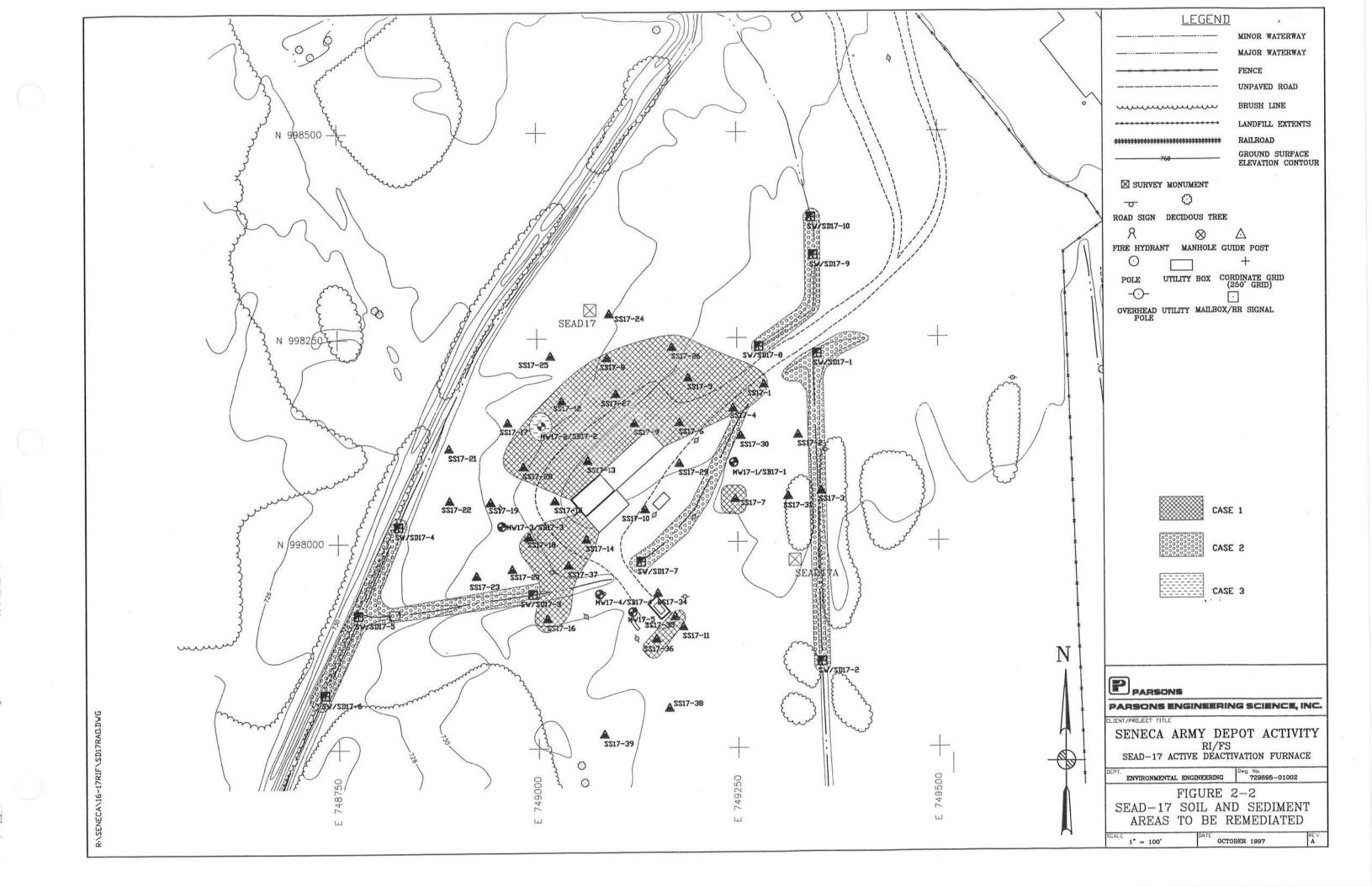
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2.5.1 <u>Identification of Technologies</u>

Remedial action technologies and processes have been identified for consideration as possible remediation options for clean-up of soil and sediment at SEAD-16 and 17. The list of technologies and processes presented was developed from several sources as follows:

- Standard engineering handbooks,
- Remediation equipment and service vendors,
- · Engineering experience in remedial actions,
- EPA references including but not limited to :
 - "Technology Screening Guide for Treatment of CERCLA Soils and Sludges" (EPA 1988),
 - "Handbook on In Situ Treatment of Hazardous Waste Contaminated Soils" (EPA 1990),
 - "Handbook for Stabilization/Solidification of Hazardous Waste (EPA 1986),
 - "Handbook on Remediation of Contaminated Sediments" (EPA 1991a),
 - "The Superfund Innovative Technology Evaluation (SITE) Program" (EPA 1992a) and
 - "Vendor Information System for Innovative Treatment Technologies (VISITT)" (EPA 1993)
 - "Alternative Treatment Technology Information Center (ATTIC) Database"

Table 2-5 presents remedial action technologies arranged according to categories for general response actions for remediation of soil/sediment. The process operations and a description of the technology is also presented. The decision to retain a technology is summarized in the screening comments portion of the table. Those technologies that have been shaded have been removed from consideration, however, each technology is briefly described in the following section.

2.5.2 Screening of Technologies

Technology screening considers only the technical implementability of a process. Technical implementability involves an evaluation of the waste characteristics that would limit the effectiveness or feasibility of technology, and the site characteristics, such as the depth of the water table, that would preclude the use of a technology.

Screening was based on the following criteria:

SEAD-16 AND SEAD-17 TECHNOLOGY SCREENING

GENERAL RESPONSE ACTION	REMEDIAL TECHNOLOGY	PROCESS OPERATIONS	DESCRIPTION	SCREENING COMMENTS
No Action	None	Not Applicable	No Action	Applicable, since required as baseline response for comparison to other technologies. Will not meet the RAOs for lead in soil or sediment. Not protective of human health or ecology. Will not reduce risk to acceptable levels.
Institutional	Access Control	Fencing	Access to SEAD-16 and 17 is restricted by construction of a permanent, low-maintenance fence. Warning signs posted.	Applicable. Technically feasible and effective in reducing or eliminating human exposure. Will not reduce potential for migration unless used in conjunction with other technologies.
	Land Use Restrictions	Deed Modifications	Deed for property modified to restrict future sales and land use, or U.S. Government holds deed in perpetuity	Not Applicable. BRAC Process defined future land use as industrial. Will not meet RAOs for reducing potential for migration or restrict human or ecological exposure.
	Monitoring	Soil and Groundwater Monitoring	Periodic soil or groundwater sampling. Documents the extent that affected media have been impacted by constituents.	Applicable. Technically feasible but not effective in reducing or eliminating human or ecological exposure unless used in conjunction with other actions.
	Alternative Water Supply	City water line or bottled water	Extend city supply line to area or provide bottled water.	Not applicable since no drinking water wells are affected
Containment	Capping	Soil Cap	Consolidate, level, and contour as necessary. Place one to four feet of clean fill, grade and seed	Not Applicable, technically feasible for site conditions but clay or synthetic cap is preferred for reliability, long term integrity
		Clay Cap	Add six inch to one foot clay layer beneath soil cap.	Applicable, technically feasible for site conditions. Meets RAOs for preventing ingestion of site soils by human receptors.
	raj is No viene	Synthetic Membrane Cap	Substitute a synthetic membrane material such as High Density Polyethylene (HDPE) or similar material for the clay.	Applicable, technically feasible for site conditions. Meets RAOs for preventing ingestion of site soils by human receptors.

SEAD-16 AND SEAD-17 TECHNOLOGY SCREENING

GENERAL RESPONSE ACTION	REMEDIAL TECHNOLOGY	PROCESS OPERATIONS	DESCRIPTION	SCREENING COMMENTS
Containment (cont.)	Capping (cont.)	Asphalt Cap	Highway-grade base and asphalt pavement over entire site area.	Not applicable. Not as reliable as clay or soil cap, high maintenance.
	Horizontal Barriers	Grout Injection	Pressure injection of grout into closely spaced boreholes.	Not applicable. Technically infeasible due to the thin layer of soils above the bedrock surface.
		Block Displacement	Low permeability soils pumped as a slurry through injection holes under low pressure.	Not applicable. Technically infeasible due to the thin layer of soils above the bedrock surface.
	Vertical Barriers	Sheet Pife	Steel barrier wall driven into soil in sections using a drop-hammer or vibrating hammer.	Not applicable. Technically feasible but not effective due to high leakage rates through the sheet piles. Impracticle, area of concern too small to justify sheet piles.
		Sharry Wall	Trench around affected area and fill trench with cement/bentonite or soil/bentonite slurry.	Not applicable. Impractical, area of concern too small to justify slurry wall.
		Grouf Curtain	Pressure injection of grout in a regular pattern of drill holes.	Not applicable. Technically feasible but not for reducing human to surface soils. Typically used if other treatment alternatives cannot be used.
In-Situ Treatment	Solidification/ Stabilization	Grout/Portland Cement or Other Admixtures	Grout/cement/additive mixed, in-situ, with soil/sediment, under pressure, using auger type mechanism.	Applicable. Technically feasible and effective in controlling migration of contaminants of concern. Meets RAOs for preventing ingestions by human receptors.
		Virrification	Electrodes placed in ground and electrical energy applied to electrodes. Soil vitrified to form molten glass that cools to a stable non-crystalline solid.	Not applicable. Technically infeasible due to the nature of the thin layers of on-site soil. Innovative technology with some successful applications but not widely used.

SEAD-16 AND SEAD-17 TECHNOLOGY SCREENING

SCREENING COMMENTS	Not Applicable. Technically unfeasible due to the high water content of site sediments. Most applications have involved specialized industrial wastes or nuclear wastes, not soils/sediments. Not practical for small volume of soil and sediment.	Not applicable. Technically infeasible since the soil to be treated is above the groundwater table.	Not applicable. Technically infeasible in low permeable soils. Not effective in removing morganics from soil or sediments. Treatment is more effective and controllable ex-situ. Requires wastewater treatment plant and/or solvent recovery process.	Not applicable. Technically infeasible or effective in removing inorganics from soil or sediment.	Not applicable. Technically infeasible and not effective in removing inorganies from soil or sediment. Degree of removal depends on solubility of constituents; morganies are not soluble. Unproven technology.	Not applicable. Technically feasible but not effective in removing inorganics from soil or sediment.	Not applicable. Technically feasible but not effective in removing inorganics from soil or sediment.
DESCRIPTION	A compatible, dried waste is dispersed within a matrix of hot asphalt, polypropylene or polyethylene, then sill extruded into a mold to form an encapsulated asphaltic wor plastic mass.	lonic metal species migrate in the saturated soil system N through the influence of a charged electrical field.	Constituents are extracted using solvent (polar or n non ef polar). Solvent treated and re-introduced into soil.	Landtreatment utilizing in-situ microbial population to degrade constituents. Bioventing involves introduction of air under low flow to create aerobic conditions.	Area is planted with coniferous and deciduous trees in that uptake constituents through root systems and se incorporate them into wood mass.	Apply negative pressure to vadose zone well system and treat soil vapor off-gas (via carbon filter, biofilter, catalytic incinerator, chemical oxidation or plasma reactor).	Apply radio frequency to soil, extract soil vapor and treat
PROCESS OPERATIONS	Micro-encapsulation	Electrokinetics	Soil Flushing	Biodegradation/ Bioventing	Vegetative Uptake	Vacuum Extraction	Radiowave Enhanced Volatilization
REMEDIAL TECHNOLOGY	Solidification/ Stabilization (cont.)	Electrical Extraction	Chemical Extraction	Biological Removal/Extraction		Vapor Removal/Extraction	
GENERAL RESPONSE ACTION	In-Situ Treatment (cont.)						

SEAD-16 AND SEAD-17 TECHNOLOGY SCREENING

	SCREENING COMMENTS	Applicable. Technically feasible and effective. To be used in conjunction with other response actions. Meets RAOs for restricting human exposure once soil/sediment is removed.	Not applicable. Technically unfeasible and ineffective for site conditions. Used for relatively large quantitites of material that have high moisture content or where wet processing is to follow.	Not applicable. Technically infeasible and ineffective for site conditions. Not applicable to heavy metals and will not acheive RAOs for reducing exposure to lead by human receptors.	Not applicable. Technically unfeasible and ineffective for site conditions. Not applicable to heavy metals and will not acheive RAOs for reducing exposure to lead by human receptors.	Applicable. Technically feasible when used in conjunction with excavation. Effective in meeting RAOs for human exposure, and for controlling migration of soil contaminants.	Applicable. Technically feasible when used in conjunction with excavation. Effective in meeting RAOs for human exposure, controlling migration of soil contaminants. Similar to pozzolon/portland cement stabilization.	Not applicable. Technically infeasible due to the high water content of site sediments. Most applications have involved specialized industrial wastes or nuclear wastes, not soils/sediments.
	DESCRIPTION	Track or tire-mounted equipment such as an excavator or front-end loader as appropriate to physically remove soils, sediment, and building materials/debris.	Mix soil/sediment and water using propeller mixers and water jets. Pump slurry to receiving tank	Microbes cultivated to degrade constituents under aerobic conditions. Includes composting and farming	Microbes cultivated to degrade constituents under anaerobic conditions, typically an in-vessel process.	Pozzolon/cement mixed with soil/sediment using auger type mechanism, which bind metals into a monolithic, non-leaching matrix.	Pozzolon/lime/flyash mixed with soil/sediment using auger type mechanism, which bind metals into a monolithic, non-leaching matrix.	A compatible, dried waste is dispersed within a matrix of hot asphalt, polypropylene or polyethylene, then extruded into a mold to form an encapsulated asphaltic or plastic mass.
	PROCESS OPERATIONS	Soil, Sediment and Buildling Materials/Debris Removed using Heavy Equipment	Mix Soil or Sediment as a Slurry and Remove using Pumps	Aerobic	Anaerobic	Pozzolon/portland cement	Pozzolon/lime/flyash	Micro-encapsulation
	REMEDIAL TECHNOLOGY	Mechanical Excavation	Slurrying	Biological		Stabilization/ Solidification		
The state of the s	GENERAL RESPONSE ACTION	Removal		Ex-Situ Treatment				

SEAD-16 AND SEAD-17 TECHNOLOGY SCREENING

SCREENING COMMENTS	Not appacable. Technically feasible but not effective for soils. Used to improve handling characteristics of a waste by binding with water. Most applicable for use with sludges with a high oil or water content.	Applicable. Technically feasible and effective when used in conjunction with excavation. Volume reductions acheived. Coarse materials and large fragments separated from fines. Metals consolidated in the fines fraction. Metals reductions can be achieved via extraction to meet RAOs. Used primarily in mining industry. Innovative technology: treatibility study required. Vendors are available that have acheived some success.	Not applicable. Technically feasible but ineffective for removal of lead	Not applicable. Technically feasible but ineffective for inorganics. Technology is normally used for organics.	Not applicable. Technically infeasible and ineffective for meeting RAOs Used primarily for destruction of organics compounds and not applicable to heavy metals.
DESCRIPTION	Dry, mert, solid such as flyash or kiln dust is mixed with waste to produce a solidified mass.	Mix soil/sediment with water and wet-classify soil particle by size and density. Includes dry screening (grizzly, vibratory, trommel), attrition scrub, hydrocyclones, flotation, water treatment/recycle. Constituents can be extracted using dilute acids or surfactant solutions. Rinsewater is treated to remove metals and recycled. Metals can be recovered using electrochemical processes such as the Bureau of Mines' sluosilicic acid system leaching process.	Soils subject to magnetic field to remove ferrous metals.	Soils are converted to an inert slag in a molten metal bath. Involves heating in a specialized furnace smelting reactor. Reactors include electric arc, fluid bed, molten salt, cement kiln and plasma arc.	Soil mixed with water and excess air under supercritical pressure and temperature.
PROCESS OPERATIONS	Sorption	Soil Washing (Wet Separation and Extraction using Aqueous Solution)	Magnetic Classification	High Temperature Transformations	Wet Air Oxidation
REMEDIAL TECHNOLOGY		Physical Separation/ Aqueous Extraction		Thermal Oxidation/ Vitrification	Other Oxidation Technologies
GENERAL RESPONSE ACTION	Ex-Situ Treatment (cont.)				

SEAD-16 AND SEAD-17 TECHNOLOGY SCREENING

RESPONSE ACTION Ex-Situ (cont.) Disposal	REMEDIAL TECHNOLOGY Chemical Extraction On-Site	PROCESS OPERATIONS Soil Extraction using Supercritical Fluids Supercritical Fluids Non-Hazardous Waste Landfill RCKA Hazardous Waste Landfill	Constituents extracteed in countercurrent process using carbon dioxide, propane or other highly volatile solvent under supercritical temperature, pressure conditions. Solvent is separated from extracted constituents (flashed or distilled) and recycled. Reuse of treated soil that meet the RAOs as backfill in excavated areas. Soil, treated to remove the RCRA characteristics of toxicity, is disposed of in an on-site Subtitle D landfill, permitted to accept industrial solid waste in accordance with the requirements of 6 NYCCR Part 360. A listed hazardous waste, treated to meet the requirements of LDRs, is disposed of in an on-site Subtitle C landfill, permitted to accept hazardous waste in accordance with the requirements of LDRs, is disposed of in an on-site Subtitle C landfill, permitted to accept hazardous waste in accordance with the requirements of 6 NYCCR Part 373.	Not applicable. Unfeasible and ineffective for meeting RAOs for lead. Used primarily for destruction of organics compounds and not applicable to heavy metals. Applicable. Technically feasible and effective when used in conjunction with excavation and ex-situ treatment. Treated soil must demonstrate compliance with RAOs prior to backfilling. Applicable. Technically feasible and effective when used in conjunction with excavation or an appropriate treatment option. Must comply with EPA Land Disposal Restrictions (LDR), Subtitle D and 6 NYCCR Part 360 requirements. Not applicable, since no waste is a listed hazardous waste, therefore the soil does not need to be disposed of in a permitted RCRA, Subtitle C landfill in accordance with the requirements of 6 NYCCR Part 373.
	Off-Site	Non-Hazardous Waste Landfill	Soil, treated to remove the RCKA characteristics of toxicity, is disposed of in an on-site Subtitle D landfill, permitted to accept industrial solid waste in accordance with the requirements of 6 NYCCR Part 360.	Applicable. I echnically leasible and effective when used in conjunction with excavation or an appropriate treatment option. Must comply with EPA Land Disposal Restrictions (LDR), Subtitle D and 6 NYCCR Part 360 requirements.
		RCRA Hazardous Waste Landfill	A listed hazardous waste, treated to meet the requirements of LDRs, is disposed of in an on-site Subtitle C landfill, permitted to accept hazardous waste in accordance with the requirements of 6 NYCCR Part 373.	Not applicable, since no waste is a listed hazardous waste, therefore the soil does not need to be disposed of in a permitted RCRA. Subtitle C landfill in accordance with the requirements of 6 NYCCR Part 373

- The technology must be reliable, based either on successful implementation at other hazardous waste sites or in comparable bench- or lab-scale applications.
- The technology must be technically applicable to site conditions and waste characteristics at SEAD-16 and SEAD-17.

General response actions, technology types, and process options that did not meet all of the foregoing criteria were excluded from further consideration.

For SEAD-16 and 17 the following remedial technologies were retained for further evaluation:

- No Action
- Containment
- Solidification/Stabilization
- Excavation/Disposal
- Soil Washing

The following sections summarize all the technologies considered and the rationale for retaining or screening out each response.

2.5.2.1 No Action

The No Action response will result in leaving waste on-site and the soil source areas intact. This remedial action will not meet the RAOs for the site however, this alternative provides a baseline against which other alternatives can be compared. Access and direct contact with soil and sediment will continue. A No Action response for the soil allows for the continued release of suspended and dissolved materials into surface water. Since surface water and groundwater are not significantly impacted by contaminated materials, the No Action response is appropriate for these media, particularly since the site groundwater is not used as a drinking water source. However, protection against future impacts to these resources is also appropriate. This response does not address the potential future releases of materials to groundwater or surface water.

2.5.2.2 Institutional Control Technologies

Institutional control technologies that have been considered include:

- Access Controls, such as fencing,
- Land use restrictions, such as modifications to the deed,
- Monitoring of soil and/or groundwater or

Alternative water supply.

Institutional control technologies are only applicable to the receptor and do not involve reductions in the volume, toxicity or control of wastes at the site and do not meet the RAOs. Physical barriers that restrict access to the site are feasible and effective in preventing humans from becoming exposed to on-site impacts. However, since there is a potential for contaminants to migrate off-site via surface water and sediment loading, this technology has been retained but incorporated for use with other responses. Further, wildlife, such as migrating birds, will still have access to the site and will not be protected.

Land use restrictions, such as deed modifications, are also feasible and effective in restricting exposure to humans, particularly due to residential development. However, as with access controls, deed modifications do not protect the ecological community nor is the groundwater protected. In addition, the BRAC process has already designated SEAD-16 and 17 for industrial uses, therefore deed restrictions are not applicable. As a result, this technology has been eliminated from further consideration.

Providing an alternative water supply to affected populations is also technically feasible and effective when implemented but in this instance this technology is unnecessary since the on-site groundwater is not a source of potable water. This technology was considered for competeness, since off-site residences adjacent to SEAD-16 and SEAD-17 do obtain water from private wells. However, there is no concern regarding the impacts to the off-site wells.

Some technologies by themselves such as access control will not meet the RAOs for the site, however, these technologies may be appropriate as part of other alternatives. Monitoring is another example of such a technology that will not meet the RAOs but can be used in conjunction with almost any other technology to form a viable alternative, and therefore monitoring has been retained.

2.5.2.3 Containment Technologies

Containment technologies entail securing existing soil source areas and include: capping, horizontal barriers and vertical barriers. Caps are shells that cover buried waste materials to prevent their contact with the land surface and groundwater. Caps can be impermeable to restrict mixing of infiltration with buried waste, eliminating leachate generation. Vertical barriers, such as slurry walls, are used to surround the waste to limit flow to or from the waste horizontally. Horizontal barriers, such as block displacement, are installed below the waste to stop flow vertically through the waste. On-site technologies, such as containment, pose less of a risk to on-

site workers than technologies requiring excavation because there is less opportunity for the spread of the constituents of concern and exposure.

Long-term maintenance of any containment technology will be necessary to ensure its effectiveness. For example, capping technologies include surface water run-on/runoff controls, cap inspection and repair, and collection and treatment of any gases. This response is aimed at preventing exposure to soils via direct contact and precluding migration of by dust generation, surface runoff, and leaching. It does not totally prevent migration into underlying groundwater, but it does reduce this migration because of the decrease in precipitation infiltration or flow through of groundwater. This response is generally preferred when removal of source areas are not advisable or feasible. Containment does not satisfy the preference for permanent solutions and alternative treatment technologies as set forth in SARA.

Capping

Capping is a feasible technology that involves placing a barrier over the impacted soils. The area considered for capping would likely be the total site area at either SEAD-16 or SEAD-17, since it would be impractical to cap only the localized areas that are of interest. However, consolidation of some disperse areas would be advantageous by minimizing the size and area to be capped. This option would likely require regrading of the site for proper runoff/run-on control. Clean fill borrow materials would be required in order to achieve the proper grade for capping and provide a cushion for the placement of the cap. The regraded and borrow materials would also be compacted to obtain the proper density, thereby avoiding irregularities in the cap due to uneven settlement. Sediments from the drainage swales would likely be removed and consolidated under the capped area.

Three types of caps were considered in this evaluation. These include caps comprised of:

- Soil,
- · Clay and,
- Synthetic Membranes,

A soil cap would involve covering the previously prepared and graded areas to be remediated with soil of sufficient thickness and quality in order to promote a grass cover. The cap would control the exposure from inhalation of soil dust, prevent runoff of impacted particles and prevent exposure to humans and ecological receptors due to ingestion of metals in soil. However, the use of the cap alone would not be effective in reducing potential leaching to groundwater, although the cap would prevent infiltration.

The second option for capping would involve placing an impermeable cap below a soil cover. The impermeable material could be either clay, a bentonite admixture or a synthetic material such as High Density Polyethylene (HDPE). Caps that include the use of synthetics are referred to as multimedia caps since they involve combining the use of natural soil materials, such as sand and loam, for use as base materials, drainage layers and protective covers with impermeable synthetic membranes. Slope stability is a factor that must be considered when planning a cap, especially if membranes are being considered. This is due to the low friction factors that occur between the natural soils and the membrane surface. However, recent developments in the manufacturing of membranes have allowed vendors to provide membranes that have rough membrane surfaces, allowing for the use of membranes on steeper slopes. Impermeable caps are preferred over a soil cap because impermeable caps more effective in eliminating infiltration of precipitation. As a result, the soil cap option was eliminated from consideration. However, the remaining two caps, clay and synthetic membranes, were retained for combination as alternatives.

Vertical Barriers

Vertical barriers involve preventing interaction between groundwater and buried wastes by placing surrounding the waste materials with an impermeable vertical wall. Three process operations for vertical walls were considered and include:

- Steel Sheet Pilings,
- Slurry Walls and
- Grout Curtains.

Steel sheet piling are commonly used in construction projects to support a soil slope during excavation. The steel sheets are typically driven into the subsurface using specialized heavy equipment. The steel sheets are interlocking allowing for a continuous barrier around an area. At the proper depth the soil within the steel sheeted area is excavated. For excavations below the water table, pumps are required to remove any infiltrating groundwater as the interlocking sheets are not water-tight joints.

Slurry walls involves installing a trench filled with low permeable materials, such as cement and bentonite, below the water table and around the area to be isolated. Like steel sheet piling, slurry walls are commonly used in construction projects to provide lateral support during deep excavations but unlike sheet piling, slurry walls can be constructed in such a way that the wall

provides an impermeable seal against the inflow of water. The installation of the wall involves specialized equipment that involves proper mixing and injection of the slurry as the soil is removed and is normally "keyed" into an impermeable soil or bedrock zone. Leakage occurs due to flow through these zones into the isolated areas. Slurry walls can be used to capture of contain the groundwater that has mixed with buried wastes and prevent continued mixing with clean groundwater, providing the bottom of the wall is anchored in an impermeable zone.

Soil-bentonite walls are composed of soil materials mixed with bentonite and generally provides a lower permeability and compatibility to a wider range of wastes that other containment barrier types. Although soil-bentonite slurry wall construction requires a large work area for mixing and is restricted to relatively flat topography, the OB Grounds is amenable to these stipulations.

Cement-bentonite slurry walls are constructed in a manner similar to soil-bentonite slurry walls, except portland cement is mixed with the bentonite instead of soil. These walls are adaptable to more extreme topography and do not require an extensive mixing work area. Cement-bentonite walls provide more structural strength than soil-bentonite wall, however, they are typically more permeable and less chemical resistant.

Grouting is the practice of injecting, under pressure, a fluid, such as cement, cement-bentonite or a chemical grout, into soil or rock to decrease the soil/rock permeability and/or strengthen the formation. Grout curtains have been used in the construction industry for several decades, but their application to source isolation form groundwater has not been practiced as frequently as slurry walls. An inherent drawback of grouting is the indefinite extent and integrity of the final grout curtain that is created.

Vertical barriers involve preventing interaction between groundwater and buried wastes by placing surrounding the waste materials with an impermeable vertical wall. Three process operations for vertical walls were considered and include:

- Steel Sheet Pilings,
- · Slurry Walls and
- Grout Curtains.

Of the three vertical technologies considered, none were retained for combination as a remedial alternative since vertical barriers will not meet RAOs for protecting human health and the environment from lead in surface soils.

Horizontal Barriers

In instances where it is not feasible to install a barrier such as a liner prior to placing the wastes requiring isolation it is possible to install a horizontal barrier in-situ under the wastes. This is usually required due to unacceptable leakage and mixing of groundwater with buried wastes and is most applicable where unweathered bedrock or some other impermeable strata are not sufficiently near the surface for a vertical barrier to sufficiently isolate and contain the waste. Horizontal barriers involve injecting impermeable materials below the buried materials. Two process operations were considered. These include:

- Grout Injection and
- Block Displacement.

Grout injection techniques involve pressure injecting cement, cement-bentonite or a chemical grout into soil or rock to strengthen and decrease the permeability of the formation. The grout is forced into the void spaces of the soil, forming a solidified zone of soil and grout in the area of injection. Through a sufficient number of overlapping injection points, an impermeable seal is created below the waste materials. This process works best if the grout is injected through permeable formations such as sands that will allow the grout to cover a larger area. Excessive injection pressures are required for dense strata, such as glacial till, that are not particularly permeable. Once injected over an area, the grout would act as a bottom seal preventing interactions between the waste that would be buried below the water table and groundwater.

This technique involves placing a barrier around the sides as well as underneath the contaminated ground and vertically displacing the enclosed earth mass or block. The barrier is formed by pumping slurry into a series of notched injection holes. Continued pumping of the slurry under low pressures produces a large uplift force against the bottom of the block an results in vertical displacement proportional to the volume of the slurry pumped. This technique has not been used in full-scale application but has been demonstrated on a small scale. During the demonstrations, problems were encountered with maintaining adequate injection hole pressures and with perimeter separation (drill, notch and blast) technique. The technology is best suited to a site where a natural impermeable bottom barrier does not exist sufficiently near the surface for a vertical perimeter barrier to act alone as an isolation technique.

Horizontal barrier techniques were eliminated from further consideration since unweathered bedrock is sufficiently near to the surface that the bedrock would act as a horizontal barrier if combined with a vertical barrier to prevent mixing of groundwater with buried waste. In addition, the soil layers at SEAD-16 and SEAD-17 are thin and injection of grout would produce breakout of the grout along the thin soil zone. This would prevent the injected grout from forming a continuous barrier over the entire area.

2.5.2.4 In-Situ Treatment Technologies

The in-situ treatment technologies involve control of soil source areas to be treated in-place. Insitu treatment immobilizes, separates, degrades, detoxifies, or destroys contaminants without the added cost of excavation, materials handling or treatment equipment. In-situ treatment is advantageous as it does not involve construction of a treatment facility and limits the exposure of treatment operators to contaminated soils. Treatment of soils in-place is most appropriate when the nature and extent of the source areas are well defined, the sources are homogeneous, the surrounding hydrogeology is well defined, and soil permeability's are suitable for in-situ Treatment process operations generally entails soil modification via either the injection of air, water, or chemical reagents into the soil or application of an electric current causing either vitrification or migration of metal ions. In-situ treatments are classified generally as innovative or advanced technologies. This means they require more pilot testing prior to design and implementation, and more monitoring during implementation compared to The primary difficulties associated with in-situ treatment conventional technologies. applications are the inability to control the environment under which the process occurs; the inability to ensure contact between treatment reagents (i.e., heat, microorganisms, air, water, or chemical contaminants in the source areas); the difficulty of maintaining effectiveness with depth; and the possibility that toxic byproducts may be released. However, in-situ treatment applications are potentially preferable over on-site or off-site treatment because waste excavation and corresponding site restoration activities are not required, and minimal disruption of hazardous constituents occurs.

The following in-situ treatment technologies were considered as potential remedial alternatives:

- Solidification Technologies
 - Cement-based Immobilization/Fixation
- Vitrification,
- Electrical Extraction Technology
 - Electrokinetics,
- Chemical Extraction Technology
 - Soil Flushing,
- Biological Extraction Technologies
 - Bioventing/Biostimulation,

- Vegetative Uptake,
- Vapor Extraction Technologies
 - Vacuum Extraction and
 - · Radiowave Enhanced Volatilization.

The applicability of each in-situ technology to this site is discussed below:

Solidification/Stabilization

Solidification is similar to process of installing vertical barriers except that the intent is to convert an area into a monolithic mass of soil and cementous material. The operation involves pressure injecting an appropriate cement-based admixture while soil is turned using large augers. This process is repeated until the area of interest has been completely mixed. As the soil/cement cure, the waste materials are incorporated into the cement matrix and prevented from further leaching or from exposure to receptors. Soil above and below the water table can be mixed in this manner. Limitations as to the depth of efficient mixing is a function of the type and power of equipment used. Large rocks/cobbles and dense soil conditions can provide difficulty in turning the soil due to binding of the augers and the large power requirements. To achieve successful mixing involves the use of large, highly specialized equipment capable of providing sufficient torque to turn the soil at depth. As the augers mix the soil, cement is injected through the center of the auger and into the subsurface through ports, located at the auger tip. This ensures adequate mixing of the cement and the soil. This technique was demonstrated by IWT Corp. and Geo-Con, Inc. at a Superfund site in Hialeah Florida in 1989 as part of the SITE program. IWT Corp developed the solidifying/stabilization agent and Geo-Con, Inc. provided the waste mixing technology. The operation successfully produced a stable, high strength, cementous mass in the soil that was shown to be low permeability and non-leaching for metals and PCBs. A similar process would be technically feasible at either SEAD-16 or SEAD-17. In this instance, the pads and berms would be mixed with the cementous admixture using augers until the appropriate level of treatment was achieved.

In-situ vitrification (ISV) involves applying a large voltage, as much as 4,160 V, between molybdenum or graphite electrodes installed and arranged in a grid pattern, usually square, into the soil. A conductive mixture of flaked graphite and glass frit is placed in an X pattern among the electrodes in 5 cm deep trenches to initiate electrical conductance. The application of the large voltage cause a current to develop in the soil matrix. As a result, the soil is heated due to the electrical resistance that occurs between the electrodes. As the soil melts the soil becomes electrically conductive causing the melting process to perpetuate down the soil column. During the soil temperature rise, soil moisture is boiled away and organic matter is destroyed, until

temperatures of approximately 2000°F are reached. At these high temperatures, the soil begins to melt, essentially becoming a glass-like mass. As the vitrified melt is allowed to cool, the mass becomes solidified, entombing the waste materials. Due to the large amount of off-gassing that occurs in this process, many of which are toxic, a cover is typically placed over the soil as it is heated to collect and treat the gases. The process is considered innovative and has been identified as an appropriate technology for application at radioactive waste sites. Full scale, widespread, operation of this technology has not been performed, probably due to the excessive power requirements that this technology requires, although pilot testing has been conducted. Geosafe Corp. successfully demonstrated this process at a site in Region V.

Electrokinetics involves converting the saturated soil to an electrochemical cell through the application of sufficient voltage to the soil electrodes. Electrodes, one an anode and the other a cathode, are installed into the soil that allow an electric current to flow in the soil. Once sufficient voltage is applied, the soil is essentially transformed into an electrochemical cell. As in any cell, dissolved soil anions and cations migrate to the appropriate electrode. Metallic cations migrate to the negatively charged electrode, the anode, where the metals are removed as the cations plate out.

Electrokinetics is possible but is only capable of removing dissolved metals in the saturated soil. Since much of the metals at the site are located above the water table as solid particles, this technology was screened out from further consideration.

Soil Flushing

Soil flushing involves the in-situ application of water, hot water/steam, solvents, either polar or non-polar, acids or surfactants to buried waste materials with the intent of solubilizing the constituents of concern into the groundwater. This technology is typically used for extracting organic compounds from soils when excavation is not possible. The solubilizing agent along with the pollutants are then recovered from the groundwater using extraction wells. When possible, the solvent or surfactant is then separated and recovered for recycling back into the soil in order to extract additional waste material. The use of solvents to solubilize pollutants is of concern as this process has the potential to increase the pollutant loading to groundwater, if the solubilized materials are not completely recovered. In addition, as residual concentrations of this agent will permeate the subsurface, the extracting agent should be as non-toxic as possible. This restricts the number and types of flushing agents and limits the effectiveness of soil flushing process.

While this technology has promise at heavily contaminated sites where excavation is impractical it was eliminated from further consideration for application at SEAD-16 and 17 since this technology is most appropriate for use with sites impacts with organic compounds. The constituents of concern at SEAD-16 and 17 are inorganic compounds, lead in particular, and it is unlikely that any useable soil flushing agent would be successful at extracting the metals of interest. Further, the thin soil thicknesses and the low permeability of the groundwater suggests that the collection of the extracted materials would be slow and inefficient.

Bioventing Removal/Extraction

Bioventing/Biostimulation involves adding air (oxygen) to the subsurface in order to stimulate the natural microbiological community to degrade the waste materials. The air is typically added, under pressure, through properly spaced and screened injection wells. The wells are constructed so that air is added a rate greater than what is lost due to consumption by the microorganisms and movement beyond the area of remediation. The soil microorganisms are abundant in the subsurface, many species are of the type known to degrade organic molecules, such as hydrocarbons. With maintenance of proper conditions in the subsurface, it has been shown that these organisms will effectively degrade pollutants.

Bioventing/Biostimulation is not effective for inorganic components and therefore has been eliminated from further consideration.

Recent development regarding the extraction of metals via the vegetative uptake of plants has shown promise. Studies suggest that metals and in some instances organics can be removed through the transfer of these materials into the root system of selected plants. This technology is experimental and unreliable.

Extraction of metals via the vegetative uptake of plants is experimental and unreliable. The conditions of the pads and berms at the site would not promote vegetative growth and this technology was screened from further consideration.

Vapor Removal/Extraction

Vacuum or vapor extraction is one of the most widely applied in-situ technologies at hazardous waste sites. Several vendors are available that have successfully applied this technology. It is most applicable for recovery of volatile organics in soil. The process involves application of a vacuum to the subsurface through a well screened in the unsaturated zone. The applied vacuum is transferred to the soil pores causing increased volatilization of organics and the movement of

air to the extraction well as a result of pressure differences. A continuous air stream laden with extracted organics are removed and treated, if necessary, prior to discharge. This process continues until the soil is free of the target compounds. The technology is cost effective to apply with the cost of a blower being the only major component of the extraction system. Treatment of the off-gas can range from thermal oxidizers, if the gas concentrations are sufficiently high, to carbon adsorption, if the concentrations are low.

Vacuum or vapor extraction was screened from further consideration since the constituents of concern at this site are inorganics, making this technology ineffective.

Radiowave enhanced volatilization is a variation of vacuum extraction and involves the application of radiowaves directly to the subsurface causing the soil temperatures to rise. As the temperature of the soil increases, the vapor pressures of constituents in the soil also increase. This allows compounds that normally would not have been removed, to be removed from the soil. This technology is considered innovative and experimental with only limited pilot scale applications. It is most appropriate for sites where excavation is impractical and semi-volatile organic compounds are the constituents of concern.

Radiowave enhanced volatilization is considered innovative and experimental with only limited pilot scale applications. It is most appropriate for sites where excavation is impractical and semi-volatile organic compounds are the constituents of concern. Since lead, an inorganic compound with a boiling point of 1300°F, this technology would not be effective in removing lead from soil and was screened out from further consideration.

2.5.2.5 Removal Technologies

Soil and Sediment

Complete or partial removal of source soils and sediments are an integral component of many remedial alternatives. This can be accomplished using standard mechanical excavation technologies or could involve methods that slurry the soil and then remove the slurry using slurry pumps. Typical heavy equipment such as backhoes, excavators, front-end loaders, scrapers, bulldozers and draglines are commonly used for the mechanical excavation of soil. For soil/sediment that is highly organic and contains a high water content, the soil/sediment is removed using a pump.

Since the soil at SEAD-16 and 17 can be easily removed using standard mechanical excavation techniques, only this technology was retained for further consideration. Excavation using slurry techniques was screened out of further consideration since it would not be as practical.

Building Materials at SEAD-16

Removal at SEAD-16 includes collection of debris and other materials from abandoned Buildings S-311 and 366.

Techniques exist for cleaning and removing contaminants from concrete surfaces, such as sand blasting, high pressure washing, concrete decontamination using microwaves, soda blasting, electro-hydaulic scabbling, electrokinetic decontamination, and dry ice pellet decontamination. However, these blasting and washing processes are complex and can be costly, and some may produce waste that must be treated before disposal and may increase the potential for migration of contaminants to outside the buildings. Because the samples collected inside the building were limited to debris and floors, the application of washing and blasting techniques is not warranted. Consequently, only removal of excess material and debris, including sweeping out dust and dirt, is retained as a remedial response, and is included with soils excavation when determining the volume of materials to be removed at SEAD-16.

2.5.2.6 Ex-situ Treatment Technologies

Ex-situ treatment technologies involves addressing source areas with aboveground process unit operations within the site boundaries or could involve transporting soil to an off-site facility for treatment. It will require removal, storage and consolidation of source material.

On-site treatment in aboveground reactors entails the construction of a temporary treatment facility. This facility can be one that is fixed, requiring the assembly of modular treatment units brought to the site on trailer trucks (which can be disassembled and moved off-site upon completion of treatment), or the use of mobile treatment trailers temporarily parked on-site. Fixed facilities are costly and difficult to build and become obsolete once treatment is complete unless wastes from other sites can be shipped on-site for treatment. The current trend is toward temporary on-site treatment units, mobile, modular, or transportable, that can be removed and transported to another site for reuse.

Several treatment processes are available in mobile or modular units. This type of treatment will generally require laboratory of pilot studies using site-specific source material to determine level of performance and optimal process operating parameters. The more complex a process and the

more variable the waste composition and volume, the greater the possibility of operational upsets and delays. Because of the variability of physical and chemical characteristics of the waste at the SEAD-16 and 17, the most desirable treatment schemes will be those that are simpler, less susceptible to shock loading, able to operate in batch processing modes, and capable of handling a wide range of chemical and physical constituents.

On-site treatment also will entail further responses to handle treatment of residuals, byproducts, or sidestreams. The residuals must be disposed of, although some may be nonhazardous and the volume may be only a fraction of the initial waste volume.

On-site treatment of soil source material (ex-situ) has several advantages over in-situ treatment. On-site treatment allows for the treatment of contaminated material in aboveground reactors where the process environment can be easily monitored and controlled to provide greater reliability and effectiveness for any given treatment scheme. The state-of-the-art technology for aboveground technologies are generally considered to be more advanced than it is for in-situ treatments. Processes used for sanitary, industrial, or nuclear wastes can be more easily adapted for aboveground treatment. Where excavation and handling of source material is not feasible or appropriate (i.e., where risk of exposure during handling exceeds risk associated with other alternatives), on-site treatment may not be preferred.

On-site treatment of soils is preferred over off-site treatment when the volume of soils to be transported off-site is large, incurring expensive transportation fees that outweigh the benefits of off-site treatment. In addition, off-site hazardous waste treatment, storage and disposal facilities may not have the capacity to accept all the CERCLA waste if the volume is too large. However, at SEAD-16 and 17, the volume of soil to be treated is relatively small, so that the benefits of transporting the waste off-site may outweigh the cost (Specific costs are discussed in **Sections 3.0** and **5.0**). However, for small volumes, on-site mobile treatment units are likely to have the volumetric capacity to treat the amount of contaminated soil at SEAD-16 and 17 in a timely manner, which would eliminate the need for off-site transport of hazardous soil.

On-site treatment of soil source material is preferable over containment or on-site disposal responses because it can provide a permanent solution to the contamination problem. However, it would not be preferable when: (a) removal is inappropriate based on screening criteria, (b) available treatments increase the volume of the material to be handled to unacceptable levels, (c) available treatments result in other environmental releases (such as air emissions) when these releases result in greater risk than other response, or (d) no suitable treatment method is available.

Off-site treatment allows source area material to be removed completely from the site and treated at a full-scale fixed facility. Off-site treatment requires excavation, consolidation, and off-site transportation of source material. It entails identification of RCRA-permitted hazardous waste treatment, storage, and disposal (TSD) facilities with the capability and capacity to treat material removed from source areas. Off-site handling of source materials would require permits for transportation and disposal. This response eliminates both continued releases on-site and direct contact with source material by on-site receptors. However, given that handling of source materials occurs for this response, the potential for releases, worker exposure, or off-site exposure is possible.

Off-site treatment could be adopted for SEAD-16 and 17 by one of three approaches: (1) all contaminated source material found at the site would be transported off-site for treatment, (2) only the waste and source material that is not treatable by a selected on-site treatment technology would be transported off-site, or (3) only waste and source materials subject to the land ban would be transported off-site for treatment. The selected off-site TSD facility must be capable of treating wastes containing metals and semi-volatile organic compounds. Pretreatment may be required before shipping material off-site. This may include dewatering or removing any hazardous waste characteristics such as toxicity.

The following ex-situ treatment technology types and process options were determined to be applicable at SEAD-16 and 17 based on the screening criteria:

- Biological Technologies
 - Aerobic
 - Anaerobic
- Stabilization/Solidification Technologies
 - Pozzolan-portland cement
 - Pozzolan-lime-fly ash
 - Micro-encapsulation
 - Sorption
- Physical Separation Technologies
 - Soil Washing
 - Magnetic Classification
- Thermal Oxidation/Vitrification Technologies

- High Temperature Processes
- Other Oxidation Technologies
 - Wet Air Oxidation

Biological Technologies

Ex-situ biological treatment of soil involves degradation of contaminants that are entrained in the soil pores through the actions of microorganisms. Land treatment has been successfully utilized by the petroleum industry for many years as a cost effective way of stabilizing oily wastes produced during the refining process. Land treatment facilities are normally found in areas, near the refineries, that have large tracts of available land and are in climates that have temperatures favorable for stimulating biological growth. The above ground biological treatment methods vary and include: landfarming (land treatment), slurry bioreactors, digestors and composting. The process involves providing the proper ratio of pH, nutrients, oxygen (if aerobic conditions are required) and temperature to stimulate the natural microorganisms to utilize the organic contaminants as a source of cellular energy. Several microorganisms have been identified that can utilize petroleum hydrocarbons and other hydrocarbons as sources of energy. In addition to maintaining control of previously mentioned factors, a key factor in achieving a successful clean-up using this technology is to assure that toxic concentrations of contaminants and/or byproducts are not produced to hamper the growth rates of the microorganisms. In additional it is important to provide adequate contact between the microorganisms and the contaminants. For recalcitrant hydrocarbons, such as the Polynuclear Aromatic Hydrocarbons (PAHs), slurry bioreators have been utilized to improve the contact between microorganisms and waste materials.

Ex-situ biological treatment of soil has been screened out since it is effective for soils that have been impacted with organic constituents and would not meet the objectives for reducing the concentration of lead in soil. Biological treatment would have little if any effect on the soils at SEAD-16 and 17 that are impacted with lead.

Solidification/Stabilization

Solidification refers to techniques that encapsulate waste materials in a solid matrix that is resistant to weathering due to its structural integrity. Stabilization involves technologies that convert constituents to a less soluble or less toxic form. In general, the technology is a combination of both processes and is usually referred to as solidification/stabilization (S/S). On a microscale, constituents such as metals in an ionic form and water, are either chemically bonded to the solidification materials or are converted into an insoluble form, such as a metal hydroxide,

within the solid matrix. Particulates or solids are encapsulated in the solid matrix and prevented from migration or exposure to receptors. The most common agents that are used for S/S are cement, lime, pozzolans (siliceous) materials and fly ash. These materials are combined in various ratios to produce the most stable and non-leaching monolithic mass.

Any material or process that causes incomplete mixing or prevents the S/S matrix from forming a uniform slurry prior to properly curing will interfere with the success of the treatment effectiveness. Large materials are normally screened out prior to the mixing process to assure a uniform mixture. Materials that have a high moisture content, such as sediments, have a high oil content or are coated with oil can also contribute to ineffectiveness and poor performance of S/S during prove-out testing. The technology is not typically used for treatment of oily waste although some vendors claim the their proprietary solidification agents will treat such wastes up to 10%. Extremely dry wastes can also contribute to poor mixing and uniformity in the formation of the S/S slurry by causing lumps.

The S/S technology using a mixture of pozzolan/cement/lime/fly ash has been identified by EPA as effective and is feasible for treatment of the soils at SEAD-16 and 17. The EPA policy regarding the use of this technology indicates that it is appropriate for materials that contain inorganics and non-volatile organics. With the wide range of solidifying agents available, this technology usually requires the performance of a site-specific treatability study to determine the most effective solidifying agent and the optimal ratio of waste to admixture. Since the constituents of concern at the site are inorganics with some amounts of semi-volatile organics, such as PAHs, present, this technology meets the requirements for application at this site and was retained for further consideration.

Microencapsulation involves encapsulating a particle within a thermoplastic matrix of asphalt, polyethylene or polypropylene. This technique requires heating the plastic and mixing the waste as the plastic is extruded and cooled. The final mass incorporates the waste in a matrix that is inert to normal weathering and structurally stable.

Microencapsulation has been used primarily in the nuclear industry to encapsulate radioactive sludge's and is not considered feasible at either SEAD-16 or SEAD-17 due to the non-uniform nature of the soils and sediments that will require treatment.

Sorption is a technique that involves mixing semi-solid sludges with a dry solid adsorbent to improve the solids handling characteristics of the sludge. The sorbent material may interact chemically with the waste or may simply be wetted by the liquid, usually water or oil, as part of the waste, retaining the liquid within the matrix of the solid.

Sorption is most appropriate for use with semi-solid sludges and was eliminated from consideration a part of a remedial alternative since there are no sludges requiring treatment.

Physical Separation/Aqueous Extraction

Physical separation technologies include soil washing and magnetic classification. Soil washing involves physically separating the various fraction of soil using a series of unit operations such as grizzly bars, trommel screens, flotation units, flocculation tanks and clarifiers. The process removes contaminants from soils by either dissolving or suspending them in the wash solution or by concentrating the pollutants into a smaller volume through a series of particle size separation steps. In some instances, the washing fluid, which is normally water, can be supplemented with an aqueous surfactant for improved separation. The key concept associated with soil washing is to reduce the volume of soil that will require treatment allowing for the washed soil to be returned to the site as clean backfill. This process takes advantage of the fact that, in most instances, pollutants tend to distribute into the fine fraction of soil. The wash water is typically recycled back to the washing process once it has been treated.

Magnetic classification of soils is another volume reduction process that involves the use of electromagnets to separate magnetic materials such as iron from non-magnetic materials. This is a common process used in many recycling facilities.

Soil washing is considered to be effective and feasible remedial technology for both sites and has been retained for incorporation as a remedial alternative. Magnetic classification of soils would not be effective since most of the constituents of concern are non-magnetic.

Thermal Oxidation/Vitrification

Thermal oxidation/vitrification technologies involve heating soils/sludges in a high temperature reactor causing the solid fraction of the waste to become incorporated into either a molten metal bath or a slag. The technology has several variations depending upon the equipment and the vendor. The conditions within the bath are reducing and involve addition of hydrogen gas. Under these conditions, soils, that are comprised mostly of alumina and silica, partition into a slag phase above the molten bath and are removed as a vitrified mass when allowed to cool. The slag, now a vitrified mass is essentially an inert, non-leaching solid that can be placed into a landfill or returned to the site for disposal. Volatile metals in the waste feed, such as lead, are vaporized, oxidized in a secondary combustion chamber and recovered as a dust in a collection

system. Several vendors are available to provide this treatment including Horsehead Resource Development Company, Inc., Molten Metals and ECO Logic Inc.

Thermal oxidation/vitrification technologies are feasible, providing a vendor can be found to accept this material at an off-site location and have been retained for future consideration as part of a remedial alternative.

Chemical Extraction

Chemical extraction of soils can be accomplished using materials, such as carbon dioxide or propane, that are normally gases at ambient temperatures and pressures. However, when these gases are pressurized to a liquefied state they have the capability to efficiently extract oil and other organic wastes. The process involves mixing a liquefied solvent with the solid waste material, extracting the contaminants, separating the solids from the liquefied solvent and releasing the pressure causing the liquefied solvent to vaporize back to a gas, leaving an oil. The oil is then treated further or disposed of in accordance with all pertinent regulations. Vendors, such as CF Systems, Inc. and The Institute of Gas Technology have systems that are available to provide this treatment.

Chemical extraction of soils can also involve mixing an appropriate non-aqueous chemical solvent with soil/sediments in order to remove contaminants by solubilizing the contaminants, separating the solvent from the soil/sediments and recycling the solvent. There are a variety of solvents available that can be used to extract materials and the choice of solvent is largely dependent upon the type of contaminant that is the focus of the extraction. Several vendors can provide this treatment technology with each vendor focusing on a specific extraction agent. Some of the more widely known solvents include: triethly amine (TEA), liquefied propane or liquefied carbon dioxide. The solvent TEA is used for the Basic Extraction Sludge Treatment (BEST), developed by Resources Conservation Company. In this process, soils/sludges are mixed with TEA at low temperatures. The essential feature of this technology is that it takes advantage of the large changes in the solubility of TEA and water and temperature. temperatures less than 18°C TEA is completely miscible with oil and water. When mixed with oily soils or sludge's at or below this temperature, TEA is able to remove, by dissolution, any oily materials and the contaminants associated with the oil. The TEA/water/oil mixture is centrifuged or filtered to separate the extracted soil/sludges from the extracting fluid. The recovered solids are then dried to remove any residual TEA, which is then recovered any recycled back for continued extraction. The extracting liquid, containing TEA/oil/water, is then heated causing the TEA to become insoluble with water producing a two-phased system. The top phase contains the TEA/oil phase and is decanted off, distilled to separate and recycle the

volatile solvent TEA, leaving the extracted oil. The oil is either treated further of disposed of as a hazardous waste, recycled as a recyclable spent oil. The bottom portion of the heated liquid that was not decanted is primarily water is also distilled to remove any residual TEA and discharged.

Chemical extraction of soils are effective for extracting organics or oily waste materials but are not effective for removing inorganic constituents. Since the RAO for this project is inorganics, i.e. lead, and the soil and sediments at either SEAD-16 or SEAD-17 are not impacted with oily waste, this technology was not considered effective and was screened out.

2.5.2.7 Disposal

On-Site

SARA states that treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances, pollutants, and contaminants is to be preferred over remedial actions not involving treatment. On-site disposal will not address this preference unless used in an alternative that also included a technology that will reduce volume, toxicity, or mobility. On-site disposal, therefore, includes an assumption that such a treatment technology has been applied. Treated material is backfilled as clean. Therefore, the use of on-site disposal is not precluded by the preference set forth in SARA to reduce volume, mobility or toxicity. On-site disposal of clean fill has been retained as a response to be considered.

Disposal can be at either an on-site landfill or at an off-site landfill. On-site disposal will allow source material to be secured on-site. On-site disposal may be preferable to off-site disposal because it eliminates off-site transportation of source material, which eliminates the potential for off-site spills and off-site receptor impacts. On-site disposal responses require removal and consolidation of source material into an on-site disposal facility. Excavated areas are filled and regraded.

At the site, an on-site landfill may be applicable for the containment of soils, treated to remove any RCRA characteristic, and for untreated nonhazardous wastes. The following process operations have been considered for the on-site disposal technologies:

- Backfilling of clean soil,
- RCRA hazardous waste landfill and
- Solid waste landfill.

Construction of a new on-site landfill, designed to meet RCRA and/or state standards can be constructed within the present boundaries of the depot. Consolidation of on-site waste within a future landfill is feasible and appropriate for the SEAD-16 and 17 soils. Two types of landfills have been considered, one type is an industrial type landfill, i.e a solid waste management landfill regulated under Title 6 Part 360 of the New York Codes, Rules and Regulations (NYCRR), the other type is a RCRA, Subtitle C, hazardous waste type landfill regulated under Title 6 Part 373 of the NYCRR. Both facilities would require siting studies and permitting prior to construction however, the requirements for a new RCRA hazardous waste landfill are more extensive and exhaustive. The permitting, monitoring, design and construction required to comply with all the requirements of such a facility under RCRA is not necessary for this project. The need to construct a RCRA hazardous waste landfill is only required if the wastes to be disposed of are considered to be RCRA hazardous. Wastes are hazardous if they possess the characteristics of either ignitability, corrosivity, reactivity or toxicity or if the wastes are listed by EPA as hazardous from non-specific or specific sources. In the case of SEAD-16 and 17 there are no known listed hazardous wastes to be disposed of. However, a portion of the soils at the site may exhibit the characteristic of toxicity as a result of lead concentrations exceeding the limits of the EP Toxicity test, now called the Toxicity Characteristic Leaching Procedure (TCLP). If the characteristic of the waste is removed, i.e. the soil no longer exceeds the limits for toxicity due to treatment, then the waste is no longer a hazardous waste and can be landfilled in an on-site, non-hazardous, solid waste landfill.

Accordingly, the on-site solid waste landfill option and the backfilling clean treated soil have been retained for inclusion with other technologies as remedial alternatives.

Off-Site

Off-site disposal involves source area materials to be completely removed from a site. This entails removal of source material and consolidation into containers for off-site transportation. All excavated areas must be filled and graded with clean imported fill. This technology eliminates continued on-site exposure to source materials by humans or ecological receptors. It also allows unimpaired future use of the site. However, releases and impacts may occur that could affect public health and environment at off-site locations. Off-site disposal is preferable when on-site disposal is precluded or limited by site characteristics, when unimpaired future use of the site is a high priority, and when the volume for disposal is too small to warrant construction of a landfill. Two options were considered for off-site disposal. These included:

- State-permitted RCRA hazardous waste landfill and
- State-permitted solid waste landfill.

A permitted, off-site RCRA TSD facility with the capacity and capability to handle this source material must be identified. Due to the RCRA Land Ban Restrictions (LDR), waste, if hazardous, will need to be treated prior to disposal in the facility. If the waste is a listed waste then the treated waste will still be required to be disposed of in a TSD facility. If the waste is a characteristic waste the waste will not need to be disposed of in a TSD facility once the characteristic is removed due to treatment. For SEAD-16 or 17, this means that soil that exceeds the TCLP limit for lead would be a D008 hazardous waste. However, if the soil is treated and is shown to be below the limits for toxicity as defined by the TCLP test then the soil is no longer hazardous and does not need to be disposed of in a TSD facility.

At the site, off-site disposal of waste and soils from contaminated areas is a feasible option. Since there are no wastes at SEAD-16 or SEAD-17 that are listed wastes, the need to dispose of any soil in an off-site TSD facility does not apply and has been removed from further consideration. Soil that may be characteristic by toxicity would need to be treated to remove the characteristic prior to disposal in an off-site landfill. The landfill does not need to be a hazardous waste landfill, since the waste is no longer hazardous once the characteristic has been removed.

Remedial action technologies and processes are screened on **Table 2-5**, based on whether a process is technically feasible and effective for remediating soils/sediment and whether it meets the remedial action objectives. As shown on **Table 2-5**, processes that are shaded have been screened out based on screening comments listed.

3.0 DEVELOPMENT AND SCREENING OF ALTERNATIVES

3.1 INTRODUCTION

In this section the remaining general response actions and the various remaining remedial technologies are combined to form remedial alternatives. The rationale is presented for how and why the selected technologies were assembled into remedial action alternatives. Only source control alternatives and the technologies that comprise them are described. Alternatives for remediation of groundwater and surface water are not part of the RAOs for this site and are not considered, other than protecting these resources from any degradation.

Once the alternatives have been assembled, the alternatives are evaluated with respect to three broad remedial alternatives screening criteria: effectiveness, implementability and cost. A brief description of the screening criteria is provided:

- Effectiveness is a key aspect of the screening process as each alternative must be capable in meeting the requirements established as RAOs for this site. In this instance, the RAOs define the required degree of protectiveness for human health and the environment. A remedial action alternative is considered effective, and therefore protective, if the alternative can reduce the toxicity, mobility or volume to the level identified by the RAOs. Both short and long term components of protectiveness were considered. Short term protectiveness refers to the construction and implementation period. Long term protectiveness refers to changes that can be expected in the characteristics of the constituents of concern that have been treated.
- Implementability is a measure of both the technical and administrative feasibility of constructing, operating and maintaining a remedial action alternative. Technical feasibility refers to the ability to construct, reliably operate, and meet technology-specific regulations for process options until a remedial action is complete; it also includes maintenance, replacement, and monitoring the technical components of an alternative during and after the remedial action is complete. Administrative feasibility refers to the availability of treatment, storage, and disposal services and capacity; and the requirements for and availability of specific equipment and technical specialists.

Cost estimations during screening is required as a comparative measure of the costs for a remedial action. The level of accuracy for cost estimates required at this point is similar to that required for the detailed analysis and is considered to be +50% to -30%. The only difference would be in the amount of alternative refinement and in the degree that the cost components are developed. Both capital and O&M costs were considered, where appropriate. The evaluation included O&M costs that would be incurred for up to 30 years. Present worth analyses were used during the alternative screening to evaluate expenditures over different time periods in order to provide a common basis to compare costs.

Six alternatives (five plus the no action alternative) were assembled and screened for soil and sediment based on these three criteria. The initial alternatives list of six were then reduced to four alternatives that were analyzed in detail in **Section 5.0**.

3.2 ASSEMBLY OF ALTERNATIVES

In this section the rationale is presented for assembling technologies and processes remaining from the technology screening into remedial action alternatives. These retained technologies and processes, summarized on **Table 2-5**, are representative of the general response actions that were retained. The general response actions and technologies associated with these actions have been combined as remedial alternatives and are listed in order of increasing complexity. An innovative technology has been included to comply with the SARA (1986) requirement that alternative solutions be used to the maximum extent possible. The alternatives that have been assembled from the remaining general response actions and associated technologies for soil and sediment at SEAD-16 and SEAD-17 are as follows:

- Alternative 1 No Action,
- Alternative 2 On-site Containment,
- Alternative 3 In-situ Treatment,
- Alternative 4 Off-Site Disposal,
- Alternative 5 On-Site Disposal,

Alternative 6 - Ex-Situ (Innovative) Treatment.

A brief description of the alternatives, the technologies and processes associated with these actions are assembled, summarized, and presented on **Table 3-1**.

3.3 DESCRIPTION OF TECHNOLOGIES, PROCESSES AND ALTERNATIVES

3.3.1 General

Up until this point remedial response actions, technologies and processes have been evaluated in general. The generality is necessary in order to consider the large number of possible remedial actions that may be appropriate; however, because the alternatives retained are relatively similar it is now necessary to define the project in more detail to better distinguish, evaluate and screen the assembled alternatives for a detailed alternatives evaluation that will be performed in **Section 5.0**.

The technologies and processes that make up the six assembled alternatives for soil, sediment, and the Buildings S-311 and 366 at SEAD-16 will be described in sufficiently greater detail to allow each assembled alternative to be screened. In addition to better defining technologies and processes, the quantity of material to be remediated has also been considered. Order of magnitude unit costs have been developed based on technology definitions and material quantities. These costs were then utilized as one of the alternatives screening criteria. It is important to note that the final decision regarding specific remedial technologies and processes to be utilized may be dependent on the results of treatability studies proposed in **Section 4.0**.

3.3.2 Remedial Alternatives

3.3.2.1 Alternative 1 - No Action

Alternative 1 is the No Action alternative. This alternative allows the site to remain as it currently is, with no further consideration given to any remedial actions.

3.3.2.2 Alternative 2 - On-site Containment

Alternative 2, the containment alternative, involves consolidating, via mechanical excavation, any sediments in site drainage swales and ditches exceeding the 31 mg/kg limit for lead in the containment area, followed by on-site containment of all soils exceeding the 500 mg/kg limit for lead using a cap as a horizontal barrier.

The cap would be placed over the consolidated area barrier. The intent of this alternative is to isolate the waste from receptors and to prevent migration to surface water via soil erosion. The volume or toxicity of waste materials will not reduced as part of this alternative and long term maintenance of the cap will be required.

Capping involves leveling and grading the as required, in order to place a protective soil cap over the area. Included in this alternative would be a provision to monitor the releases from the within the cap. A long term groundwater monitoring plan will be required to ensure that contaminants in the soil remain immobile and do not leach into groundwater.

At SEAD-16, in addition to capping, materials and debris in abandoned Buildings S-311 and 366 will be removed.

On-site hauling is estimated to be done at a rate of 100 cy/hr/dumper truck. Off-site hauling to a Subtitle D landfill is estimated to be done at a rate of 40 cy/day/truck (60 ton/day/truck).

3.3.2.3 Alternative 3 - In-Situ Treatment

Solidification/Stabilization is a process in which the waste material is mixed with a variety of solidifying agents including: 1) Portland cement, 2) pozzolanic materials, and 3) proprietary additives. Lime or fly ash are typical stabilization reagents that may also be added. In this case, the

mixing process is performed in-situ. There are several solidification/stabilization mixtures that may be feasible for in-situ remediation, pending treatability testing (refer to **Section 4.0**). Once treated,

the waste material is allowed to solidify into a monolithic mass having significant unconfined compressive strength, physical stability and rigid, cement-like texture. This process decreases constituent mobility by binding constituents into a leach-resistant, concrete-like matrix while increasing the waste material volume as much as 20 to 50%.

Alternative 3, the in-situ treatment alternative involves in-place solidification of soil and sediments using large hollow stem augers and injecting a grout or cemetous slurry during the mechanical mixing process. Any sediments exceeding the 31 mg/kg limit for lead will be consolidated by excavation in the area that will be solidified. The remaining soils exceeding the 500 mg/kg limit for lead will be solidified and stabilized, in-situ, using a large specialized auger or equivalent mixing equipment. Following the in-place mixing, the soil and solidification mixture would cure to form a solidified mass of sufficient structural integrity to resist weathering. Monitoring would be required to assure that the treatment will continue to be effective.

At SEAD-16, in addition to in-situ treatment, material and debris from Building S-311 and 366 will be removed.

3.3.2.4 Alternative 4 - Off-Site Disposal

Alternative 4 is the off-site disposal alternative and involves excavation of soils that exceed the remedial action goals of 500 mg/kg for soil and 31 mg/kg for sediment. The material and debris from Buildings S-311 and 366 at SEAD-16 will also be removed and disposed of with the soil. Excavated soils and sediments that exceed the Toxicity Characteristic Leaching Procedure (TCLP) limits must be solidified prior to disposal in a Subtitle D Landfill that meets the NYSDEC and USEPA Subtitle D landfill construction specifications. Solidification involves processing soils through a mechanical mixing operation where a solidifying agent, either pozzolon/portland cement or pozzolon/lime/fly ash, is added in sufficient quantity to completely solidify the soils that exceed the TCLP limits. It should be noted that TCLP is not a clean up level, rather it determines whether the soils are characteristic waste and the type of disposal required. Solidified soils and the remainder of contaminated soils, i.e., those that exceed the remedial action goals for lead, will be disposed of in an off-site Subtitle D solid waste industrial landfill. Both on-site and off-site solidification have been considered. However, because of the

small volume of soil to be treated at SEAD-16 and 17, it is expected that off-site treatment will be more cost effective. Therefore, this alternative assumes all excavated soil is transported off-site for both treatment and disposal.

Excavation of soils will be accomplished using a front-end loader or similar equipment. A bulldozer may be used if necessary, to loosen the shale fill prior to loading into dumper trucks for off-site hauling. Loading will use one or two 5 cubic yard (CY) bucket front-end loaders. Monitoring will be required to assure that the remedial action will continue to be effective.

3.3.2.5 Alternative 5 - On-Site Disposal

Alternative 5 is the On-Site Disposal Alternative, similar to Alternative 4. It involves excavation of soils that exceed the remedial action goals of 500 mg/kg for soil and 31 mg/kg for sediment. As with the other alternatives, the material and debris from Buildings S-311 and 366 at SEAD-16 will also be removed and disposed of with the soil. Soils expected to exceed TCLP limits are solidified as described for Alternative 4. Solidification will be performed on-site, and the solidified soils and remainder of contaminated soils will be disposed of in an on-site landfill, which will be constructed nearby SEAD-16 and 17. The landfill will be constructed to meet the requirements of a Subtitle D landfill for the USEPA and NYSDEC identified in 6 NYCCR Part 360 for landfill construction.

Excavation of soils will be accomplished using a front-end loader or similar equipment. A bulldozer may be used if necessary, to loosen the shale fill prior to loading into dumper trucks for on-site hauling. Loading will use one or two 5 cubic yard (CY) bucket front-end loaders. Monitoring will be required to assure that the remedial action will continue to be effective.

3.3.2.6 Alternative 6 - Innovative Treatment

Alternative 6 is the innovative treatment alternative, which involves soil washing. For this alternative, the sediments and soils will be excavated and washed using physical separation techniques to separate the coarse fraction of soil from the fine fraction. The coarse fraction will be backfilled as clean fill, providing this fraction meets RAOs. The fine fraction is expected to contain the majority of the target constituents of concern, e.g., lead, and can either be treated on-site or off-site for disposal in an off-site solid waste landfill. Building debris and material from SEAD-16 will also be removed and disposed of in an off-site landfill.

On-site treatment can include either solidification or acid leaching to remove any characteristic that the washed soil may exhibit for toxicity in order to allow off-site disposal in a solid waste landfill. If the fine fraction is acid extracted and successful at reducing the concentration of lead in soils to below 500 mg/kg, it may be possible to further minimize the volume of soil that will require off-site disposal. Some residuals, however, will required off-site disposal, as well as the material removed from the buildings at SEAD-16. On site treatment, however, is less cost effective for small amounts of soil such as for SEAD-16 and 17. Therefore, this alternative assumes all treatment is performed off-site.

Soil washing has been identified as an effective technology for soil treatment at SEAD-16 and 17 because soils that comprise the site areas are made-up of a large quantity of coarse particles, i.e. crushed shale imported from a SEDA borrow pit, and a small quantity of fine particles, i.e. the portion of the glacial till that is less than the 200 micron particle size for clay. From various particle size distribution curves generated during the RI, it has been determined that the fine fraction in the site soil varies from 24 to 67 percent with median of approximately 36%. The fine fraction in sediment varies from 5 to 95 percent with median of approximately 56%. The inorganic and organic constituents that are of interest for treatment tend to bind chemically or physically to the smaller quantity of fine-grained silt and clay particles. The silt and clay, in turn, are attached to sand and gravel particles by physical processes, primarily compaction and adhesion. Washing processes that separate the smaller fraction of fine clay and silt particles from the larger fraction of coarse sand and gravel soil particles can thus effectively separate and concentrate chemical constituents into a smaller volume of soil that can be further treated or disposed. The clean, larger fraction of coarse material can be returned to the site for continued use. Therefore, by employing a combination of physical separation techniques, the process of soil washing reduces the volume of waste material by causing constituents to be separated from the larger quantity of coarse particles and concentrated into the smaller quantity fine particles. Soil washing is expected to be completed at a rate of 25 tph or about 17 CY/hr.

Once the particles have been separated the fine fraction can either be transported off-site for treatment and disposal or can be treated further to remove the inorganic components using acids. A combination of flurosilcic acid (H₂SiF₆), nitric acid (H₂NO₃) and hydrochloric acid (HCL) have been utilized as effective agents for solubilizing metal contaminants in various soil washing processes. In general, acid is slowly added to a water and soil slurry to achieve and maintain a pH of 2. Precautions are taken to avoid lowering the pH below 2 and disrupting the soil matrix. When extraction is complete, the soil is rinsed, neutralized, and dewatered. The extraction solution and

rinsewater are regenerated. The regeneration process removes entrained soil, organics, and heavy metals from the extraction fluid. Heavy metals are concentrated in a form potentially suitable for recovery. Recovered acid is recycled to the extraction unit. Other metal chelating agents such as EDTA have been attempted but generally have not produced effective results. Following treatment, soil may be re-used as daily cover in a Subtitle D landfill or backfilled on-site. The U.S. Bureau of Mines has developed an acid leaching process that recovers lead from the acid leaching solution using electrochemical techniques. The outcome is an ingot of lead that can be recycled as scrap lead. This is an option that can be implemented as part of the soil washing option but will require treatability testing to determine the proper acid type and quantities.

The technology of soil washing varies from vendor to vendor but will generally consist of many unit operations including the following:

Physical Separation Unit Operations

- dry screening (grizzly screen)
- dry screening (vibratory screen)
- dry trommel screen
- wet sieves
- attrition scrubber (wet)
- dense media separator (wet)
- hydrocyclone separators
- flotation separator
- gravity separators
- dewatering equipment
- clarifiers
- filter presses

Chemical Extraction Unit Operations

- washwater treatment/recycle
- residual treatment and disposal
- treated water discharge

3.4 SCREENING CRITERIA

3.4.1 General

Alternatives assembled in Section 3.2 and defined in Section 3.3 have been screened in this section. The six alternatives, listed on Table 3-1, have been evaluated against short-term and long-term aspects of three broad criteria: effectiveness, implementability and cost.

Table 3-1 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

ASSEMBLED REMEDIAL ALTERNATIVES

	Alternative	Technologies and Processes
1	No-Action	No-Action
2	Containment	Institutional Controls/Consolidate/Cap
3	In-Situ Treatment	Solidify/Stabilize Soils In Place/Soil Cover
1	Off-Site Disposal	Excavate/Off-Site Solidification/Off-Site Subtitle D Landfill
4	OII-Site Disposal	Excavate/Solidification/On-Site Subtitle D
5	On-Site Disposal	Landfill
		Excavate/Wash/Backfill Coarse Fraction/Off-
		Site Treatment and Disposal Fine Fraction
6	Innovative Treatment	Subtitle D Landfill

The purpose of screening is to reduce the number of alternatives that will undergo detailed analysis. The screening conducted in this section is of a general nature. Although this is necessarily a qualitative screening, care has been taken to ensure that screening criteria are applied consistently to each alternative and that comparisons have been made on an equal basis, at approximately the same level of detail. These criteria consist of several elements shown as follows.

3.4.2 Effectiveness

A key aspect of the screening evaluation is the effectiveness of each alternative in protecting human health and the environment. This screening criterion includes the evaluation of each alternative as to the protectiveness it provides and the reductions in toxicity, mobility, or volume it achieves.

- Short-term protectiveness of human health Rating the potential for the remedial action to affect human health during remedial action. Both on- and off-site exposures are considered under this criterion. Exposure routes include inhalation, ingestion, and dermal absorption.
- Long-term protectiveness of human health Rating the effectiveness of the remedial action
 to alleviate adverse human health effects after the remedial action is complete. The ability
 of an alternative to minimize future exposures is considered under this criterion. Exposure
 routes include inhalation, ingestion, and dermal absorption.
- Short-term protectiveness of the environment Rating the effectiveness of the remedial action to prevent environmental receptors from being affected by constituents during remedial action.
- Long-term protectiveness of the environment Rating the effectiveness of the remedial action to prevent environmental receptors from being affected by constituents after remedial action is completed.
- Reduction of mobility, toxicity, or volume of waste Rating of effectiveness in changing one or more characteristics of the medium by treatment to decrease risks associated with chemical constituents present.

3.4.3 <u>Implementability</u>

Implementability is a measure of both the technical and administrative feasibility of constructing and operating a remedial action alternative.

- Technical feasibility Rating of the ability to construct, reliably operate, and meet technology-specific regulations for process options until a remedial action is complete.
 That also includes monitoring of the alternative, if required, after the remedial action is complete.
- Administrative feasibility Rating of the ability to obtain approvals from regulatory
 agencies and the Army; the availability of treatment, storage, and disposal services; and the
 requirements for, and availability of, specific equipment and technical specialists.

3.4.4 <u>Costs</u>

Both capital and operation and maintenance have been considered during the screening of alternatives.

- Capital costs these were estimated based on order-of-magnitude vendor unit costs.
- Operating and maintenance (O&M) costs O&M costs were estimated based on the long term monitoring and maintenance requirements.

3.4.5 Numeric Rating System

The alternatives were evaluated by applying a simple numeric rating system. Each alternative was assigned a value ranging between 1 and 6 for a particular criteria. The value assignments were based on both experience and the overall characteristics of the alternatives. If a specific alternative was considered very unfavorable for a given criteria a value of 1 was assigned relative to the other alternatives within the criteria. Likewise, if a particular alternative was considered very favorable, a rating value of 6 was assigned to it relative to the other alternatives within that criteria. Rating scores of 2 through 4 were given to distinguish varying degrees of unfavorable and favorable alternatives. The individual criteria values were summed for each alternative and the totals used to screen alternatives.

3.5 ALTERNATIVES SCREENING

3.5.1 Method of Scoring

The screening results are presented in **Table 3-2** for the six alternatives listed in rows and screening criteria listed in columns. Screening was conducted by considering one column (one criteria) at a time, independent of the other columns and relative to the other alternatives, particularly the no action alternative. The first step was to review each alternative and identify the alternatives that represent the two extreme values (1 and 6), with 6 representing the most favorable score and 1 representing the worst score, for a particular evaluation factor. The values were applied consistently and unbiasedly to each alternative on this column-by-column basis. The total score for each alternative was then summed and used as the basis for proceeding to the detailed evaluation. The following sections present the qualitative rationale for each factor that were utilized to assign values to each alternative.

3.5.2 Effectiveness

3.5.2.1 Short-Term Human Health Protectiveness

All alternatives provide short term human health protectiveness. This assessment ranks the relative merits that each may provide over another one. The assessment of short-term human health protectiveness was based upon any factor that would increase exposure or increase physical hazards and the quickness and completeness that an alternative could be implemented to protect human health.

Activities that contribute to increased exposure are excavation, which is the first step in many alternatives. Excavation is considered to lower short-term worker protectiveness relative to no action, even with dust controls applied and personal protection equipment used by remediation workers. Other factors that increase short term risks are activities that increase off-site exposure such as: fugitive dust emissions due to on-site movement of construction vehicles, runoff during excavation and physical and/or noise hazards such as increased truck traffic through local streets. Alternatives identified as limiting these exposure scenarios were ranked higher than those that did not. Alternatives that involved excavation followed by off-site transportation were perceived as increasing the risk the most and was consequently ranked the lowest.

TABLE 3-2
SENECA ARMY DEPOT
SEAD-16 AND 17 FEASIBILITY STUDY
SCREENING OF SOIL REMEDIATION ALTERNATIVES

ALT	TECHNOL AND PROCESS			H	EFFECT	IVE	CTIVENESS				_	MPLEME	IMPLEMENTIBILITY	, X	_	COST	-	SCORE
		4	PROTECTIVENESS	VENESS		RED	UCTI	REDUCTION PERM-	4255500	ARAR	TECH.	TECH. FEASIB.	ADMIN. FEAS	FEAS.				
		Human Health	Health	Environment	ıment			AN	ENCE	ANENCE COMPLIANC	CON-	FONG-						
		short-	long-	short-	long-) L	Toy Moh Vol	70/			STRUC.	TERM	APPROV	AVAIL	CAPIT	0&M	>	
-	No Action Alternative	9	-	-		100	-	-	-		1 6	_				10	9	45
7	Containment Alternative Consolidate/Cap	ß	7	ω	7	7	7	2	4		4	~	4		m	2	~	52
6	In-situ Treatment Alternative Solidify soils in-place/soil cover	4	ю	ro	ю	S.	5	7	က	d _{area}	9	0		υ	2	~	m	53
4	Off-site Disposal Alternative Excavation/Off-site transport/ Off-site solidification/ Subtitle D disposal		4	4	4	ю	က	ო	7		0	ro.		7	ιΩ	4	Ω.	56
w	On-site Disposal Alternative Excavation/solidification/ On-site Subtitle D landfill	м	ro	7	S	4	4	4	ю	-	e	ю.		m	4	m	0	54
9	Innovative Treatment Alternative Excavation/wash/backfill coarse frac./fine fract. to Off-Site Treatment and Disposal	7	ω	м	Θ	9	9	9	σ		0	4		φ	-	8	4	92

H:\ENG\SENECA\S\617FS\SECTION3\TABS-2.WK3

Alternative 1, the no-action alternative, was ranked the highest for this screening criterion with a 6 since no excavation is conducted. Alternative 2, the containment alternative, was ranked the next highest with a 5 since this alternative does not involve a large amount of excavation, has limited off-site traffic and can be implemented quickly as it does not require specialized equipment or vendors. The only excavation of contaminated materials is from the drainage ditches, except at SEAD-16 when removal of debris and materials form the buildings will be conducted. However, there is a risk for fugitive dust emissions during compaction. The construction of the impermeable cap can involve off-site hauling of clay and possibly clean fill for the protective cover, thereby increasing truck traffic in the area, which was identified as a negative factor. However, this factor can be limited through the use of a geosynthetic membrane in place of clay and obtaining clean fill from other areas of the depot, instead of off-depot, thereby limiting off-depot traffic.

Alternative 3, the in-situ alternative, was ranked the next highest with a 4. It involves the same amount of excavation as Alternative 2, since for both alternatives only sediment in the drainage ditches will require excavation to an area where in-situ mixing will be performed, and building materials and debris at SEAD-16 will be removed. Alternative 3 was ranked lower than Alternative 2, even though both are low excavation alternatives, because this alternative will involve hauling a large amount of solidification materials, which will thereby increase off-depot traffic. Further, due to the specialized nature of the solidification process, the time to implement this alternative is greater than for Alternative 2.

Alternative 5, the on-site disposal alternative, was ranked the next highest with a 3 since, in addition to the excavation of sediment in the drainage ditches and removal of building materials and debris at SEAD-16, the remaining soil will be excavated. However, this material will not be transported off-site, therefore this alternative was ranked moderately.

Alternative 6, the innovative treatment alternative, was ranked lower than Alternative 5 even though both alternatives involve a similar amount of excavation. This alternative will require a specialized vendor which will increase the time to implement. This alternative may involve storage of acids or other materials that can cause spills, thereby increasing exposure. Further, off-site disposal of any residuals, and materials from the building at SEAD-16 will be required therefore this alternative was considered only moderately protective.

Alternative 4, the off-site disposal alternative, was ranked with a 1 since this alternative involves the off-site transport of contaminated soil in addition to excavation.

3.5.2.2 Long-Term Human Health Protectiveness

All alternatives, other than the no action alternative, protect human health in the long term. This assessment ranks the relative merits that each may provide over another one. The assessment of long-term human health protectiveness is based upon factors that could cause risk due to a increase in exposure from releases of treated materials. Alternatives identified as having the least potential for causing releases over the life of an alternative were ranked higher than those that did not. Alternatives that involve treatment, either from entrainment or metals removal and recovery, were considered more favorable than alternatives that did not involve a treatment process, since treatment will be one additional step to assure reduced potential for long term releases.

Alternative 6, the innovative treatment alternative, was ranked the highest for this screening criterion with a 6, since this alternative will provide the highest amount of treatment. This alternative accomplishes both volume reduction, and may also accomplish treatment from acid estraction or solidification of the washed soil, if these activities are performed on-site. Even though a portion of residuals and material from the building at SEAD-16 will be disposed of off-site in a landfill, this alternative was considered the most protective as it provides the most treatment.

Alternative 5, the on-site disposal alternative, was ranked the next highest with a 5 since this alternative also involves treatment, though not as much as for alternative 6. This alternative includes on-site stabilization/solidification and construction of a new on-site landfill which is designed and constructed to hold soil contaminated with heavy metals and material and debris removed from the buildings at SEAD-16. Since this landfill will be on-site, it will be easy to monitor and maintain to assure long term effectiveness. In addition, the landfill will not be subjected to other chemical wastes or be subjected to physical hazards such as increased vehicle traffic that may adversely affect the physical integrity of the liner or cap. The long term liabilities associated with off-site disposal, both financial and legal, due to releases at an off-site landfill would be eliminated.

Alternative 4, the off-site disposal alternative, was ranked moderately with a 4 since this alternative involves some treatment and no contaminated soil or materials will remain on-site. However, due to the uncertainties associated with off-site disposal and long term liabilities at an off-site facility, it was not ranked as high as the on-site alternative.

Alternative 3, the in-situ alternative, was ranked the next highest with a 3 since it involves treatment, albeit in-situ. This alternative was only ranked moderately since all treatment would be performed in-situ, which can lead to uncertainties due to the variable effectiveness and completeness of a mixing process that cannot be fully observed.

Alternative 2, the containment alternative, was ranked the next to lowest with a 2 since this alternative does not involve any treatment and includes some uncertainty associated with the long term effectiveness of the protective cover/cap.

Alternative 1, the no action alternative, was ranked with a 1 since lead in soil and sediment and, materials and debris in the buildings at SEAD-16 will continue to contribute to the potential long term human health impacts.

3.5.2.3 Short-Term Environmental Protectiveness

All alternatives other than the no action alternative provide short term environmental protectiveness. This assessment ranks the merits that one alternative may provide over another. The evaluation of short-term environmental protectiveness has been based upon factors that could cause exposure to environmental receptors. As with short term human health protectiveness, excavation is considered to lower short-term protectiveness as this process would increase the potential to expose contaminants to the environment and environmental receptors. Other activities that disturb the natural conditions are perceived as factors that would contribute to increased environmental risk. These activities include any other construction process such as: setup of field offices, staging areas or other support facilities, movement of heavy equipment, sediment removal in the drainage ditches and noise hazards. These activities contribute to increase short term environmental risk by either increasing fugitive dust emissions, decreasing available wildlife habitat or causing noise that will disturb environmental receptors. Alternatives that involve constructing landfills were considered as contributing to environmental risk by decreasing habitat for wildlife.

Alternative 2, the containment alternative, was ranked the highest with a 6 since this alternative involved only a small amount of excavation in the drainage ditches removal of material and debris from the buildings at SEAD-16 and no permanent elimination of wildlife habitat. This alternative can be implemented in a short period of time thereby limiting the time that environmental receptors will be impacted.

Alternative 3, the in-situ alternative, was ranked the next highest with a 5. Since although it involved the same, limited, amount of excavation and removal as Alternative 2, it was ranked higher due to the large soil mixing equipment that would be on-site for longer than that required for Alternative 2, thereby causing greater disturbance to wildlife.

Alternative 4, the off-site disposal alternative, was ranked with a 4 since, even though this alternative involves a large amount of excavation and removal, off-site hauling is not perceived as having a significant effect on environmental receptors as truck traffic would be limited to existing roadways. The effect time to implement this alternative and the ability of this alternative to eliminate continued environmental exposure to pollutants was considered a positive factor. These factors, in addition to the fact that no wildlife habitat or resources would be lost, were grounds for rating this alternative moderately high.

Alternative 6, the innovative treatment alternative, was ranked with a 3 since it will involve a large amount of excavation and removal.

Alternative 5, the on-site disposal alternative, was ranked slightly lower than Alternative 6 with a 2, since this alternative will also involve a large amount excavation, thereby causing disturbance to environmental receptors and eliminating a large amount of habitat by construction of an on-site landfill.

Alternative 1, the no action alternative, was ranked the lowest with a 1. Although no excavation would be performed, the existing conditions have been identified as currently adversely impacting human and environmental receptors, and there are no provisions to restrict exposure.

3.5.2.4 Long-Term Environmental Protectiveness

All alternatives, other than the no action alternative, provide long term protection of the environment. This assessment ranks the relative merits that each may provide over another. The assessment of long-term environmental protectiveness is based upon factors that could cause risks due to a increase in exposure for environmental receptors from releases of treated materials. Alternatives identified as having the least potential for causing releases over the life of an alternative were ranked higher over those that did not. Alternatives that involved treatment, either from entrainment or metals removal and recovery, were considered more favorable than

alternatives that did not involve a treatment process, since treatment would be an additional step to assure reduced potential for long term releases.

Alternative 6, the innovative treatment alternative, was ranked the highest with a 6 since this alternative would provide the highest amount of treatment, from both volume reduction and treatment by either acid extraction or by solidification of the remaining soil volumes.

Alternative 5, the on-site disposal alternative, was ranked the next highest with a 5 since this alternative involves treatment using stabilization/solidification in addition to the construction of an on-site landfill, which will be designed and constructed to hold the contaminated materials long term. This alternative was deemed superior to an in-situ treatment or containment alternative because it will provide a greater degree of assurance that materials will remain contained, since the landfill will be aboveground, newly designed, and monitored and maintained by the federal government. Further, because the landfill will be designed and operated for remediation of these sites which are within SEDA, other chemical wastes or physical hazards such as daily vehicle traffic associated with a commercial off-site landfill will be controlled and restricted. A higher ranking is thus merited due to the decrease in potential adverse effects of these factors on long term integrity of the landfill.

Alternative 4, the off-site disposal alternative, was ranked with a 4 since this alternative involves some treatment and eliminates the long term impacts to the environment by physically removing the risk producing constituents from the site. Although the risks are removed and will not affect the environment at SEAD-16 or 17, the pollutants could affect the environment if released daily transport or at another landfill. Due to the long term liabilities and uncertainties associated with off-site disposal, this alternative was ranked lower than the on-site alternative.

Alternative 3, the in-situ alternative, was ranked the next highest with a 3 since it involves treatment, albeit in-situ. This alternative was only ranked moderately since there are uncertainties in the effectiveness of the mixing process that cannot be fully evaluated. These uncertainties arise as a result of the variability of the layers of till at the site. The non-uniform nature of the matrix that will require solidification will contribute to mixing difficulties and decrease effectiveness of treatment.

Alternative 2, the containment alternative, was ranked the next to lowest with a 2 since this alternative does not involve any treatment of soils and includes some uncertainty associated with the long term effectiveness of the protective cover/cap.

Alternative 1, the no action alternative, was ranked with a 1 since lead in soil and sediment and constituents in the building at SEAD-16 will continue to contribute to long term human and environmental impacts.

3.5.2.5 Reductions In Toxicity

The assessment of toxicity reduction is based upon factors that would decrease the toxicity of the constituents of concern. Alternatives or processes that chemically or physically bind with the inorganics constituents provide the greatest reduction of toxicity as these constituents are no longer in a form that would be biologically available for uptake. The alternatives that provided the greatest reduction in toxicity through solidification or treatment were subsequently ranked higher than those that did not. Entrainment within a solidified matrix of cement or metals removal and recovery are examples of treatment alternatives that were considered more favorable than alternatives that did not involve treatment.

Alternative 6, the innovative treatment alternative, was ranked the highest with a 6 since this alternative will provide the highest amount of treatment, from both volume reduction and treatment by either acid extraction or by solidification of the remaining soil volumes. Since all alternatives except Alternative 1, remove materials from the buildings at SEAD-16, reductions in toxicity of building materials is equal for all and does not affect ranking for this criteria.

Alternative 3, the in-situ alternative, was ranked the next highest with a 5 since it involves treatment that would reduce the toxicity by binding metals in a cementous matrix. Alternative 6 was ranked higher than Alternative 3, even though both involve a large amount of treatment, because Alternative 3 has more potential for incomplete mixing since it will be performed in-situ. Therefore Alternative 3 has more uncertainty for reducing toxicity than Alternative 6.

Alternatives 5 and 4, the on-site and off-site disposal alternatives, are similar in nature and were ranked the next highest with a 4 and a 3, respectively. These alternatives are very similar and involve some treatment using stabilization/solidification, but only for the soils that exceed the toxicity characteristic. Although only a portion of the soils will be treated to reduce the toxicity of

the soils, some toxicity reduction will be achieved. The only difference between these two alternatives is the location of the treatment facility and the landfill. Landfilling, by itself, will not reduce toxicity since there is no treatment associated with the landfilling process other than what would be expected in isolating the waste in a landfill. Alternative 5, the on-site landfill alternative, was ranked slightly higher than Alternative 4 because the types of other wastes that would be placed in an on-site landfill and mixed with the soils from SEAD-16 and 17 would be limited and controlled. An off-site landfill would potentially accept other wastes that, when mixed with the soils from SEAD-16 and 17, could adversely affect the treated waste and possibly increase toxicity.

Alternative 2, the containment alternative, was ranked the next to lowest with a 2 since this alternative does not involve any treatment of soils or reduction in toxicity.

Alternative 1, the no action alternative, was ranked with a 1 since there is no reduction in the toxicity of lead in soil and sediment or in constituents in the buildings at SEAD-16.

3.5.2.6 Reduction In Mobility

Mobility reduction factors are closely related to those that involve reductions in toxicity and the rankings were identical to that determined previously for toxicity. As the focus of this effort is to reduce the concentration of inorganic compounds, specifically lead, this assessment ranked alternatives that involved a chemical or physical reaction resulting in the formation of a less mobile state of the metals, as preferable over alternatives that did not involve a beneficial reaction. A beneficial reaction is a reaction that results in the formation of insoluble compounds like hydroxides. Such compounds will be produced during the stabilization/solidification process. Other beneficial reactions include the formation of the base metal that would be produced during the electrochemical process of reducing and recovering metallic ions following soil washing and acid extraction. In general, alternatives that involve treatment, either from entrainment or metals removal, reduction and/or recovery, were considered favorable in reducing mobility. Alternatives that involve containment also provide mobility reduction, but these alternatives were viewed as less desirable since the mobility reduction is dependent on maintaining the integrity of the containment Uncertainties associated with containment systems, i.e. formation of leaks, were considered as factors that would decrease the ability of an alternative to reduce mobility and were ranked slightly below treatment alternatives.

Alternative 6, the innovative treatment alternative, was ranked the highest with a 6 since this alternative will provide the highest amount of treatment.

Alternative 3, the in-situ alternative, was ranked the next highest with a 5 since it involves a large amount of treatment that will reduce the mobility by binding metals in a cementous matrix. Alternative 6 was ranked higher than Alternative 3 because of the uncertainties associated with achieving a completely mixed system in-situ.

Alternatives 5 and 4, the on-site and off-site disposal alternatives, are similar in nature and were ranked the next highest with a 4 and a 3, respectively. These alternatives involve a limited amount of treatment by stabilization/solidification for soils that exceed the toxicity characteristic. This process will achieve mobility reduction as a result. However, landfilling the remaining soils will not reduce mobility other than what would be expected by physically isolating the waste in a landfill. These alternatives were ranked moderately due to the uncertainties associated with potential leaks that occasionally occur in landfills. Alternative 5 was ranked slightly higher than Alternative 4 since the uncertainties associated with mixing other types of wastes with the soils from the SEAD-16 and 17 would be more restricted, limited and controlled in an on-site landfill than an off-site landfill. An off-site landfill could potentially accept other wastes that may mix with the soils from SEAD-16 and 17 and increase mobility through processes such as chelation with organic acids produced during decomposition of organic materials.

Alternative 2, the containment alternative, was ranked the next to lowest with a 2 since this alternative does not involve any treatment of soils or reduction in mobility other than the physical restrictions of migration resulting from the cap.

Alternative 1, the no action alternative, was ranked the lowest with a 1 since there is no reduction in the mobility of lead.

3.5.2.7 Reduction in Volume

The rankings for volume reduction are different than for other reduction factors. Any alternative that will cause an increase in volume was ranked lower than those alternatives that will not cause an increase. Although some volume increase is expected during excavation, Alternative 6, the soil washing alternative is a volume reduction alternative and is intended to reduce the volume of soil the most (by up to approximately 50%), using wet separation techniques. Once the volume has

been reduced, the remaining fraction can be reduced further if physical separation is followed by acid extraction. The metallic ions can also be reduced electrochemically and recovered as the base metal. If solidification is chosen, it will cause an increase in the volume due to the addition of cement or another material that is used to incorporate the soil material. This volume increase varies depending upon the mixture used and the ratio of soil to admixture, but can be as much as 50%. However, this volume increase is often approximately 20% and a net volume reduction is expected for this alternative.

Alternative 2, the containment alternative, was ranked next to highest with a 5 because this alternative will involve only a minimal amount of volume increase due to excavation of the sediments. It was not ranked higher than Alternative 6 because there is no volume reduction associated with this alternative.

Alternatives 5 and 4, the on-site and off-site disposal alternatives, are similar in nature and were ranked with a 4 and a 3, respectively. Both alternatives involve an identical, yet limited, amount volume increase due to the treatment by stabilization/solidification and excavation. However, Alternative 5 was ranked slightly higher than Alternative 4 because the uncertainties associated with the compaction process (which is considered a volume reduction process), that is used prior to placing the soils in a landfill are more controlled in an on-site landfill than an off-site landfill.

Alternative 3, the in-situ alternative, was ranked with a 2 since it involves a large volume increase as a result of solidification.

Alternative 1, the no action alternative, was ranked the lowest with a 1 since there is no reduction in the volume of lead.

3.5.2.8 Permanence

All alternatives, with the exception of the no action alternative, will achieve a permanent solution. Alternatives that have the longest lifespan, preferably permanent, with the least amount of continued attention would be considered attractive and were ranked high. Factors that were deemed favorable in evaluating the permanence of an alternative included those that would permanently remove lead from soil. Those alternatives that involved containment were not ranked as high as those alternatives that completely removed metals from soil. This is because containment alternatives require long term care and maintenance to assure that the constructed

containment structure will remain intact and permanent, whereas alternatives that involve a treatment process that will remove metals from the soil do not require continued attention because the constituents of concern are eliminated. These alternatives are therefore more permanent and preferred.

Alternative 6, the innovative treatment alternative, was ranked the highest with a 6 since this alternative involves removing lead from soil.

Alternative 3, the in-situ alternative, was ranked the next highest with a 5 since it involves treatment that would permanently bind the metals into a cementous matrix.

Alternative 2, the containment alternative, was ranked with a 4 since this alternative involves construction of a permanent aboveground cap. However, the cap will require some attention to assure permanence of this alternative. This alternative was ranked higher than the landfill alternatives because the cap will require less maintenance.

Alternatives 5 and 4, the on-site and off-site disposal alternatives, are similar in nature and were ranked the next highest with a 3 and a 2, respectively. These alternatives involve a limited amount of treatment by stabilization/solidification for soils that exceed the toxicity characteristic. Since landfills are not considered permanent, these alternatives were ranked low.

Alternative 5 was ranked slightly higher than Alternative 4 since maintaining a landfill on-site will be more controlled and certain than an off-site landfill.

Alternative 1, the no action alternative, was ranked the lowest with a 1 since site conditions are subject to climatic change and is considered to be the least permanent alternative.

3.5.2.9 ARAR Compliance

There are currently no chemical specific ARARs for lead in soil. Any off-site disposal will fall under RCRA requirements, which must be complied with in the final remedial action plan. Other federal ARARs include but are not limited to the National Environmental Policy Act (NEPA), CERCLA, the Clean Water Act (CWA) and the Emergency Planning and Right to Know Act (EPCRA). Promulgated state regulations must also be complied with. After an alternative is chosen, the final design must incorporate compliance with ARARs, however, the

concepts of each alternative consider ARARs and do not preclude compliance. Each alternative has an equal potential to fully comply with ARARs, with the exception of the No-Action alternative. Therefore, all alternatives were ranked with a 6, except the No-Action alternative, which was ranked with a 1.

3.5.3 Implementability

Implementability is a measure of both the technical and administrative ease and likelihood that an alternative could be implemented. Site factors, such as the need to construct a long road around a wetland in order to protect it, restrictions on the time of year that construction activities could be performed due to flooding or wildlife nesting activities, are examples of construction difficulties that reduce the implementability of an alternative. Long term monitoring requirements and continued attention are also considered as negative factors in implementing an alternative. The ability of an alternative to obtain any necessary regulatory permits and the availability of vendors to implement an alternative are additional factors that could affect the ease of an alternative to be implemented.

3.5.3.1 Constructability

There are no current restrictions at either SEAD-16 or 17 that would prevent construction for an alternative. The site is located in a remote section of the depot and has easy access from several directions. Since the facility is a military reservation there are security restrictions that will need to be adhered, including restrictions on the use of open flames and spark producing devices, but these restrictions are not considered significant to affect the ability of an alternative to be constructed. The drainage ditches are adjacent to the site but are not considered to be large enough to cause difficulties in implementing an alternative. Winter conditions can occasionally be severe at times but are temporary and should not cause prolonged delays. In general, all the alternatives are constructible and therefore the rankings will focus on rating those alternatives from the easiest to construct to most difficult.

Alternative 1, the no action alternative, was ranked the highest with a 6 since this alternative would be the easiest to implement.

Alternative 4, the off-site disposal alternative, was ranked the next highest with a 5. This alternative is considered the easiest, other than doing nothing, to implement since it involves simple excavation

and hauling operations. In addition, solidification of soils that exceed the TCLP limit will be performed off-site at the off-site disposal facility.

Alternative 2, the containment alternative, was ranked the next highest with a 4 since this alternative involves leaving soils in place and constructing a cap. The construction of the cap would involve some specialized equipment but is considered to be relatively standard and will not require very deep excavating equipment.

Alternative 5, on-site disposal alternative, was ranked with a 3 because of the need to construct an on-site landfill. Although technically feasible to construct, the presence of shallow bedrock would limit the depth and lateral extent of the landfill. This, along with the presence of wetlands within a 1 mile radius of the site, would provide some construction complications that cause this alternative to be ranked lower.

Alternative 3, the in-situ alternative, was ranked the next to lowest with a 2 since it involves specialized in-situ mixing equipment and is more complicated than simple excavating.

Alternative 6, the innovative treatment alternative, was ranked the lowest with a 1 since this alternative would involve construction of the most sophisticated and complicated unit operations, which are associated with soil washing and treatment.

3.5.3.2 Long-Term Monitoring

It is technically feasible to implement a long term monitoring program for each of the alternatives. Such a plan would be most appropriate and required for alternatives that involved containment or landfilling. For these alternatives, monitoring would be used to assure that the waste isolation system has remained secure. Typically, monitoring involves a network of monitoring wells that are strategically placed to intercept any release. A statistical procedure is used to compare data sets from downgradient and upgradient wells in order to determine changes that would suggest a release has occurred. If a release has been detected then an assessment and a remediation plan can be implemented to control the release. Long term monitoring would also include monitoring the condition of the cap to assure that the integrity of the cap has been maintained. If the cap monitoring detects a breach then reconstruction of the cap can be implemented to minimize the effects of the breach. For this evaluation, alternatives that involve containment or landfilling would require a similar monitoring plan for groundwater and other media and were considered to be

equivalent. In this instance the ranking based upon the degree of necessity of a monitoring plan in order to detect a release. The alternatives that require the most monitoring were ranked less favorably than those that require little or no monitoring.

Alternative 1, the no action alternative, was ranked the highest with a 6 since this alternative will not involve any monitoring.

Alternative 4, the off-site disposal alternative, was ranked the next highest with a 5 since this alternative will not involve monitoring because all soils will be removed and placed in an off-site landfill. The off-site landfill will be monitored by the landfill operator, but not by the federal government.

Alternative 6, the innovative treatment alternative, was ranked the next highest with a 4 since this alternative will involve only monitoring of the treated soils to assure compliance with the RAOS, but will not require any long term monitoring because no contaminated materials will remain on-site.

Alternative 5, the on-site disposal alternative, was ranked with a 3 because of the need for long term monitoring of the on-site landfill. Although there is the potential for this landfill to leak, it was ranked higher than Alternative 2 because it included removal of all soils, followed by the construction of a new engineered landfill that would have less likelihood to leak than soils left in place.

Alternative 3, the in-situ alternative, was ranked with a 2 since it will involve a monitoring network to monitor groundwater. Although there is little evidence to suggest significant leaching of metals to groundwater, and heavy metals are relatively immobile, a long term monitoring plan to ensure continued immobility of the site contaminants is merited. A portion of the soils would remain in contact with the groundwater, therefore there is a possibility that leakage could occur.

Alternative 2, the containment alternative, was ranked the lowest with a 1 since this alternative involves leaving soils in place and in contact with groundwater and would require long term monitoring for both the groundwater and the cap. It was ranked the lowest since it was perceived as the most likely alternative for a monitoring program to detect a release as the in place soils were not treated.

3.5.3.3 Agency Approval

In general, when a remedial action is required, alternatives that meet remedial objectives, comply with ARARs, minimize off-site disposal, are permanent and reduce the toxicity, mobility and volume of pollutants will meet the goals of the NCP and are considered to be the agency preferred alternatives.

All alternatives will meet the remedial action objectives for the site with the exception of the no action alternative. Alternative 6, the innovative treatment alternative, was ranked the highest with a 6 since this alternative will minimize off-site disposal, is permanent, and reduces the toxicity of the pollutants.

Alternative 3, the in-situ alternative, was ranked the next highest with a 5 since it involves treatment that will permanently bind the metals in an on-site cementous matrix.

Alternative 2, the containment alternative, was ranked with a 4 since this alternative involves construction of a permanent cap that will require some maintenance but will not reduce the toxicity, mobility or volume of the metals.

Alternatives 5 and 4, the on-site and off-site disposal alternatives, are similar in nature and were ranked with a 3 and a 2, respectively. These alternatives involve a limited amount of treatment by stabilization/solidification followed by landfilling the remaining soils. Since landfills are not considered permanent, these alternatives were ranked low. Alternative 5 was ranked slightly higher than Alternative 4 since an on-site landfill will minimize off-site disposal and does not involve transportation of un-solidified soils.

Alternative 1, the no action alternative, was ranked the lowest with a 1 since it does not meet the remedial action objectives for the site and is considered to be the least permanent alternative.

3.5.3.4 Availability

The evaluation of availability involves consideration of the availability of vendors, equipment and space for implementing an alternative. Alternatives that involve highly specialized equipment or vendors that are limited are factors that contribute to long term delays associated with implementing an alternative and are negative factors.

Alternative 1, the no action alternative, was ranked the highest with a 6 since it readily available.

Alternatives 5 and 4, the on-site and off-site disposal alternatives, are similar in nature and were ranked with a 4 and a 5, respectively. These alternatives are easily implemented and readily available since they involve excavation using standard earth moving equipment. Alternative 4 was ranked slightly higher than Alternative 5 since off-site landfills are readily available in the area to dispose of the soil. In addition, Alternative 5 was ranked lower because the installation of an impermeable cap was considered somewhat specialized and limited to a few vendors or suppliers of clay. There is sufficient land available on-site to construct an on-site landfill which, other than the construction of the cap, will not require specialized equipment.

Alternative 2, the containment alternative, was ranked with a 3 since this alternative involves construction of a permanent cap that will require specialized material that is less available and limited to a few vendors.

Alternative 3, the in-situ alternative, was ranked the next to lowest with a 2 since it requires specialized in-situ mixing equipment, which is less available than standard equipment used for previous alternatives.

Alternative 6, the innovative treatment alternative, was ranked the next to lowest with a 1 since this alternative would require specialized equipment and vendors. The equipment for this alternative is more specialized than that required for Alternative 3, therefore it merits a lower ranking. Although this alternative is specialized and limited to a few vendors, there is an adequate soil washing capacity provided by several US vendors who have licensed European technologies.

3.5.4 Costs

The costs are evaluated for both capital and operation and maintenance (O&M) costs and are based upon vendor quotes, quantity estimates, experience at other remedial action sites and engineering judgement. The costs are provided for feasibility analyses and are considered to be order of magnitude estimates for screening purposes only, and accurate to within +50% and -30%. Capital costs are costs for materials, labor and other direct costs, such as equipment and facilities rentals, that are required to implement an alternative. Operation and maintenance costs are those required to maintain an alternative, and include labor and analytical costs associated with groundwater

monitoring or costs required to maintain and repair a cap. The total cost for each alternative is the sum of the capital cost and the O&M cost.

3.5.4.1 Capital Cost

Capital costs for remedial alternatives have been estimated, whenever possible, using vendor supplied information for the unit operations associated with each of the six alternatives. These unit costs are as follows:

- Off-site transport, treatment and disposal in a Subtitle D landfill \$68/CY
 (based on a per cubic yard (CY) unit disposal cost from Earthwatch Landfill)
- On-site In-situ solidification \$400/CY
 (based on costs provided in SITE report for in-situ stabilization performed by Silicate Technologies)
- On-site Subtitle D landfill (Parsons ES project files) \$180/cy
 Soil Washing, wet separation (Parsons ES project files) \$300/cy
 Containment (Parsons ES project files) \$66/cy

These are the most significant unit costs. Other costs such as excavation, material handling, on-site hauling and backfilling are not significant and are within the rounding error of the listed unit costs.

Capital costs for each alternative have been estimated based on 2700 c.y. of material and these unit costs and are presented as follows (refer to Appendix D for cost estimate details):

Estimated	
Capital Cost (+50%, -30%)	Ranking
\$0	6
\$178,200	5
\$1,080,000	1
	<u>Capital Cost (+50%, -30%)</u> \$0 \$178,200

4	\$183,000	4
5	\$486,000	3
6	\$810,000	2

3.5.4.2 Operation and Maintenance (O&M) Cost

Long-term operation and maintenance (O&M) costs are costs that are incurred after remedial action is completed. The estimated O&M costs estimated from previous experience and cost estimates I Appendix C are provided below:

	Estimated Annual	
Alternative	O&M Cost (+50%, -30%)	Ranking
ĺ	\$0	6
2	\$81,688	1
3	\$41,688	3
4	\$41,688	5
5	\$81,688	2
6	\$41,688	4

Alternative 1, the no action alternative, was ranked the highest because there would be no O&M costs.

Alternatives 3, the in-situ alternative, Alternative 4, the off-site disposal alternative and Alternative 6, the innovative treatment alternative all have identical O&M costs as the costs assume an identical groundwater monitoring system. Alternative 4, the off-site disposal alternative, was ranked the highest of these three because all the contaminated soils would be removed from the site and the likelihood of future activities associated with a release will be the least. Therefore, this alternative was ranked with a 5. Alternative 6 was ranked the next highest with a 4 since only treated soil will remain on-site, which will have a low possibility for a release and a minimum maintenance of the site will be required. Alternative 3 was ranked the lowest of the three since it will involve monitoring and maintaining a landfill that contained contaminated materials and has the most requirements for a future maintenance activities of these three alternatives.

Alternatives 2 and 5, the containment alternative and the on-site disposal alternative, have the most long-term O&M costs because they include both groundwater sampling and cap maintenance. They ranked the lowest with a 1 and a 2, respectively. Alternative 5 was ranked above Alternative 2, the containment alternative, because the O&M cost for an on-site landfill for alternative 5 could be spread out amount sites that contribute waste.

3.5.6 Screening

The results of the screening of soil remediation alternatives are provided on **Table 3-2**. The no action alternative scored the lowest with a total score of 45. The containment alternative, Alternative 2, and the in-situ alternative, Alternative 3 also scored low with a score of 52 and 53, respectively. The on-site disposal alternative, Alternative 5, scored the next highest with a score of 54. Alternative 4, the off-site disposal alternative, scored the next to highest with a total score of 56 and Alternative 6, the innovative treatment alternative, scored the highest with a total score of 65. Alternatives 4, 5 and 6 were retained for detailed evaluation. Alternative 1 was also retained for comparitory purposes. Alternatives 2 and 3 were screened out from further consideration because they scored low. In addition, Alternative 3 is the costliest alternative.

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4.0 TREATABILITY INVESTIGATIONS

4.1 INTRODUCTION

One of the important parts of most remedial actions is the treatability investigation. In general, there are two primary objectives for treatability studies:

- Provide sufficient data to allow treatment alternatives to be fully developed and evaluated and to support the remedial design of a selected alternative
- Reduce cost and performance uncertainties for treatment alternatives so that a remedy can be selected.

There are three stages in the CERCLA process in which treatability studies may be used, remedy screening, remedy selection, and remedy design. In the remedy screening phase treatability studies are designed to establish whether or not a technology can effectively treat a given waste. These studies generally provide little cost or design data. In the next stage, remedy selection, treatability studies are used to evaluate the site-specific performance of each technology in order to support selection of an alternative. Treatability studies in the remedy selection stage may yield information on 7 of the 9 technology evaluation criteria, including: (EPA, 1991b)

- Overall protection of human health and the environment
- Compliance with ARARs
- Reduction of toxicity, mobility, or volume
- Short-term effectiveness
- Implementability
- Long-term effectiveness and permanence
- Cost.

This mid-stage of the CERCLA process is implemented prior to the Record of Decision (ROD) and would be referred to as a pre-ROD treatability study.

The last stage of the CERCLA process is the remedy design stage. This stage is implemented after

the ROD has been signed, and these treatability studies are often referred to as post-ROD treatability studies. Post-ROD treatability studies provide quantitative performance, cost, and design information (EPA, 1991b). This information is then used to design the remedial treatment process, refine the remedial action cost estimate, and make accurate predictions of the time required for remediation.

At either SEAD-16 or SEAD-17 there is no need for remedy screening treatability studies. Both technologies being considered for treatment, solidification/stabilization and soil washing are demonstrated. This means that substantial treatability and remedial work has been done with these technologies on sites with similar wastes. Therefore, the only treatability work proposed for this remedial action is pre-ROD testing, since the treatability results can then be used to finalize the remedial selection, design and to develop a detailed cost estimate. Section 4.2 provides a brief overview of the pre-ROD treatability study process. Sections 4.3 and 4.4 describe the detailed treatability procedures for solidification/stabilization and soil washing, respectively.

4.2 GENERAL TREATABILITY STUDIES

As described above, this discussion will focus on those treatability studies conducted prior to the ROD. The primary goals of a pre-ROD treatability study are:

- Facilitate the alternative selection process
- To select among multiple vendors and/or processes within a given technology
- To support the detailed design and the development of specifications
- To provide information supporting a detailed cost estimate.

These studies can be conducted either in the laboratory or the field, at bench or pilot scale. For these remedial actions, the treatability studies will likely be conducted in the laboratory, by either the Army, or the various vendors interested in performing the remedial activities.

Bench-scale testing is usually conducted in the laboratory, and is best used to establish treatment parameters. Bench-scale testing is useful for established technologies, such as solidification and soil washing, since it can be used to pinpoint site-specific operating parameters. Pilot-scale testing can be done either at the site or in the laboratory. In pilot-scale testing, smaller versions of the

actual treatment equipment, or the actual treatment equipment may be used. Since solidification/stabilization and soil washing are demonstrated technologies, bench-scale treatability work will be appropriate.

The first step in any treatability study is establishing the treatment goals. These goals include, but are not limited to the attainment of ARARs. For example, an ARAR for the solidification/stabilization of the soils is that the treated soils are not Toxicity Characteristic (TC) hazardous waste. An additional treatment criteria which is not an ARAR, but would be important if an on-site landfill is used, will likely be that the solidified waste have sufficient structural strength to support the cap placed over the landfill. The treatability study workplan will clearly delineate all treatment criteria for this remedial action.

The next step is identifying the Data Quality Objectives (DQOs) and preparing the study workplans. DQOs are qualitative and quantitative statements that specify the requirements for the data collected during the study. The final DQOs will be incorporated into the treatability study design, workplan, sampling and analysis plan, and chemical data acquisition plan will ensure that the data collected are of sufficient quality to support the objectives of the treatability study. For pre-ROD treatability studies, fairly rigorous Quality Assurance/Quality Control (QA/QC) will be required. Since the QA/QC required will be similar to that required for the remedial investigation, the chemical data acquisition plan developed in support of the Remedial Investigation/Feasibility Study (RI/FS) (MAIN, 1991) will be modified for use in the treatability testing.

The subsections generally included in a treatability study workplan are:

- Project description
- Remedial technology description
- Test objectives
- Experimental design and procedures
- Equipment and materials
- Sampling and analysis
- Data management
- Data analysis and interpretation
- Health and safety

- Residuals management
- Community relations
- Reports
- Schedule
- Management and staffing
- Budget

Not every one of these items will be described in detail in each workplan, but it is important to at least consider each item. Most of the section titles are self-explanatory, and will not be described in detail, but there are several points which should be highlighted. First, health and safety merits its own section in the workplan. Health and safety is very important because the soil to be treated is likely a hazardous waste prior to treatment. The party implementing the work plan will not only be required to follow the health and safety plan, they must also be in full compliance with all Occupational Safety and Health Administration (OSHA) and EPA regulations that pertain to working with hazardous wastes.

Residuals management is another important issue. Any soil or sediment which is not successfully treated is still a hazardous waste. In addition, any residuals generated during the testing may be hazardous wastes, and must be handled and disposed of accordingly.

Once the workplan has been completed, the next step in the process is to identify the party that will perform the study. For both solidification/stabilization and soil washing the technologies used by the various vendors are similar. The only major differences between vendors are related to proprietary materials. Therefore, it is likely that the treatability studies will be carried out by vendors so that the appropriate proprietary materials can be used. It will be important to clearly specify the goals of the study so that results from different vendors can be accurately compared and evaluated.

Once the work plans have been finalized and the vendors have been selected, the next step will be to collect a representative sample. In order to better compare the results of each vendor's testing, it best to collect sufficient volume of sample for all the studies to be conducted. A set volume of soil could be collected from each area designated for remediation at SEAD-16 and SEAD-17 in

proportion to the volume of soil to be remediated. All the soil collected would be composited and apportioned to each vendor. This assures that each vendor will be testing similar material.

Once the vendors have completed their studies, the data must be reviewed and assessed prior to contractor selection and completion of detailed designs and specifications. The study results will be reviewed to ensure that each technology meets the specified treatment criteria. All technologies that meet the treatment criteria will then be reviewed for other items, such as cost-effectiveness and ease of implementation. Once a vendor is selected, detailed design and specifications will be developed.

4.3 SOLIDIFICATION/STABILIZATION TREATABILITY STUDIES

The first step in a treatability study for solidification/stabilization at SEAD-16 and 17 is to determine whether the soils and sediments to be remediated are already suitable for disposal in a Subtitle D landfill. If they are, then treatment, and a treatability study, are unnecessary. The primary criteria for disposal in a Subtitle D landfill are that the waste cannot be a RCRA hazardous waste, and characteristic wastes must be treated so they no longer exhibit hazardous characteristics. Soils at SEAD-16 and 17 will be tested for hazardous characteristics prior to implementing the treatability study.

Once the necessity for treatment has been determined, the next step is to establish the treatment objectives, which is related to the desired final compostion of the treated soils. In addition to meeting the criteria for disposal in a Subtitle D lanfill, the treatment objectives may include high structural strength. Typically, the design bearing strength is that which is required to support construction equipment during installation of the final landfill cover. Another objective to consider is the amount of volume increase. A S/S process that minimizes the volume increase of the treated soil is desirable because disposal costs are dependent on the volume of material to be disposed of. Other objectives may include one of more of the following:

- Determine the most economical mix design;
- Identify handling problems such as oversize material;
- Identify whether volatile emissions are a concern;
- Assess physical and chemical uniformity of the waste;

Once the treatment objectives are established, the next step is to determine the DQOs and prepare the workplan, which should include the treatment objectives and DQOs, in addition to the specific tests to be performed, a procedure for collecting a representative sample, and a procedure for arriving at the desired treatment objectives. A detailed discussion of treatability studies for S/S is contained in the USACE Technical Letter No. 1110-1-158, dated 28 February 1995, which should be consulted during preparation of the work plan.

Baseline conditions of the soil should be determined prior to treatability testing. A number of preliminary tests can be run on the soil to establish baseline conditions. These tests can include but are not limited to metals analysis, moisture content, percent solids, and density. In addition, because the primary objective of S/S is to immobilize contaminants in waste, leachability testing is necessary to predict how well contaminants will immobilize after S/S.

Toxicity Characteristic Leaching Procedure (TCLP) is a common leachability test procedure, which involves mixing a portion of the solids with acetic acid to determine how much of the contaminants have leached into the acid over time (the complete procedure is described in EPA Test Methods SW-846, Method 1311). The TCLP is designed to simulate the leaching potential of a waste within an unmanaged landfill designed for municipal wastes, which can generate organic acids during decomposition of waste materials over time. However, the test does not simulate the conditions of most present-day hazardous waste landfills becuase these contain very little organic matter. Therefore, TCLP may not yield maximum concentrations of leached contaminants under all circumstances, and other leaching procedures should be considered. A partial summary of leaching procedures can be found in EPA/625/6-89/022.

After the workplan is completed, a representative sample must be collected. In order to adequately compare the results of each vendor's testing, it is best to collect a sufficient volume of sample for all the studies to be conducted. This volume should be based on the number of tests to be completed and the volume of soil required for each test. Homoginization and removal of oversize material by sieving are recommended to create uniform samples prior completing the treatability study.

The next step is the treatability work itself. Often, the primary admixtures used are cement, lime (or lime kiln dust), and fly ash. These are used either individually or in varying mixtures of two or three. Most vendors also use proprietary admixtures. Therefore, the admixtures to be used in this treatability study will not be specified by the Army.

The admixtures will be added to the soil in varying ratios based on the dry weight of the soil. Water will be added as necessary, and the final volume of water added will be recorded. The mixtures will then be allowed to cure. At different times in the curing process, usually at 1 day, 3 days, 1 week, 2 weeks, and 1 month, the mixtures will tested to determine if the treatment criteria are met. These tests may include TCLP metals, bearing strength, volume increase, and moisture content. The actual testing schedule and parameter list will vary, depending on the vendor and the final disposition of the treated soil. Each vendor will then prepare a final report which documents all the results of the testing. The report will demonstrate which admixtures and curing times meet the treatment criteria. The Army will then evaluate the results to determine the most cost-effective of the admixtures which meet all the treatment criteria.

The results of the treatability study will then be used to prepare the final design and specifications. It is anticipated that the design will involve performance specifications geared towards meeting the treatment criteria, as opposed to design criteria which specify he admixtures to be used and the different ratios.

4.4 SOIL WASHING TREATABILITY STUDIES

The mechanics of the soil washing treatability study are very similar to those of the solidification/stabilization treatability study. Again, a DQOs and a work plan will be developed to describe the goals of the study. Representative samples will be collected. The pre-study testing will vary slightly for the soil washing treatability study. Preliminary data will include a full TCLP metals analysis to establish baseline conditions, and a number of physical chemical properties to aid in developing the treatment process. At a minimum, the soils will be analyzed for particle size distribution (sieve and hydrometer), dry bulk density, moisture content, total organic carbon, pH, and soil mineralogy.

One important test which is run for the soil washing treatability study is a chemical analysis on each of several soil fractions separated with sieves. Often, most of the chemical constituents are associated with the fine fraction in the soil. When this is the case, wet separation unit operations can significantly reduce the quantity of soil which needs to be treated. By analyzing the different fractions prior to treatment, the distribution of the potentially hazardous constituents with respect to particle size can be determined.

The first step in the treatability study is usually a series of jar tests. Soil samples are placed in a series of jars, and an equal volume of liquid is added to each jar. Usually plain water (hot and cold) are the first liquids tested. Other liquids to test include aqueous solutions of surfactants, chelating agents, or other dispersing agents. The pH of the test water may also be varied. After the liquids are placed in the jars, the jars are shaken. Next, the soil/water mixture is poured into a 2mm sieve. The water is allowed to drain, and the remaining soil is rinsed with clean water. After the soil drys, it is analyzed to determine the percent reduction. The solutions which yield satisfactory results are carried over to the next stage of the study.

The bench-scale testing is more involved than the jar tests. The first step is often to determine the optimal wash times, washwater to soil ratios, and rinsewater to washwater ratios (EPA, 1991b). Once these values are determined with plain water, the optimal additives determined in the jar testing stage can be used. Each of the other additives can be evaluated to determine the solution which best removes hazardous constituents from the coarse fraction. If the acid leaching process is used to treat the fine fraction to remove inorganic components, these agents will also be analyzed to determine whether they are effective for solubilizing metal contaminants and to determine if the process meets the remediation requirements established for the site. The wash water and rinse water will also be analyzed for mass balance purposes, and for determining the best treatment and disposal option for the washwater. If necessary, treatability testing will be conducted on the washwater.

The last step is evaluating the results of the treatability study. Analytical data taken before and after the washing are used to determine the removal efficiency. The particle size distributions can be used to estimate the volume reduction of the process. The effectiveness of the washwater treatment and fine soil separation must also be considered. These results will then be used to size

the final unit, specify the reagents and reagent ratios, and prepare a detailed cost estimate for the process.

5.0 DETAILED ANALYSIS OF ALTERNATIVES

5.1 GENERAL

The four retained remedial action alternatives for soil/sediment represent a range of waste management strategies which address the human health and environmental concerns associated with SEAD-16 and 17. Although the selected alternative(s) will be further refined as necessary during the predesign phase, the description of the alternatives and the analysis with respect to the criteria discussed below present the fundamental components of the various alternatives being considered for this site.

A technical description of each alternative is presented. After the technical description, a discussion of the alternative is presented with respect to overall protection of human health and the environment; short-term effectiveness; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; implementability; and cost.

The analysis of each alternative with respect to overall protection of human health and the environment provides an evaluation of how the alternative reduces the risk from potential exposure pathways and meets the site-specific cleanup goals established between NYSDEC, the USEPA, and the Army through treatment, engineering, or institutional controls. These goals, presented in **Table 2-2** were developed for on-site soils and sediments.

Long-term effectiveness and permanence are evaluated with respect to the magnitude of residual risk remaining from untreated waste or treated residuals after the remedial action is complete, and the adequacy and reliability of controls used to manage remaining waste (untreated waste and treatment residuals) over the long-term. One requirement of CERCLA is that a remedial action should involve solutions with the highest degrees of long-term effectiveness and permanence. That is, little or no waste would remain at the site such that long-term maintenance and monitoring are unnecessary and reliance on institutional controls is minimized.

The discussion of the reduction of toxicity, mobility, or volume through treatment addresses the anticipated performance of the treatment technologies involved with an alternative. This evaluation relates to one of the requirements by CERCLA that a selected remedial action employ treatment to reduce the toxicity, mobility, or volume of hazardous substances. The evaluation will determine the amount of waste treated or destroyed, the reduction in toxicity, mobility, or volume, and the type and quantity of treatment residuals that will remain.

Evaluation of alternatives with respect to short-term effectiveness takes into account protection of workers and the community during the remedial action, environmental impacts from implementing the action, and the time required to achieve cleanup goals.

The analysis of implementability deals with the technical and administrative feasibility of implementing the alternatives and the availability of necessary materials and services. This criteria includes the ability to construct and operate components of the alternatives; the availability of adequate off-site treatment, storage, and disposal services; the availability of services, equipment, and specialists; the ability to monitor the effectiveness of remedial actions; and the ability to obtain necessary approvals from agencies.

Detailed the cost estimates presented in this report for the retained alternatives. These costs are based on information from the R.S. means Environmental Cost Handling Options and Solutions (ECHOS) estimating library. Quotes from suppliers in the area of the site, generic unit costs, vendor information, conventional cost estimating guides, and prior experience are used to supplement this information. The cost estimates presented in this feasibility report have been prepared for guidance in project evaluation. The actual costs of the project will depend on true labor and materials costs at the time of construction, actual site conditions, competitive market condition, final project scope, and other variables.

Construction costs include those expenditures required to implement a remedial action. Both direct and indirect costs are considered in the development of construction cost estimates. Direct costs include construction costs or expenditures for equipment, labor, and materials required to implement a remedial action. Indirect costs include those associated with engineering, permitting, construction management, and other services necessary to carry out a remedial action.

Quarterly O&M costs, which include labor, maintenance materials, and purchased services have also been determined.

The detailed analysis of alternatives considers all the receptors identified in Section 2.0 for each exposure scenario: current and future on-site industrial worker, future construction worker, and future potential trespasser. SEDA has been placed on the base closure list for BRAC95 and the intended future use is industrial/commercial. Therefore, the purpose of the remedial action objectives established in Section 2.0 is to protect human health as appropriate to the intended future use of SEAD-16 and 17. Alternatives 4, 5, and 6 have therefore been retained for detailed analysis in this section because they have the best potential for fulfilling the remedial action objectives. Alternative 1 (No Action) has also been retained for comparison purposes. The primary components of each alternative are shown in **Table 5-1**.

Table 5-1 SENECA ARMY DEPOT ACTIVITY SEAD-16 AND 17 FEASIBILITY STUDY

REMEDIAL ALTERNATIVES RETAINED FOR DETAILED ANALYSIS

ALTERNATIVE	TECHNOLOGIES AND PROCESSES
1	No Action
4	Excavation/Solidification/Stabilization(Off-Site or On-Site)/Off-site landfill - Excavation soils above 500 mg/kg - Excavation of sediments in drainage ditches that exceed NYSDEC sediment criteria for lead of 31 mg/kg - Removal of material/debris from abandoned buildings at SEAD-16 - Transport all soils failing TCLP criteria to on-site or off-site location for stabilization/solidification - Stabilization/solidification of soils exceeding TCLP criteria (on-site or off-site facility - Transport/Place all excavated and treated materials in off-site Subtitle D landfill - Long-term groundwater monitoring - Soil erosion will be controlled through proper site grading - Site Covering and Revegetation
5	Excavation/Solidification/stabilization of soils failing TCLP/On-site landfill - Excavation of soils above 500 mg/kg - Excavation of sediments in drainage ditches that exceed NYSDEC sediment criteria for lead of 31 mg/kg - Removal of material/debris from abandoned buildings at SEAD-16 - Transport soils to on-site treatment staging area - Stabilization/solidification of soils exceeding TCLP criteria - Place all excavated and treated soils in on-site Subtitle D landfill - Long-term groundwater monitoring - Soil erosion will be controlled through proper site grading - Site Covering and Revegetation
6	Excavation/Soil Washing - Excavation of all soils with lead concentrations above 500 mg/kg - Excavation of sediments in drainage ditches that exceed NYSDEC sediment criteria for lead of 31 mg/kg - Removal of material/debris from abandoned buildings at SEAD-16 - Transport soils to on-site treatment staging area - Soil washing; Physical separation of fine fraction from coarse fraction - Clean coarse fraction backfilled - Fine Fraction to off-site stabilization/disposal in Subtitle D landfill - Long-term groundwater monitoring - Soil erosion will be controlled through proper site grading - Site Covering and Revegetation

5.2 ANALYSIS OF SOIL/SEDIMENT ALTERNATIVE 1: NO ACTION

5.2.1 Definition of Alternative 1

The no action alternative means that no remedial activities will be undertaken at SEAD-16 and 17. No monitoring or security measures will be undertaken. Any attenuation of the threats posed by the site to human health and the environment will be the result of natural processes. Current security measures, which include the SEDA-wide security activities that effectively eliminate public access to the area, will be eliminated or modified depending upon whether the property is transferred or leased. Access to the site can be limited depending upon how the Army determines the property will be used.

This alternative will be used as a baseline for comparison with the other alternatives developed as part of this feasibility study.

5.2.2 Protection of Human Health and the Environment

An evaluation of the protectiveness of human health and the environment includes an assessment of the short-term and long-term effectiveness as well as permanence. Assessment of the short-term effectiveness addresses the effects of an alternative during construction and implementation of a remedial action. Since Alternative 1 is a no action alternative, which does not require construction or disturbances to the site, analysis of short term effectiveness is not applicable.

5.2.2.1 Long-Term Effectiveness and Permanence

The Baseline Risk Assessment (BRA) indicates that the no action alternative is currently within the EPA target range for carcinogenic risk for both SEAD-16 and SEAD-17. However, the total site non-carcinogenic risk, or hazard index HI, for the future industrial worker scenario was determined to be 19.6 at SEAD-16, which is above the EPA target value of 1.0. In addition, the HI for the future on-site construction worker scenario was determined to be 2.22, which is also above the EPA target value. The hazard indices for all scenarios at SEAD-17 are below the EPA target value of 1.0 (refer to **Table 1-2**). Therefore, the no action alternative is only protective of human health at SEAD-17.

However, this alternative does not protect against ingestion of and direct contact with soils having concentrations of lead above 500 mg/kg, or prevent potential leaching of lead from the soil into the groundwater above the federal action level. All of the constituents of concern remain in-place. Since the SEDA security measures prevent public access to the site, there is currently little or no risk to the public because there is not exposure. Access by site workers is infrequent and limited to demilitarization

activities. SEDA personnel working at SEAD-16 or SEAD-17 have also received training which will allow them to operate safely in the areas near the site. However, since the depot is a facility scheduled to be closed under BRAC95, these security measures will eventually be eliminated. The future land use of the site is designated as industrial/commercial.

Furthermore, this alternative does not provide long-term protection to ecological receptors in Kendaia Creek because the sediments in the drainage ditches with concentrations of lead above the NYSDEC criteria would remain. While no adverse affects were observed during the RI, there is a potential for long-term chronic affects. Contamination of the creek by runoff from the site would not be prevented.

The no action alternative does not provide a permanent solution since no treatment, engineering or institutional controls are provided to prevent exposure to constituents of concern in on-site soils and sediments.

5.2.3 Reduction of Toxicity, Mobility, and Volume

There would be no reduction in the toxicity, mobility, or volume of the impacted soil at the sites. Some natural attenuation is expected, through dispersal of the affected soil and through chemical and physical changes which may reduce the mobility of the heavy metals. However, these decreases will be minimal, since no reduction from treatment will occur.

5.2.4 Implementability

The criteria of implementability is not applicable to the no action alternative since there are no activities occurring. There will still be monitoring and security activities, as described above, as well as some administrative requirements, but these activities which are already occurring are and will continue to be performed as part of compliance with RCRA. Formal RCRA closure activities may require additional remedial measures if necessary.

5.2.5 <u>Cost</u>

There are no costs associated with the no action alternative. The costs associated with the monitoring and security described above are covered through other mechanisms, and will not be directly attributable to this remedial action.

5.3 SOIL/SEDIMENT ALTERNATIVES 4 THROUGH 6: COMMON COMPONENTS

All of the remaining alternatives have five components in common. These components, which are in addition to the remediation criteria for soils and sediments required by NYSDEC and the USEPA, include groundwater monitoring, runoff prevention, site revegetation, periodic monitoring of the sediments in Kendaia Creek, and UXO clearance. A detailed description of each component is provided below.

- Site groundwater will be monitored on a quarterly basis. There are a number of wells already
 installed at the site, and these may be sufficient for the continued monitoring. New wells will be
 installed as necessary to ensure that the monitoring program is sufficient to detect any migration
 from the area.
- Sediment sampling in Kendaia Creek will be conducted on an annual basis at four location within the reach affected by the drainage ditches at SEAD-16 and 17. The purpose of the sampling is to ensure that Kendaia Creek is not being contaminated by lead left in the soil at the site.

5.4 ANALYSIS OF SOIL/SEDIMENT ALTERNATIVE 4: EXCAVATION, TREATMENT, AND OFF-SITE LANDFILL

5.4.1 Definition of Alternative 4

5.4.1.1 Description

This alternative includes excavation of soils, treatment of soils exceeding the TCLP limit to remove the characteristic of toxicity, and disposal of all the excavated soils, sediments, and treated soils in an off-site, non-hazardous, solid waste, Subtitle D, industrial landfill. For this alternative, the soils and sediment with concentrations of lead exceeding TCLP limit will be treated by a solidification/stabilization process prior to disposal in a Subtitle D landfill. This treatment will be conducted either on site or off site at a TSD facility. All the soils will be transported off-site to a Subtitle D solid waste landfill for disposal. Each of the processes involved with this alternative will be described briefly in this section. A detailed analysis of how this option meets the selection criteria, and a budgetary cost estimate are provided below.

The first step in this alternative is excavation. An excavation plan will be developed using previous RI data to delineate the extent of removal.

These volumes includes approximately 10 cy of debris and materials from the abandoned building at SEAD-16, surface and subsurface soils with lead concentrations that exceed 500 mg/kg, and sediments that exceed the NYSDEC sediment criteria for lead of 31 mg/kg. The excavation will be accomplished with standard construction equipment, such as a front end loader or bulldozer.

The data indicate that the soils to be removed at SEAD-16 (case 2) are limited to soils on the northeast, east, south, and southeast sides of Building S-311, as shown on Figure 2-1 in Section 2.0. At SEAD-17, the soils to be removed (case 1) include surface soils on the north, northwest, and west side of Building 367 (Figure 2-2). These soils will be removed to a depth of 6 inches below ground surface, comprising 675 cubic yards (CY) to be excavated at SEAD-16 and 842 CY to be excavated at SEAD-17, for a combined total of 1,517 CY for both sites. The cumulative total is 1,617 CY. The excavated soil will be loaded into trucks for transport to an off-site treatment, storage and disposal facility (TSDF), which will be responsible for the necessary treatment (solidification/stabilization) for disposal in an off-site solid waste landfill. Alternatively the soil can be treated on-site, in which case the excavated soil will be brought to an on-site pug mill.

The next case of soils to be excavated (case 3 for SEAD-16 case 2 for SEAD-17) are sediments in the drainage ditches that exceed the NYSDEC sediment criteria of 31 mg/kg for lead. Since lead was detected above this level in all sediment samples, six inches of sediment will be excavated from all drainage ditches at each site, according to the areas delineated on **Figures 2-1 and 2-2**. The volume of sediment to be excavated at SEAD-16 and 17 is 371 CY and 81 CY, respectively. The combined total is 452 CY for a cumulative total excavated and removed at both sites of 2,069 CY.

At isolated locations, subsurface sample results showed elevated lead concentrations exceeding the 500 mg/kg criteria. Soil at these isolated locations will be further excavated to a depth of 24 inches. The volume of soil involved with this case (Case 4 at SEAD-16 and Case 3 at SEAD-17) is 76 CY and 35 CY, respectively, for a combined total of 165 CY. The cumulative volume of soils to be excavated for all cases at SEAD-16 and 17 is 1,222 CY and 958 CY, respectively, or a combined total of 2,180 CY.

Each site will be regraded with a bulldozer in a manner which approximates the original grade. If necessary, clean fill will be brought in to make up for the excavated soils. The topsoil will be vegetated with indigenous grasses as an erosion control measure.

The next step in this alternative is the solidification/stabilization treatment step, which can be accomplished either on or off site. Because the small volume of soils that require remediation at SEAD-16 and 17, it is expected that off-site treatment is more cost effective. However, both options will be considered. Solidification/stabilization is a process in which a setting agent is added to the soil to form a

mixture which entraps the constituents. Solidification refers to the techniques use to encapsulate hazardous waste into a solid material, and stabilization generally refers to the techniques that treat hazardous wastes by converting them into a less soluble, mobile, or toxic state. The different setting agents used are described below. The primary goals of solidification are to:

- ·Improve the handling and physical characteristics of the waste
- Decrease constituent solubility and mobility
- Decrease the surface area across which the migration of constituents may occur.

The reason for stabilizing the soil is to immobilize the lead and other heavy metals in the soils that have concentrations of constituents in excess of the TCLP regulatory limits. Excavated soil must be tested for TCLP to determine the necessity for solidification/stabilization prior to disposal. Once this is accomplished the stabilized material can be disposed of as a solid waste in an on-site landfill.

Solidification/stabilization is a process in which the contaminants are converted to less toxic, mobile, and/or in soluble forms. The physical properties of the soil or waste are not necessarily changed by this process (EPA 1990).

Solidification/stabilization has been used primarily for the treatment of soils containing inorganic contaminants and has been shown to be effective for heavy metals, the primary contaminant of concern at SEAD-16 and 17. Some organics may interfere with the setting process, and others may not be bound up in the finished product. There are few organics in the soils to be stabilized at SEAD-16 and 17, and interference by organics is not considered to be a problem. Bench scale treatability tests will be conducted to assess the adequacy of a given additive to a specific soil-waste mixture.

Four types of mixtures are generally used for solidification/stabilization. Inorganic solidification/stabilization is often achieved with cement or pozzolanic additives. Organic solidification/stabilization is often accomplished with thermo-plastic or organic polymerization additives (EPA, 1989). A combination of these processes may be used for a soil containing both organic and inorganic contaminants.

In cement-based solidification/stabilization, the soil is mixed with Portland cement. Water is added to the mixture. Inorganic materials then become bound up in the cement matrix. Pozzolanic solidification/stabilization involves mixing the waste with a siliceous material, such as fly ash, pumice, or lime kiln dust. The mixture is often combined with lime or cement and water to form a cement-like final product. The end result of inorganic solidification/stabilization can be a granular material or a cohesive solid (EPA, 1989). Cement-based stabilization is the likely choice for SEAD-16 and 17. The

site soils are primarily fill material, much of which consists of crushed shale. This material will be readily bound up in a cement base, and will act like the aggregate used in making concrete. Treatability testing will be conducted to determine the quantities and types of admixtures which best satisfy the treatment criteria for this site.

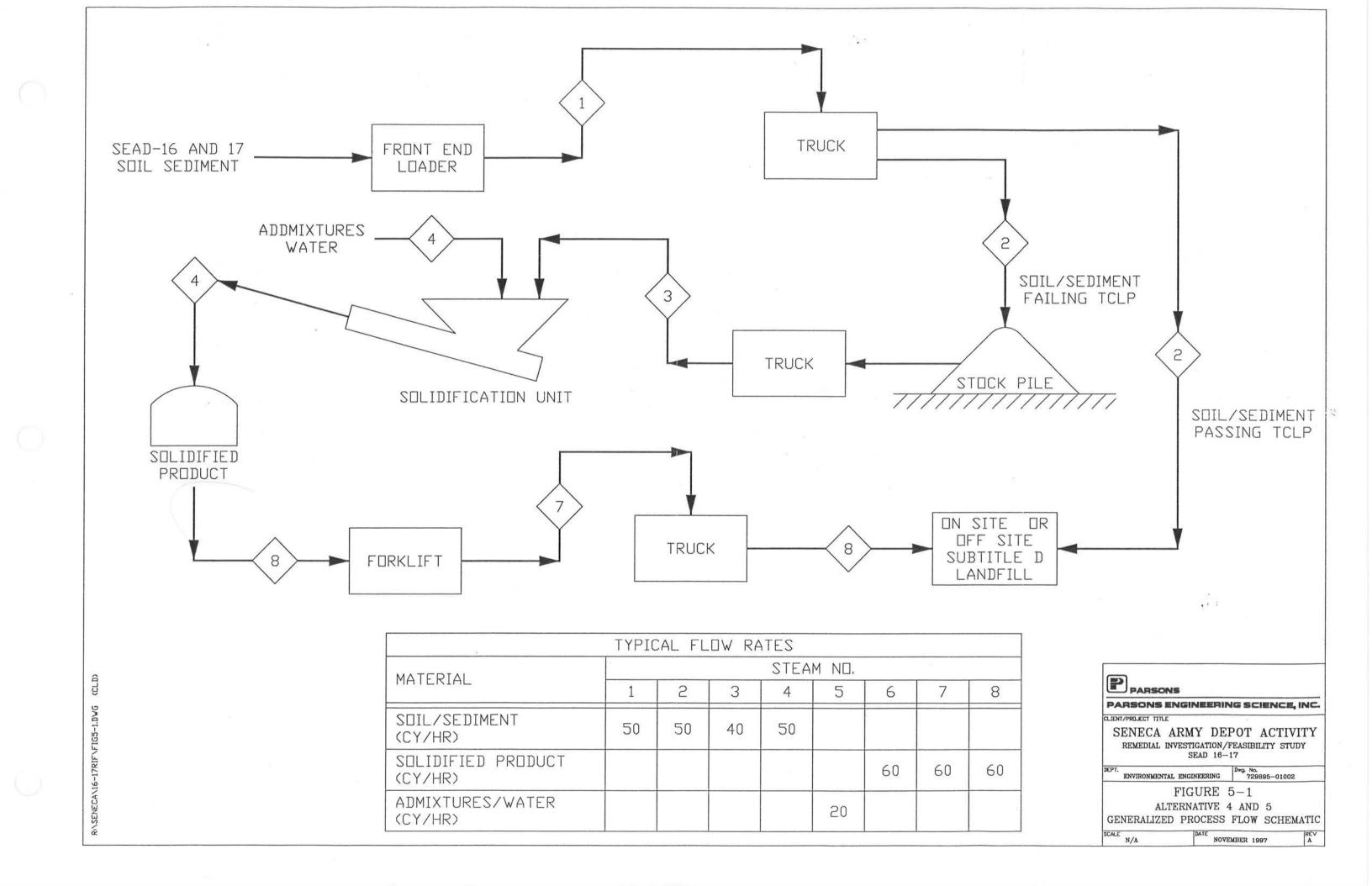
Solidification/stabilization can be conducted either in-situ or in a batch mode. For in-situ solidification/stabilization, the mixtures are injected into the soil and then mixed. Farm equipment such as tillers can be used in this process. In batch operations, the material is removed from the ground with standard earthmoving equipment and mixed in units such as standard cement trucks. The solidified material is then replaced in the ground. Batch processes require more area than in situ processes because space is necessary to store the untreated soil when it is removed from the ground. For on-site treatment at SEAD-16 and 17, a batch operation will be used. The contaminated soil is shallow, and is easily removed. In addition, there is plenty of space available to set up a stockpile area and cement plant. The treated soil could be placed directly into trucks for removal to the off-site landfill.

The final step in this remedial action is disposal of all the soils and sediments including the treated material. The treated soils and remaining excavated soils and sediments will not be considered a characteristic RCRA hazardous waste. It will be a solid waste, and therefore disposal will be subject to RCRA Subtitle D and New York State solid waste regulations. In New York, all sanitary landfills are authorized to accept industrial wastes, and therefore would be able to accept the stabilized soil. These landfills cannot accept hazardous waste, and require extensive testing to assure that the waste is no a hazardous waste. The actual testing requirements vary from landfill to landfill, and the exact requirements for this remedial action will be specified once a landfill is selected.

Two landfills, which may be used for this remedial action, have been identified. The first is EQ located in Michigan. This facility has the capacity and capability to treat and dispose hazardous material. The second is the Seneca Meadows landfill located in Waterloo, New York, approximately 10 to 15 miles from the site. This facility however, cannot treat the soil and can only be used if the soil is treated on-site.

5.4.1.2 Process Flow and Site Layout

Figure 5-1 is a process flow diagram for Alternative 4 (and 5). The process flow for this alternative consists of three steps. First, the soil is excavated and TCLP tested as described above. Soils exceeding the TCLP criteria are placed in trucks and hauled to the TSDF. If on-site treatment is used, soils are brought to an on-site pug mill where it is stockpiled prior to stabilization. If the material is sent off-site for treatment, the soil will be treated and then disposed of in an appropriate landfill. If treatment will



*

take place on-site, the soil will be placed in the pug mill and mixed with water and the various admixtures. The soil likely will be placed in the pug mill using a conveyor belt with a scale system in order to record the weight of the soil to be treated. Another option is a front end loader, with the volume of the treated soil recorded, the admixtures may be added in several ways, depending on the final technology selected. Dry admixtures will either be stockpiled and added via a conveyor or a front end loader, or added with a hopper system. If water is necessary to the process, either a temporary tank will be used, or depending on the location, a hook up to the Depot water supply may be possible.

The treated soil is then discharged either directly to the trucks for transport to the landfill, or to a treated soil stockpile for testing. In general, a volume increase of 50% is expected for the solidified soil. The treated soil will be analyzed by the TCLP at the rate required by the landfill accepting the waste. For the Seneca Meadows Landfill, the rate required is one TCLP analysis per 1,500 tons of treated soil. In the final step, all the soils are transported to the off-site solid waste landfill.

This alternative does not require much area, only sufficient area for the pug mill and two small stockpile areas if treatment is conducted on site. Once the system is operational, there will only need to be room in each stockpile for 1,000 to 2,000 tons. The pug mill and stockpile area will be located adjacent to Unnamed Road between SEAD-16 and 17, as shown on **Figure 5-2**. This will provide for easy access for the excavation equipment to bring the untreated soil to the pug mill, and for the trucks which will haul the treated material to the landfill.

If treatment is conducted off-site, each truck will be loaded directly from the excavations. A small staging area and equipment decontamination area will be set up as necessary.

5.4.2 Protection of Human Health and the Environment

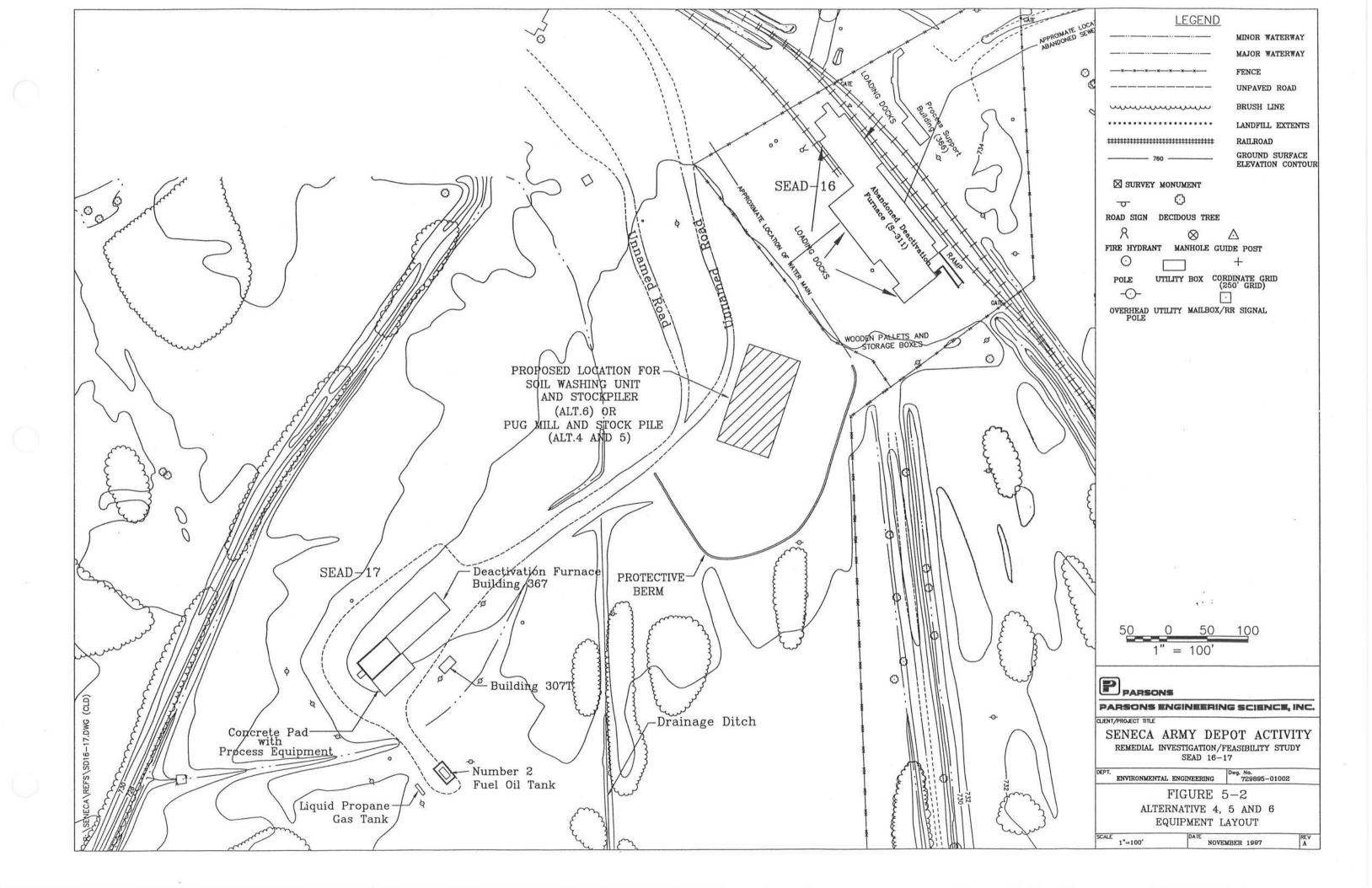
An evaluation of the protectiveness of human health and the environment includes the assessment of short- and long-term effectiveness as well as permanence. The following discussion will show how this alternative meets these criteria.

5.4.2.1 Short-term Protectiveness

This alternative will be evaluated with respect to the effect on human health and the environment during the implementation of the remedial action. Four items are included in an assessment of the short-term protectiveness of Alternative 4. The first issue is protection of the community during the remedial action. If no treatment will be accomplished on site, there will be transport of hazardous material. Care will be taken to assure that the trucks are not overloaded. The soils will be covered with a tarp during

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transport to ensure that no dust is released from the trucks. If all treatment will be accomplished on site, this alternative is very protective of the community. There will be transport of no hazardous materials. All waste which is sent to the off-site landfill will no longer be considered hazardous waste.

There is also a minor threat from dust released during the excavation. The site is located far from the SEDA boundary, so the likelihood of any hazardous dust migrating off-site is negligible. As discussed in Section 5 of the RI report, fugitive dust migration is not a major migration pathway. Fugitive dust is further minimized by the makeup of the soil to be excavated, which are primarily shale fill, a material which has a fairly large particle size, and is less subject to dust formation.

The short-term protectiveness to site workers must also be considered. The major routes of exposure during treatment are direct contact with the contaminated soil and inhalation of vapors or particulates. Protection from exposure can be minimized through site access controls and the use of proper protective equipment for site workers, such as dust masks and Tyvek protective clothing. Air monitoring may be used to determine if there is a significant threat from the inhalation of vapors or particulate. Dust generation at the excavation can be minimized by using water or other dust control chemicals. During on-site treatment, dust generation can be minimized at the pug mill by containing all admixtures which tend to from dust (ie., cement and lime), and by containing the mixing process. The solidification/stabilization process is very similar to normal cement construction procedures, and is therefore fairly straightforward. It should also be noted that all the site workers will be required to meet all the OSHA training and medical monitoring requirements prior to working on site.

Another part of the short-term protectiveness criterion is assessing the environmental impacts during the remedial action. For Alternative 4, there will be little or no environmental impacts. This alternative calls for construction type activities in an active portion of the Depot. These activities will not be substantially different from what is currently occurring. In addition, since the hazardous material is primarily in the soil, there is little or no risk of a spill or release during the remedial action.

The last item to be considered is the time until treatment is accomplished. Alternative 4 should be completed in a brief period of time. If treatment is conducted on site, the initial treatability testing and vendor selection should take two to three months. Once the treatability testing is completed and a vendor is selected, the mobilization time should be less than one month, since no specialized equipment is required. All of the equipment used is standard construction equipment. Little permitting will be required, and operations should begin quickly. The remedial action would take one to two months, depending primarily on the time needed for the solidified soil to cure. Once the solidification was finished, and the treated soil landfilled off-site, the remedial action would be complete.

If treatment is conducted at an off site TSDF, this alternative will take one to two months to complete, depending on the weather, because it would be a "dig and haul" operation. There is little mobilization, since only a loader, and maybe a scraper are necessary to accomplish the excavation. It would only take one to two days to set up a staging area and construct an equipment decontamination pad. Once the soil is removed, the remedial action would be complete.

5.4.2.2 Long-term Effectiveness and Permanence

The assessment of the long-term effectiveness of can be divided into two major categories, an assessment of the magnitude of the residual risk, and an evaluation of the adequacy and reliability of the controls used for the waste residuals and untreated soil.

The magnitude of the residual risk is easy to quantify. The removal plan for the soils will be designed such that the remaining soils demonstrate a concentration of lead below 500 mg/kg and sediments demonstrate lead concentrations below 31 mg/kg. There will be no treatment residuals left at the site, so the treatment residuals will not be included in the risk evaluation. All of the excavated soils will be hauled off-site, treated, and disposed of in an off-site Subtitle D landfill.

The controls to be used for long-term management are also easy to assess. No residuals will remain on site. The long-term management will be left to the landfill selected for receiving the treated and remaining excavated soils. It will be important to select a well run landfill in order to assure that the landfill will be managed and closed in accordance with State and Federal requirements. The treated material is not a RCRA hazardous waste, so there should be little risk associated with offsite disposal. The landfills considered for this remedial action do not accept hazardous wastes.

As described above, there will be no long-term maintenance required at the site. Any exposed areas will be regraded to minimize erosion potential. Any areas in which soil was removed below grade will be backfilled with clean soil. A cover of native vegetation will be established as an additional erosion control measure, but once the cover is established, maintenance activities will no longer be required.

The permanence of the alternative must also be assessed. Once the treated and remaining excavated soils are removed from the site, the remedial action would be considered permanent. There will no longer be soil on the site that poses an unacceptable threat to human health. There is some question about the permanence of the solidification/stabilization treatment technology. In general, the solidified soil, as with all concrete, is subject to weathering from freeze-thaw and wet-dry cycles. If the material is safely placed in a secure landfill, the material will be protected from weathering, and there would be no degradation of the concrete, which indicates that the treatment will be permanent.

Permanence is further enhanced by the use of stabilizing agents, such as lime. The lime reacts with the heavy metals to form insoluble carbonates and hydroxides. These products are far less soluble than the free metals, and are very resistant to weathering.

5.4.2.3 Conclusion

Alternative 4 would protect human health and the environment. This alternative protects against ingestion of and direct contact with surface soils having concentrations of lead above 500 mg/kg and sediment with lead concentrations above 31 mg/kg.

The results of the baseline risk assessment show that conditions at SEAD-16 require a remedial action (see **Section 2.0**). Removal of Case 2 and Case 4 soils at SEAD-16 will reduce risk from soils to acceptable levels. At SEAD-17, though the risk assessment shows that conditions at the site do not require remedial action, removal of Case 1 and Case 3 soils will reduce the HI and carcinogenic risk to lower levels. Therefore, this alternative meets the RAOs by reducing risk, thus protecting human health.

This alternative also meets the NYSDEC sediment criteria established for lead in site sediments not to exceed 31 mg/kg. The sediments with concentrations of lead above the sediment criteria will be removed, which will meet the RAO for sediment and prevent contamination downgradient in Kendaia Creek.

5.4.3 Reduction in Toxicity, Mobility, and Volume

Overall, Alternative 4 would be effective in reducing the toxicity and mobility of the hazardous constituents present in the soil at the site. Assessing the volume reduction is somewhat more difficult. The treated soil will have a larger volume than the untreated soil, but the treated soil will no longer be a hazardous waste. In general, a volume increase of 50% for the treated soil can be expected. Furthermore, excavation of the remaining soils and sediments would increase the volume by approximately 20% from a total of 2,180 cy to 2,586 cy for both sites.

The decrease in toxicity and mobility can be assessed on both a small scale and site-wide basis. On the small scale, both the toxicity and mobility of the hazardous constituents in the soil are assessed with the TCLP test. The larger the leaching fraction, the greater the mobility and the greater the toxicity. Since the primary treatment criteria for solidification/stabilization is that the waste no longer be TC hazardous, the treated waste will exhibit lower toxicity and mobility than the untreated waste. The mass of the potentially hazardous constituents in the soil will remain unchanged.

In addition, by treating the soil which contains the highest concentrations of hazardous constituents, the overall site risk (toxicity) will be reduced to acceptable levels. By solidifying the soil, and then transferring all the soils and sediments to a landfill, the mobility of the hazardous constituents will be effectively reduced. A properly managed Subtitle D landfill does not allow for uncontrolled releases from the landfill. The treated soil will be the only treatment residual.

5.4.4 Implementability

A discussion of implementability can be divided into three sections, technical feasibility, administrative feasibility, and availability of services and materials. Technical feasibility describes items such as construction and operation, technology reliability, and monitoring considerations. Administrative feasibility addresses issues such as permitting, interaction with NYSDEC and EPA, and community relations. Availability of services and materials describes the ease of obtaining vendors and equipment, and the availability of offsite disposal capacity.

5.4.4.1 Technical Feasibility

The overall technical feasibility of Alternative 4 is very good. Solidification/stabilization is a technology which has been frequently used to treat similar soils, and it is not anticipated that problems will be encountered during construction, as long as the proper treatability work has been completed to establish the optimal admixture ratios. Since the materials and equipment used are all standard construction equipment, the process can be operated in almost all weather conditions. If treatment is conducted off site, the TSD facilities in the region have accepted similar wastes for a number of years. These facilities are fully capable of treating and disposing of the site soils.

The excavation process is also well defined. The areas demonstrating elevated concentrations of heavy metals have been delineated, and it will be straightforward to develop an excavation plan that assures all areas with high concentrations are removed. It is possible that some minor weather delays may be encountered, but most of the soil to be removed is located above grade, and should not be adversely affected by wet conditions.

Another aspect of technical feasibility is the ease with which additional work may be conducted. At this time, it is anticipated that this remedial action will preclude the necessity of any additional remedial efforts for soil at SEAD-16 and 17. However, if additional work is required in the future, this remedial action will not interfere in any way. Once the remedial action is complete, the sites will be revegetated, and will essentially remain as they are now with the possible exception of the abandoned buildings at SEAD-16, which are discussed separately in this report.

Several monitoring requirements govern the solidification/stabilization process. The additives must be properly metered into the soil to assure proper treatment. The soil which has been treated must be tested to ensure that the contaminants have been stabilized. Air monitoring will likely be necessary to determine if movement of the soil is releasing constituents to the air.

5.4.4.2 Administrative Feasibility

The administrative feasibility of this alternative is also very good. Since there will only be a temporary treatment facility on site if treatment is conducted on-site, no hazardous waste permitting will be required. Construction permits necessary for the activities are readily attainable. In addition, there will be no transport of hazardous waste, greatly simplifying the manifest requirements. Since the wastes will be sent to a permitted disposal facility, no disposal permits will be necessary.

If treatment is conducted off site, the TSDFs which may be used for offsite treatment, are fully permitted. There will be some transport of hazardous waste, and proper manifests will be required. All of the contractors used for excavation and hauling will be experienced in preparing manifests.

Coordination with the various regulatory agencies is also important. As described above, the Army has coordinated the entire remedial program with both EPA and NYSDEC, and will consider input from both these agencies in the final remedy selection. It is anticipated that any issues arising with the regulatory agencies will be addressed prior to remedy selection.

5.4.4.3 Availability of Services and Materials

This technology relies primarily on standard equipment, which is readily available in the Romulus area, since the equipment consists primarily of farm and construction equipment. The excavation would be accomplished with backhoes and scrapers, and the material would be transported in standard size dumptrucks. For on-site treatment, the stabilization unit would consist of a temporary pug mill.

Startup time to implement solidification/stabilization is one to two months, depending on the level of effort necessary for treatability testing. Bench-scale tests will likely be necessary to determine the proper additives and ratios of additives to contaminated soil. These must be brought to the site along with the earth moving and mixing equipment. Total treatment time for sites such as SEAD-16 and 17 is approximately two to four months, including the treatability studies.

The availability of permitted hazardous waste TSD facilities which could accept the soils from this site should be considered. One facility, EQ located in Michigan, has sufficient capacity to accept the soils from this site for both treatment and disposal.

The last issue to consider is if the soils are treated on-site, the availability of Subtitle D landfills to accept the excavated and solidified soils. The Seneca Meadows landfill indicate that they had sufficient capacity to accept the waste, and would be willing to accept the waste if the proper analytical results were provided.

5.4.5 Cost

5.4.5.1 Capital Costs

The total capital cost for this alternative is estimated to be \$410,600 if treatment is conducted off site and \$612,900 if treatment is conducted on-site. There is some uncertainty associated with there estimates. The cost backup for this alternative is presented in Appendix D, which includes the general assumed scope and all assumptions made.

5.4.5.2 O & M Costs

O & M costs associated with Alternative 4 include costs for quarterly groundwater sampling. The annual O & M cost is estimated to be \$41,688. Once the remedial action is completed, there will be no residuals remaining at either site that require management. Initially, there will be some minor costs associated with the establishment of the vegetative cover, but the cost estimate for these items have been included in the capital costs.

5.4.5.3 Present Worth Costs

The present worth costs for Alternative 4 are estimated to be \$773,110 for on-site stabilization and \$570,784 for offsite stabilization.

5.5 ANALYSIS OF ALTERNATIVE 5: EXCAVATION, SOLIDIFICATION/ STABILIZATION OF SOILS FAILING TCLP CRITERIA, AND ON-SITE LANDFILLING

5.5.1 Definition of Alternative 5

5.5.1.1 Description

This alternative includes excavation and removal of Case 1 through Case 4 soils, and materials ate SEAD-16 and Case 1 through Case 3 soils at SEAD-17 (see **Tables 2-1 and 2-2**), treatment of soils with TCLP exceedences, and disposal of both the treated and untreated soils in an on-site solid waste (Subtitle D) landfill. For this alternative, soils with concentrations of lead exceeding the TCLP limit will be treated by a solidification/stabilization process prior to disposal. TCLP testing and treatment will be conducted on-site. Each of the processes involved with this alternative will be described briefly in this section. A detailed analysis of how this option meets the selection criteria and a budgetary cost estimate are also provided below.

The first step in this option is excavation. An excavation plan will be developed using previous RI data to delineate the extent of removal. In general, the materials to be excavated are soils and sediments as described in **Section 2.0** and presented in **Table 2-1 and Table 2-2**. The soil and material volumes to be excavated are the same as described in **Section 5.4.1.1** for Alternative 4. The excavation will be accomplished with standard construction equipment, such as a front end loader or bulldozer.

The combined total volume of material be excavated at SEAD-16 and 17 is 2,700 CY. The locations of the areas to be excavated are shown on **Figures 2-1** and **2-2**. The excavated soil will be brought to the pug mill where it will be stockpiled prior to stabilization. The solidification/stabilization process is described in detail in the description of Alternative 4, **Section 5.4.1.1**.

After the excavation, the sites will be regraded with a bulldozer in a manner which approximates the original grade. If necessary, clean fill will be brought in to make up for the soils excavated. The topsoil cover will be vegetated with indigenous grasses as an erosion control measure.

After the solidification/stabilization process, the final step in the remedial action is disposal of the remaining soils and sediments. This remaining material will not be considered a characteristic RCRA hazardous waste after solidification/stabilization. It will be a solid waste subject to RCRA Subtitle D and New York State solid waste regulations. There are no landfills on SEDA property which meet the

current New York State Subtitle D requirements. Therefore, a landfill meeting these requirements will need to be constructed for this remedial action.

The requirements for the construction of a Subtitle D landfill are summarized below. The following discussion will focus on several of the key design issues which are useful in evaluating the feasibility of this alternative, and which are necessary in developing a budgetary cost estimate.

The NYSDEC requirements for Subtitle D landfills are described in 6 NYCRR Part 360. These landfills are required to be constructed such that the bottom of the lowest liner is a minimum of five feet above the seasonal high water table and 10 feet above bedrock. Since the seasonal high water table at the SEAD-16 and 17 is only three to four feet below the ground surface, it would be necessary to build the landfill completely above grade, if the landfill is located close to the sites. Approximately two feet of fill would be required below the base of the landfill.

In general NYSDEC requires a double composite liner system with a leak detection layer in between the two liners. As defined in 6 NYCRR 360-2.13, a composite liner consists of "two components, an upper geomembrane liner placed directly above a low permeability soil layer." The soil component of the upper liner must have a minimum compacted thickness of 18 inches. The soil component of the lower liner must have a minimum compacted thickness of 24 inches, and a maximum permeability of 1 X 10-7 centimeters per second (cm/s). There are also a number of compaction, construction, and slope requirements.

In 6 NYCRR 360-2.14, there are separate provisions for industrial landfills. In particular, this section specifies that the above requirements may be modified on a case by case basis. Specifically, the requirements for a double composite liner may be waived. One example given is the case of an ash monofill, in which only a single composite liner is required. A landfill constructed with solidified waste from SEAD-16 and 17 would be similar to an ash monofill, therefore it is likely that the double liner requirement could be waived for this remedial action. As stated in 6 NYCRR 360-2.14, this alternative liner system must demonstrate its ability to adequately present a negative impact on groundwater quality and must address all the factors specified in Section 360-214(a)(1). The following discussion and cost estimate assumes that only a single composite liner will be required at the site. A full discussion of the cost impacts of the different liner requirements is provided below.

Typically, the next layer up from the liner system is the leachate collection system. The leachate collection system generally consists of one foot of high permeability soil, such as sand, with a network of pipes. The sand and pipe system may be replaced with a geosynthetic drainage layer, providing that the geosynthetic layer has a hydraulic transmissivity equivalent to one foot of sand. The leachate collection

system is sloped such that any accumulated liquid collects in a sump from which it can be pumped out. Once the landfill is full and properly closed, there should be no leachate generation. At SEAD-16 and 17, depending on the final location of the landfill, a geosynthetic layer would likely be used in order to minimize the height of the above grade landfill.

After the leachate collection system, clean fill is placed in order to protect the leachate collection system. The waste is then placed on top of the protective soil. Once the filling is complete the landfill is ready for closure. The final cover consists of a low permeability soil layer overlain by a protective soil layer. Typical thicknesses for these layers are 18 and 24 inches. The cover is sloped to allow for drainage. It is also necessary to establish vegetation on the cover to minimize erosion. The final configuration will be determined during the remedial design stage is this alternative is chosen.

There are additional requirements for gas venting systems and groundwater monitoring. Gas venting systems may not be required for SEAD-16 and 17 soils since there are no putrescible wastes, which would generate gas. If gas venting systems are required, they are expected to be simple. Groundwater monitoring is accomplished by placing a number of wells around the landfill into the uppermost water bearing zone. There are wells already installed at both sites as part of the RI, so it should be necessary to install only a few wells.

The regulations require that post-closure care and monitoring be conducted for a minimum of thirty years. In general, the maintenance required is for erosion control, pest control, and maintenance of the vegetative cover. The wells must also be sampled on a regular basis. Any releases from the landfill must be addressed accordingly.

5.5.1.2 Process Flow

The process flow for this alternative consists of three steps, excavation, stabilization, and on-site landfilling. Figure 5-1 is a process flow diagram for the solidification/stabilization process for this alternative (and for Alternative 4). The process is fairly simple. The soil to be treated is excavated, and brought to the pug mill where it is stockpiled prior to stabilization. Soils which have been previously determined to bypass the treatment step one excavated separately. The soil to be treated is then placed in the pug mill and mixed with water and the various admixtures. The soil likely will be placed in the pug mill using a conveyor belt with a scale system in order to record the weight of the soil to be treated. Another option is a front end loader, with the volume of the treated soil recorded. The admixtures may be added in several ways, depending on the final technology selected. Dry admixtures will either be stockpiled and added via a conveyor or a front end loader, or added with a hopper system. If water is

necessary to the process, either a temporary tank will be used, or depending on the location, a hook up to the Depot water supply may be possible.

The treated soil is discharged either directly to the trucks for transport to the landfill, or to a treated soil stockpile for testing. In general, a volume increase of 50% is expected for the solidified soil. The treated soil will be analyzed by the TCLP at the rate required by NYSDEC. For existing offsite Subtitle landfills, the rate required is one TCLP analysis per 150 tons of treated soil.

In the final step, the treated soils and excavated soils that did not require treatment are placed in an onsite landfill.

5.5.1.3 Site Layout

This alternative requires approximately 6 acres for the on-site landfill in addition to sufficient area for the pug mill and two small stockpile areas. Once the system is operational, there will only need to be room in each stockpile for 1,000 to 2,000 tons. The pug mill and stockpile area will be located near the sites as shown on **Figure 5-2**. This will provide for easy access for the excavation equipment to bring the untreated soil to the pug mill, and for the trucks that will haul the treated material to the landfill.

This alternative requires approximately 1 acre of land at each site, or a combined total of approximately 2 acres if soils from both sites are combined into one landfill. A landfill can be constructed for both sites at a location convenient to the pug mill and the sites. The exact location will be determined during predesign activities. However, the landfill (or landfills) must be located so that the base is at least 5 feet above the seasonal high water table and 10 feet above bedrock.

5.5.2 Protection of Human Health and the Environment

An evaluation of the protectiveness of human health and the environment includes the assessment of the short- and long-term effectiveness as well as permanence. The following discussion will show how this alternative meets these criteria.

5.5.2.1 Short-term Protectiveness

Several items are included in an assessment of the short-term protectiveness of Alternative 5. The first issue is protection of the community during the remedial action. This alternative is protective of the community. All treatment and disposal will be accomplished on site, so that there will be no transport of hazardous materials. There is also little threat from dust released during the excavation. The site is

located far from the SEDA boundary, so the likelihood of any hazardous dust migrating offsite is negligible. As discussed in Sections 6 and 7 of the RI report, fugitive dust migration is not a major migration pathway.

The short-term protectiveness to site workers must also be considered. The major routes of exposure during treatment are direct contact with the contaminated soil and inhalation of vapors or particulates. Protection from exposure can be minimized through site access controls and the use of proper protective equipment for site workers, such as dust masks and Tyvek protective clothing. Air monitoring may be used to determine if there is a significant threat from the inhalation of vapors or particulate. Dust generation at the excavation can be minimized by using water or other dust control chemicals. Dust generation can be minimized at the pug mill by containing all admixtures which tend to from dust (i.e., cement and lime), and by containing the mixing process. The solidification/stabilization process is very similar to normal cement construction procedures, and is therefore fairly straightforward. It should also be noted that all the site workers will be required to meet all the OSHA training and medical monitoring requirements prior to working on site.

Another part of the short-term protectiveness criterion is assessing the environmental impacts during the remedial action. For Alternative 5, there will be little or no environmental impacts. This alternative calls for construction type activities in an active portion of the Depot. These activities will not be substantially different from what is currently occurring. In addition, since the hazardous material is primarily in the soil, there is little or no risk of a spill or release during the remedial action.

The last item to be considered is the time until treatment is accomplished. Initially, there will be a substantial period of time required to obtain the necessary permits and approvals for construction of the landfill. The actual remedial action (excavation and stabilization) should be completed in a brief period of time. The initial treatability testing and vendor selection should take two to three months. Once the treatability testing is completed and a vendor is selected, the mobilization time should be less than one month, since no specialized equipment is required. All of the equipment used is standard construction equipment. Little permitting will be required, and operations should begin quickly. The remedial action would take one to three months, depending primarily on the time needed for the solidified soil to cure.

There will also be time required to properly close the landfill, probably two to three months. By this time, the waste will have been treated and will no longer be hazardous, so the threats to human health and the environment will be negligible.

5.5.2.2 Long-term Protectiveness

The assessment of the long-term protectiveness of Alternative 5 can be divided into two major categories, an assessment of the magnitude of the residual risk, and an evaluation of the adequacy and reliability of the controls used for the waste residuals and untreated soil.

The magnitude of the residual risk is easy to quantify. The removal plan for the soils/sediments will be designed such that the remaining soils demonstrate a lead concentration less than 500 mg/kg and sediments demonstrated a lead concentration of less than 31 mg/kg. There will be no treatment residuals left at the site, so the treatment residuals will not be included in the risk evaluation.

The controls to be used for long-term management are more involved. The material disposed in the landfill will not be hazardous, and there will be no long term threat to human health and the environment. However, there will be a landfill on site which will require maintenance.

The permanence of the alternative must also be assessed. Once the soil is encased in the Subtitle D landfill, the remedial action would be considered permanent. There will no longer be soil on the site that poses an unacceptable threat to human health and the environment.

There is some question about the permanence of the solidification/stabilization treatment technology. In general, the solidified soil, as with all concrete, is subject to weathering from freeze-thaw and wet-dry cycles. If the material is safely placed in a secure landfill, the material will be protected from weathering, and there would be no degradation of the concrete, which indicates that the treatment will be permanent.

Permanence is further enhanced by the use of stabilizing agents, such as lime. The lime reacts with the heavy metals to form insoluble carbonates and hydroxides. These products are far less soluble than the free metals, and are very resistant to weathering.

5.5.2.3 Conclusion

Alternative 5 would protect human health and the environment. This alternative protects against ingestion of and direct contact with surface soils having concentrations of lead above 500 mg/kg and prevents potential leaching of lead into the groundwater by removing subsurface soils with concentrations of lead above 500 mg/kg and sediments with lead concentrations above 31 mg/kg.

The results of the baseline risk assessment show that conditions at SEAD-16 require a remedial action (see Section 2.0). Removal of Case 2 and Case 4 soils at SEAD-16 will reduce risk from soils to acceptable levels. Removal of Case 1 material from the buildings at SEAD-16 must also be conducted. At SEAD-17, though the risk assessment shows that conditions at the site do not require remedial action, removal of Case 1 and Case 3 soils will reduce the HI and carcinogenic risk to lower levels. Therefore, this alternative meets the RAOs by reducing risk.

This alternative also meets the NYSDEC sediment criteria established for lead in site sediments not to exceed 31 mg/kg. The sediments with concentrations of lead above the sediment criteria will be removed, which will meet the RAO for sediment and prevent contamination downgradient in Kendaia Creek.

5.5.3 Reduction of Toxicity, Mobility, and Volume

Overall, Alternative 5 would be effective in reducing the toxicity and mobility of the hazardous constituents present in the soil at the site. The treated soil will have a larger volume but will no longer be considered a hazardous waste or capable of leaching metals. In general, a volume increase of 50% for the treated soil can be expected. In addition, excavation of the remaining soils would increase the volume by approximately 20%.

The decrease in toxicity and mobility can be assessed on both a small scale and site-wide basis. On the small scale, both the toxicity and mobility of the hazardous constituents in the soil are assessed with the TCLP test. The larger the leaching fraction, the greater the mobility and the greater the toxicity. Since the primary treatment criteria for solidification/stabilization is that the waste no longer be TC hazardous, the treated waste will exhibit lower toxicity and mobility than the untreated waste. The mass of the potentially hazardous constituents in the soil will remain unchanged.

There are also major decreases on a site-wide basis. By treating the soil at the site which contains the highest concentrations of hazardous constituents, the overall site risk (toxicity) will be reduced. By transferring the treated soil and remaining excavated soils and sediments to a properly constructed Subtitle D landfill, the mobility of the hazardous constituents will be effectively reduced.

5.5.4 Implementability

A discussion of implementability can be divided into three sections, technical feasibility, administrative feasibility, and availability of services and materials. Technical feasibility describes items such as construction and operation, technology reliability, and monitoring considerations. Administrative

feasibility addresses issues such as permitting, interaction with NYSDEC and EPA, and community relations. Availability of services and materials describes the ease of obtaining vendors and equipment, and the availability of offsite disposal capacity.

5.5.4.1 Technical Feasibility

The overall technical feasibility of Alternative 5 is good, but the issues involved with the construction of an onsite landfill are somewhat complicated, as described below. Solidification/stabilization is a technology which has been frequently used to treat similar soils, and it is not anticipated that problems will be encountered during construction, as long as the proper treatability work has been completed to establish the optimal admixture ratios. Since the materials and equipment used are all standard construction equipment, the process can be operated in almost all weather conditions.

The excavation process is also well defined. The areas demonstrating elevated concentrations of heavy metals have been delineated, and it will be straightforward to develop an excavation plan that assures all of the hot spots are removed. It is possible that some minor weather delays may be encountered, but most of the soil to be removed is located above grade, and should not be adversely affected by wet conditions.

There are a number of technical issues which must be addressed in order to properly construct an onsite landfill. Landfill construction is a common practice, and the issues are not especially complicated, but the overall technical complexity of Alternative 5 is much greater than Alternative 4.

The first issue is landfill siting. In order to meet the NYSDEC requirement that the landfill be at least five feet above the seasonal high water table, the landfill will need to be located on high ground, and most likely, on several feet of clean fill. The landfill will have to be designed to allow access during construction and filling. Also, since the landfill will be completely above grade, more stringent erosion control measures will be required. The weather is an important factor. Heavy rains or other adverse weather conditions could severely impact the construction schedule.

Another aspect of technical feasibility is the ease with which additional work may be conducted. At this time, it is anticipated that this remedial action will preclude the necessity of any additional remedial efforts at SEAD-16 and 17. However, if additional work is required in the future, this remedial action will not interfere in any way.

Several monitoring requirements govern the solidification/stabilization process. The monitoring requirements of the solidification/stabilization process are essentially the same as for Alternative 4. The

additives must be properly metered into the soil to assure proper treatment. The soil which has been treated must be tested to ensure that the contaminants have been stabilized. Air monitoring will likely be necessary to determine if movement of the soil is releasing contaminants to the air.

There are a number of monitoring requirements for the landfill. The landfill construction requires continual supervision and testing, since there are a number of requirements for each layer. A Construction Quality Assurance (CQA) plan will be developed which describes the specific requirements for the landfill. Some of the major items to be addressed are described below.

The initial fill layer must be compacted to ensure that it will have sufficient structural strength to support the landfill. Next, the low permeability soil layer is installed in lifts, with each lift monitored for compaction and permeability. The geomembrane must be tested for holes and permeability, and the installed seams must be carefully inspected. Next, the geosynthetic drainage layer is installed, and finally the protective soil layer. There are similar monitoring requirements for the cap installation. Each layer must be carefully surveyed to ensure that the proper slopes are obtained. Problems at any point in the process may necessitate removal and reinstallation of a given layer.

5.5.4.2 Administrative Feasibility

The administrative feasibility of this alternative is described in the New York code of regulations. The unit to be constructed is a Subtitle D landfill, and a NYSDEC permit would be required. The permit application requirements, described in 6 NYCRR Part 360 are broad, and include issues such as siting, design, closure, post closure, and monitoring. It would be necessary to obtain NYSDEC concurrence on the acceptability of a single composite liner system. Obtaining the necessary permit and concurrence could take six months to a year, or more, and would require a great deal of engineering and money.

The administrative feasibility of the solidification unit would be good, as with Alternative 4. Since there will only be a temporary treatment facility on site, no hazardous waste permitting will be required. Construction permits necessary for the activities are readily attainable. In addition, there will be no transport of waste offsite.

Coordination with the various regulatory agencies is also important. As described above, the Army has coordinated the entire remedial program with both EPA and NYSDEC, and will consider input from both these agencies in the final remedy selection. It is anticipated that any issues arising with the regulatory agencies will be addressed prior to remedy selection.

5.5.4.3 Availability of Services and Materials

This technologies used for this alternative rely primarily on standard equipment, which is readily available in the Romulus area. The excavation would be accomplished with backhoes and scrapers, and the material would be transported in standard size dumptrucks. The stabilization unit would consist of a temporary pug mill, or if the volume is fairly small, the stabilization could be conducted in a cement truck.

Startup time to implement solidification/stabilization is one to two months, depending on the level of effort necessary for treatability testing. Bench-scale tests will likely be necessary to determine the proper additives and ratios of additives to contaminated soil. These must be brought to the site along with the earth moving and mixing equipment. Total treatment time for sites such as SEAD-16 and 17 is approximately 2 to 4 months, including the treatability studies.

Obtaining the construction materials for the landfill would require a clay source to be identified, tested for quality and quantity and brought to the site. It is anticipated that a local source would be available, since the base soils in the Finger Lakes region are clays. Clean fill could be obtained on the Depot. The geomembrane and geosynthetic drainage layer are available from a number of vendors.

5.5.5 <u>Cost</u>

5.5.5.1 Capital Costs

There are two separate capital costs to consider, the cost of the soil treatment, and the cost of the landfill construction. The costs for solidification/stabilization vary depending on quantities and types of additives and the field mixing techniques used. Design treatability study costs are \$86,118 total treatment costs, including site preparation and excavation are approximately \$100 per ton. Additional items, including engineering, oversight, and site restoration would bring the total cost for remediation of 2,180 cubic yards to \$802,523. Again, there is some uncertainty in this cost. A breakdown of the costs for this alternative and all assumptions used are presented in Appendix C.

5.5.5.2 O & M Costs

There are a number of O & M costs associated with the onsite landfill. The first of these is quarterly groundwater monitoring, which will depend on the number of parameters and wells required by NYSDEC. There are also general maintenance costs for the vegetative cover, erosion control, equipment

upkeep, and annual sediment sampling in Kendaia Creek. The total O & M costs are estimated to be \$81,688 per year (Appendix C).

5.5.5.3 Present Worth Costs

The present worth costs for Alternative 5 are estimated to be \$1.1 million.

5.6 ANALYSIS OF ALTERNATIVE 6: EXCAVATION, SOIL WASHING, BACKFILLING COARSE FRACTION, OFFSITE LANDFILL FINE FRACTION

5.6.1 Definition of Alternative 6

5.6.1.1 Description

This alternative includes excavation of soils and sediments and materials in the abandoned building at SEAD-16, soil washing, offsite landfilling of the fine fraction, and backfilling of the coarse fraction. Each of these processes will be described briefly in this section. A detailed analysis of how this option meets the selection criteria, and a budgetary cost estimate are provided below.

The first step in this alternative, as with the other alternatives, is excavation. The volumes to be excavated are the same as for the other options, a combined total for both sites of 2,180 CY. The soil and sediment volumes include surface and subsurface soils with lead concentrations that exceed 500 mg/kg, and sediments that exceed the NYSDEC sediment criteria for lead of 31 mg/kg. Locations are shown on Figures 2-1 and 2-2.

The next step is the soil washing process. The primary purpose of soil washing is to separate soil into component parts, and in the process, do some scrubbing and washing of the components. Soil washing experiments have shown that a significant portion of the hazardous constituents present in the soil are concentrated generally in the fine fraction and that the coarse fraction can be cleaned by physically separating and concentrating the fines. The soil washing process separates the fractions, and the fine fraction is then subjected to additional treatment. The coarse fraction, which no longer contains excessive levels of the hazardous constituents, is no longer a waste and can be backfilled on site. It is estimated that the fine fraction will make up 30 percent of the overall volume. The actual quantity of the fine fraction would need to be determined with a treatability study.

The following is a general description of a soil washing process which would be applicable to this site. First, the waste material is fed into a hopper which screens the oversize material (more than 1/4 inch

diameter) from the finer fractions. The oversize material then goes to a rotary drum where it is tumbled washed, tested, and backfilled to the site.

The remaining soil is passed into a device with hydroclones which turns the material into a slurry and pumps it through the hydroclones. The hydroclones mechanically separate the slurry into two streams, the coarse material (sand and gravel) and the fine material (silt and clay) and water.

The coarse material may then be directed to froth flotation cells which wash it with surfactants. The flotation cells, which aerate the material, and the surfactant washing generate a heavy froth. The organic and inorganic contaminants in the soil will move with the froth. The froth is then skimmed from the top of the material and is considered a hazardous waste. The soil passing through the froth flotation units, i.e., the coarse fraction, has been shown to pass the TCLP and can then be backfilled to the site.

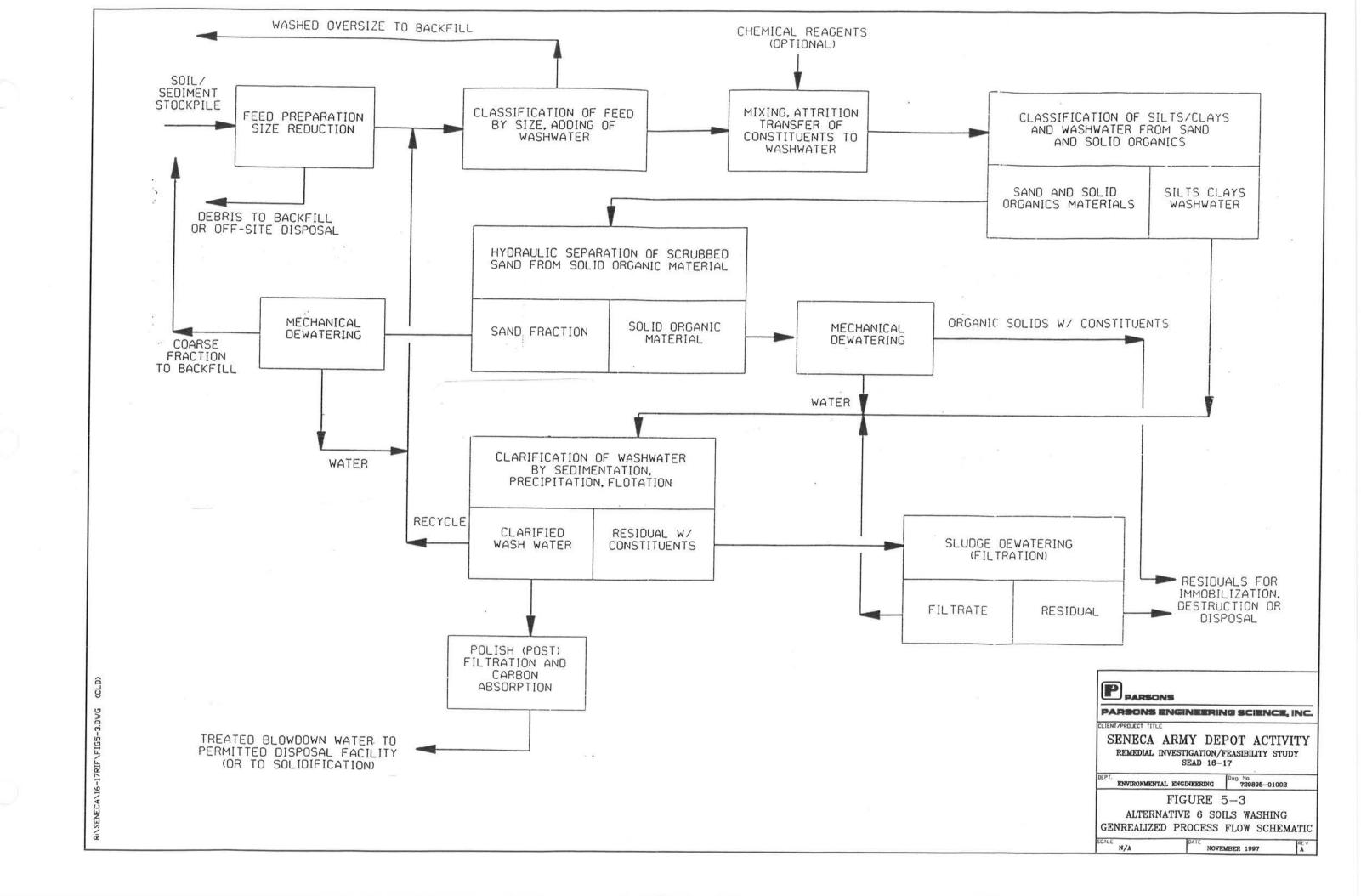
The fine material and water are sent to a sludge basin where the solids are settled out. The sludge is dewatered and then further treated or disposed. The water will be treated prior to discharge.

The process separates the soil into four streams: (1) oversize material, which is generally non-hazardous and can be backfilled to the site, (2) clean sand and gravel, which also can be backfilled, (3) sludge consisting of the fine fraction, which is a hazardous waste, and (4) concentrated froth from the flotation unit (if utilized) which is also considered a hazardous waste. For this alternative, the fine fraction and froth will be transported offsite to a TSDF. The TSDF will then be responsible for the solidification/stabilization, or whatever treatment is necessary for the soil prior to disposal in their landfill. Since the only criteria for landfilling is that RCRA land ban requirements be met, the TSDF may opt for an abbreviated treatment process.

The final step in the remedial action is site restoration. After the coarse fraction has been backfilled to the site, the sites will be regraded with a bulldozer in a manner which approximates the original grade. If necessary, clean fill will be brought in to make up for the soils excavated. The topsoil cover will be vegetated with indigenous grasses as an erosion control measure. Once the cover is established, there will be no continued maintenance requirements.

5.6.1.2 Process Flow and Site Layout

An example process flow schematic for soil washing is shown in **Figure 5-3** For the small volume of material at SEAD-16 and 17, physical separation only with no acid extraction is likely to be most cost effective. However, acid extraction is considered here for completeness. The equipment layout location



is shown in Figure 5-2. A soil washing operation will consist of several or all of the following processes:

Vibratory screen - This unit separates the feed, and removes oversized (greater than 2-inch diameter) particles.

- ·Feeder module and conveyor This unit carries and weighs material fed to the soil washer.
- ·Trommel screen This unit breaks up clumped feed materials.
- Attrition scrubber This unit adds the washwater to the broken up soil. The washwater mobilizes the fine fraction of the soil.
- ·Hydrocyclone separators This unit is a solids/liquid flash separation device which separates the coarse (sand and gravel) soil from the fine (silt and clay) soil.
- Dense media separation column This unit separates materials based on density, and would be used to separate pieces of munitions, elemental metals and other debris from the soil to be treated.
- Dewatering screen This unit removes the fine material from the process train. The coarse fraction is rinsed, and removed from the soil washer.
- ·Washwater treatment system The spent washwater is treated for reuse or disposal. The type of treatment used is site-specific.
- ·Belt filter press This unit dewaters the fine fraction prior to solidification.

The stockpiled soil will be loaded into the soil washing unit with front-end loader. The conveyor will likely be equipped with a scale to keep track of the quantity of soil treated. For this site, a 25-tph unit will be used. This unit is delivered on fifteen 45-foot trailers. The total size of the soil washing operation is approximately 100 feet by 200 feet. The assembled unit has a height of 50 feet. The unit requires a 600-kW, 440-Volt AC power supply, and a 25 gallons per minute (gpm) water source.

The coarse fraction is removed from the unit, allowed to dry, and stockpiled in a clean soil area. The material can be tested to ensure that the hazardous constituents have been removed to acceptable levels. The material will then be re-used as clean fill.

After dewatering, the fine material will be solidified and disposed of in an offsite Subtitle D landfill. The solidification will be accomplished at an offsite TSDF as described for Alternatives 4 and 5. The water will be treated on-site or sent to the Depot Publicly Owned Treatment Works (POTW) for treatment. The cost estimate assumes that the water can be treated at the Depot POTW at minimal cost.

5.6.2 Protection of Human Health and the Environment

An evaluation of the protection of human health and the environment includes the assessment of the short- and long-term effectiveness as well as permanence. The following discussion will show how this alternative meets these criteria.

5.6.2.1 Short-term Protectiveness

This alternative will be evaluated with respect to the effect on human health and the environment during the implementation of the remediation action. Four items are included in an assessment of the short-term protectiveness of Alternative 6. The first issue is protection of the community during the remedial action. This alternative is protective of the community. Because the final treatment will be not be accomplished on site, there will be transport of hazardous materials. Care will be taken to assure that the trucks are not overloaded. The soils will be covered with a tarp during transport to ensure that no dust is released from the trucks.

There is also little threat from dust released during the excavation. The sites are located far from the SEDA boundary, so the likelihood of any hazardous dust migrating offsite is negligible. As discussed in Sections 6 and 7 of the RI report, fugitive dust migration is not a major migration pathway.

The short-term protectiveness to site workers must also be considered. The major routes of exposure during excavation are direct contact with the affected soil and inhalation of vapors or particulates. There is also potential for exposure to soils and other hazardous materials during the soil washing process. Protection from exposure can be minimized through site access controls and the use of proper protective equipment for site workers, such as dust masks and Tyvek protective clothing. Air monitoring may be used to determine if there is a significant threat from the inhalation of vapors or particulates. Dust generation at the excavation can be minimized by using water or other dust control chemicals. It should also be noted that all the site workers will be required to meet all the OSHA training and medical monitoring requirements prior to working on site. All of the contractor personnel working around the soil washing unit will be trained in the proper health and safety procedures to be used near the unit.

Another part of the short-term effectiveness criteria is assessing the environmental impacts during the remedial action. For Alternative 6, there will be few environmental impacts. There is the potential for spills during excavation, but the soil is a solid, and spills would readily be contained. There is also a potential for releases of washwater from the soil washing unit. This threat is minimized with proper controls and inspections of the units. The site workers will be trained in the proper operation of the unit operations.

The last item to be considered is the time until treatment is accomplished. Alternative 6 should take three to six months to complete. Mobilization would take two weeks. It would take an additional three weeks to fine tune the unit. Once the unit is fully operational at 25 tph, it would take one to three months to complete the soil washing step. Backfill, transport of the fines offsite, and demobilization would be expected to take another two to four weeks. Once the fines are removed and the coarse fraction is backfilled, the remedial action would be complete.

5.6.2.2 Long-term Effectiveness and Permanence

The assessment of the long-term effectiveness of Alternative 6 can be divided into two major categories, an assessment of the magnitude of the residual risk, and an evaluation of the adequacy and reliability of the controls used for the waste residuals and untreated soil.

The magnitude of the residual risk is easy to quantify. The removal plan for the soils and sediments will be designed such that the remaining soils demonstrate a concentration of lead below 500 mg/kg and sediments demonstrate a lead concentration below 31 mg/kg. The only treatment residuals remaining on site will be the coarse fraction of the soil, which will have been tested to ensure that there are no unacceptable levels of lead remaining. Initially, some maintenance will be required to reestablish a vegetative cover at the site. Once the cover is established, there will be no need for long-term maintenance.

The permanence of the alternative must also be assessed. Once the soil fines are removed from the site, the remedial action would be considered permanent. There will no longer be soil on the site that poses an unacceptable threat to human health and the environment.

5.6.2.3 Conclusion

This alternative would protect human health and the environment. This alternative protects against ingestion of and direct contact with surface soils having concentrations of lead above 500 mg/kg and sediments with lead concentrations above 31 mg/kg.

The results of the baseline risk assessment show that conditions at SEAD-16 require a remedial action (see Section 2.0). Removal of Case 2 and Case 4 soils at SEAD-16 will reduce risk from soils to acceptable levels. At SEAD-17, though the risk assessment shows that conditions at the site do not require remedial action, removal of Case 1 and Case 3 soils will reduce the HI and carcinogenic risk to lower levels. Therefore, this alternative meets the RAOs by reducing risk.

This alternative also meets the NYSDEC sediment criteria established for lead in site sediments (Case 3 at SEAD-16 and Case 2 at SEAD-17) not to exceed 31 mg/kg. The sediments with concentrations of lead above the sediment criteria will be removed, which will meet the RAO for sediment and prevent contamination downgradient in Kendaia Creek.

5.6.3 Reduction in Toxicity, Mobility, and Volume

Alternative 6 would be effective in reducing the toxicity, mobility, and volume of the hazardous constituents present at the site. The primary goal of soil washing is volume reduction, and the process is expected to reduce the volume of contaminated soil to approximately 30 percent of the original volume. The toxicity and mobility reductions are accomplished in the solidification process. The potentially hazardous constituents are stabilized in the process, which reduces the toxicity. The solidification and subsequent landfilling of the soil fines reduces the mobility. The final mobility of the hazardous constituents is negligible.

5.6.4 Implementability

A discussion of implementability can be divided into three sections, technical feasibility, administrative feasibility, and availability of services and materials. Technical feasibility describes items such as construction and operation, technology reliability, and monitoring considerations. Administrative feasibility addresses issues such as permitting, interaction with NYSDEC and EPA, and community relations. Availability of services and materials describes the ease of obtaining vendors and equipment, and the availability of offsite disposal capacity.

5.6.4.1 Technical Feasibility

The technical feasibility of Alternative 6 is fairly good. Soil washing has been used for a number of years, and has been demonstrated to be effective at sites with similar contamination, but treatability studies will be necessary to confirm that the technology will be effective at SEAD-16 and 17. The solidification/stabilization process is known to be effective for treating the soil washing residuals. The technical advantages of soil washing is to decrease the quantity of material that will require

solidification. The solidification process will also be more effective because the cement matrix will solidify easier with a matrix of fines.

The excavation portion of the remediation can also be readily implemented. The areas demonstrating elevated concentrations of heavy metals have been delineated, and the excavation plan will ensure that all of the hot spots are removed. It is possible that some minor weather delays may be encountered, but most of the soil to be removed is located above grade, and should not be adversely affected by wet conditions.

Another aspect of technical feasibility is the ease with which additional work may be conducted. At this time, it is anticipated that this remedial action will preclude the necessity of any additional remedial efforts at SEAD-16 and 17. However, if additional work is required in the future, this remedial action will not interfere in any way. Once the remedial action is complete, the site will be revegetated, and will essentially remain as it is now.

5.6.4.2 Administrative Feasibility

The administrative feasibility of this alternative is as good or better than the rest of the alternatives. This option greatly reduces the volume of material to be landfill. Construction permits necessary for the activities are readily attainable. Due to the volume reduction, there will be minimal transport of hazardous waste, and the number of manifests will be reduced. All the contractors used for excavation and hauling will be experienced in preparing manifests.

Coordination with the various regulatory agencies is also important. The Army has coordinated the entire remedial program with both EPA and NYSDEC, and will consider input from both these agencies in the final remedy selection. It is anticipated that any issues arising with the regulatory agencies will be addressed prior to remedy selection.

5.6.4.3 Availability of Services and Materials

There is good availability of the materials and services necessary to accomplish this alternative. Several companies have extensive experience in implementing soil washing, including Bergmann U.S.A., and Biotrol, Inc. These companies can rapidly assemble the necessary unit operations for SEAD-16 and 17.

The excavation and hauling equipment and Subtitle D landfill space is readily available. The equipment to be used is fairly standard, and is available from a number of vendors.

5.6.5 <u>Cost</u>

5.6.5.1 Capital Costs

There are four major cost items for this alternative, excavation and backfilling, soil washing, solidification, and offsite disposal. Transportation is also a cost to consider. Soil washing costs are estimated to be \$127 per cubic yard (\$58 per ton). Solidification costs and offsite disposal costs (including transportation) would be \$48 per cubic yard (\$22 per ton). The total cost including engineering, oversight, and site restoration for remediation of 2,180 cubic yards is \$831,345 million. The costs and assumptions made for this alternative is provided in Appendix C.

5.6.5.2 O & M Costs

There will be two O & M costs associated with Alternative 6. The first of these is quarterly groundwater monitoring, which would depend on the number of parameters and wells required by NYSDEC. The second O & M cost is yearly sampling of sediments in Kendaia Creek. The annual cost for O & M is estimated to be \$41,688.

Once the remedial action is completed, there will be no residuals remaining on site which require management. Initially, there will be some minor costs associated with the establishment of the vegetative cover, but the cost estimate for these items have been included in the capital costs.

5.6.5.3 Present Worth Costs

The present worth costs for Alternative 6 are estimated to be \$991,531 million.

5.7 COMPARATIVE ANALYSIS OF ALTERNATIVES

5.7.1 Introduction

The purpose of this section is to compare each of the four alternatives detailed above to each other with respect to the specific evaluation criteria. The following discussion will rate each of the alternatives with regard to the evaluation criteria, and identify the relative advantages and disadvantages of each. The tradeoffs among the different alternatives will be discussed. This comparison will provide the information necessary to decide the appropriate alternative for this site.

The discussion is divided into two groups. The first group, the threshold criteria, include the overall protection of human health and the environment. The next group includes the remainder of the evaluation criteria: long term effectiveness and permanence, reduction of toxicity, mobility, and volume through treatment, short-term effectiveness, implementability, and cost.

5.7.2 Threshold Criteria

Each alternative must be assessed against the threshold criteria, which are overall protection of human health and the environment and compliance with ARARs, because both criteria must be met by any alternative in order to be eligible for selection.

All of the alternatives for soil/sediment, except Alternative 1 (No-Action), provide protection of human health and the environment. Soils with lead concentrations above 500 mg/kg and sediments with lead concentrations above 31 mg/kg will be removed for the three alternatives considered. Removal of these materials will prevent dermal contact and ingestion, which have been identified during the BRA as the major exposure pathways for soil at SEAD-16 and 17 in Sections 6 and 7 of the RI. Additionally, the BRA determined that the HI at SEAD-16 for future construction worker exposure scenario was above the EPA acceptable risk level. Alternatives 4, 5, or 6 will each reduce risk to acceptable levels at SEAD-16 (refer to discussion in Section 2.0). Though at SEAD-17 the BRA determined that the risks were below acceptable EPA target levels, removal of soil at SEAD-17 would reduce risk further, increasing the degree of human health protection.

Removal of sediments in the drainage ditches will protect environmental receptors by preventing migration of sediments with lead concentrations above 31 mg/kg to Kendaia Creek, which is downgradient of SEAD-16 and 17. Additionally, removal of contaminated surface and subsurface soil will decrease any potential for migration to groundwater.

All alternatives remove sediments with lead concentrations above 31 mg/kg. This meets the NYSDEC sediment criteria. Since these criteria are promulgated regulations, they are considered to be ARARs for SEAD-16 and 17 (refer to **Section 2.0**). Therefore, only the No-Action alternative does not comply with ARARs.

5.7.3 Other Considerations

5.7.3.1 Long Term Effectiveness and Permanence

The criteria of long-term effectiveness addresses the long-term protectiveness to human health and the environment. Most of the detailed alternatives are highly effective in eliminating the long-term threats because they rely on treatment technologies to reduce the hazardous constituents in the soils. Alternatives 4, 5, and 6 will excavate all soils with unacceptable levels of lead and sediments from drainage ditches with concentrations of lead above the established criteria; Alternatives 4 and 5 will use a Subtitle D landfill and Alternative 6 will backfill the coarse fraction to the site. This coarse fraction will no longer contain concentrations of lead above 500 mg/kg. Alternative 6 is the most effective in eliminating the long-term threats because the soil washing process segregates the coarse and fine fractions, and all the hazardous constituents are sent off site in the fines fraction. This is a reliable technology which has been successfully utilized at similar sites. All three of the alternatives rely on some type of stabilization technology. This is considered to be technically feasible, and when combined with landfilling, provides effective long term protection.

However, Alternatives 4 and 5 do not score as well as Alternative 6 because the long-term health risks associated with the Subtitle D landfills, which will be used for Alternatives 4 and 5, are not completely understood. Alternative 5, the on-site disposal alternative, is ranked next highest because this alternative involves treatment and construction of a new on-site landfill. Since this landfill would be on-site, it would be easy to monitor and maintain to assure long term effectiveness. The long term liabilities associated with offsite disposal, as for Alternative 4, would be eliminated. Alternative 1, the no action alternative, does not provide long-term protection of human health and the environment.

The rankings of the alternatives based on permanence are essentially the same as the rankings for long-term protectiveness. Since Alternatives 4, 5, and 6 provide treatment, they are essentially permanent. Alternatives 4 and 5 use landfills, which will require some long-term maintenance of the cap and groundwater monitoring. Alternative 1, the no action alternative is not permanent since no treatment is taking place.

5.7.3.2 Reduction of Toxicity, Mobility, or Volume

The alternatives are also compared with respect to the relative decreases in the toxicity, mobility, and volume of the hazardous constituents present at the site. Alternative 6, which uses the soil washing process, yields the greatest reduction in the toxicity by separating the fines and solidifying this smaller volume of material. The hazardous constituents are normally concentrated in the fines fraction of the

soil which will be solidified. The solidification process is more effective for fines than large aggregate materials. Alternatives 4 and 5 also significantly decrease the toxicity, but only for the soils which are treated by stabilization/solidification. The solidification/stabilization process decreases the toxicity of the metals because the metals are converted to less soluble forms. Neither Alternative 4 or 5 completely treat all of the soils at the site. For both alternatives, 875 CY of untreated soils and sediments will be placed in a solid waste landfill. Alternative 1, the no action alternative, does not reduce the toxicity of the hazardous constituents.

Alternative 6 provides the best reductions in mobility. Once the fines fraction is solidified and landfilled, the hazardous constituents are essentially immobile. Alternatives 4 and 5 are similar in nature and were ranked the same. For Alternatives 4 and 5, approximately 875 CY of untreated soil are placed in a landfill, which will reduce the mobility of the hazardous constituents in the soils. Alternative 1, the no action alternative does nothing to reduce the mobility of the hazardous constituents.

Alternative 6 provides the greatest volume reduction of the contaminated soils. The hazardous constituents are concentrated in the fines fraction, which reduces the volume of the contaminated soil to approximately 30 percent of the original volume. Alternatives 4 and 5, which rely on solidification, do not score as well on volume reduction. Because soils are treated, the volume of hazardous soil, is reduced, however the treatment residual (soil/cement mixture) has a greater volume than the initial untreated soil. Furthermore, the remaining soils which will be excavated and landfilled will increase in volume by approximately 20% as a result of the excavation process. In Alternative 1, the no action alternative, there is no volume decrease, but there is also no volume increase.

5.7.3.3 Short-term Effectiveness

Alternative 5 is expected to have the best short-term effectiveness because no hazardous materials are removed from the site, and only trained site workers would handle the soils. The soil washing alternative (Alternative 6) does not rate as well because of the necessity of greater handling of the contaminated soil, and because of the greater quantities of treatment residuals, such as spent wash water which must then be treated. Alternative 4, in which the soils are not treated prior to being transported to the TSD facility also scores lower, because there is transport of approximately 2,180 CY. of RCRA characteristic hazardous waste. Alternative 1, the no action alternative provides good short-term protection of human health because of the administrative controls currently in place, but provides no short-term protection of the environment.

5.7.3.4 Implementability

All of the alternatives score well on implementability. For technical feasibility, Alternative 1, the no action alternative, and Alternative 4, which relies on off site treatment and disposal, score the highest. Alternative 4 requires primarily standard earth moving equipment. Alternatives 4 and 5 are both easy to implement, since they require only standard construction equipment, though a large cement plant is required for these alternatives. Alternative 4 rates higher than Alternative 5 because it is easier to send the soils off site for disposal than to construct an on-site Subtitle D landfill. Alternative 6 is the most difficult to implement because of the need for specialized soil washing equipment, but there are enough soil washing vendors to ensure that this option is still viable.

The availability of the equipment, materials, and vendors is very good for all the alternatives. Alternative 4 rates the best on availability, because these materials are more available from local suppliers than the other alternatives. Alternative 6 scores the worst because there are less soil washing vendors than there are solidification vendors, but this will not preclude implementation of this alternative.

The last item to consider is agency approval. Alternative 6 is the best because of the greatest volume reduction. Alternatives 4 and 5 rate lower because of the work required to site and permit an on site landfill. Alternative 1, the no action alternative is the worst.

5.7.4 Cost

The last criteria to compare is cost. This comparison will evaluate the present worth costs of the alternatives, which are presented on **Table 5-2**. Alternative 4 is the least expensive with an estimated cost of \$570,784 to \$773,110. Alternative 5, which includes on-site solidification and disposal in a Subtitle D landfill, has a present cost of \$991,531 million and Alternative 6 was the most costly, at an estimated cost of \$1.1 million. A breakdown of these costs are provided in Appendix C.

5.8 CONCLUSIONS

As described above, all of the alternatives in the detailed analysis will be effective for SEAD-16 and 17 remedial action for the intended future use of the site as industrial/commercial. The baseline human health assessment indicates that, under future industrial and commercial worker exposure scenarios, the risk based non-carginiogenic hazard index is above acceptable levels, although carcinogenic risks are within acceptable levels. Therefore, remedial action is required at SEAD-16 to meet remedial objectives for protecting human health. At SEAD-17, risk based carcinogenic and non-carginogenic health risks are

Table 5-2 Seneca Army Depot Activity SEAD-16 AND 17 FEASIBILITY STUDY Cost Estimate Summary for Retained Alternatives

Alternative	Description	Total Project Present Worth Cost	Capital Cost for Construction	Annual O & M Costs
4	On-Site S/S, Off-site Disposal	\$773,110	\$612,924	\$41,688
4	Off-Site S/S, Off-Site Disposal	\$570,784	\$410,598	\$41,688
5	On-Site S/S, On-Site Disposal	\$1,116,409	\$802,523	\$81,688
6	Soil Washing, Off-Site S/S and Disposal	\$991,531	\$831,345	\$41,688

within acceptable levels. Therefore, risk based remedial objectives have been met at SEAD-17 with no further action.

However, the risk analyses could not consider the presence of lead in soils. The allowable level of lead in soil to protect human health has been determined to be 500 mg/kg. The allowable level in sediment is 31 mg/kg based on NYSDEC sediment criteria. Therefore, site specific remedial action for lead are based on removing soils with lead concentrations above 500 mg/kg and sediment with lead concentrations above 31 mg/kg. In addition, at SEAD-16, the material inside abandoned buildings S-311 and 366 contribute significantly to the non-carcinogenic risk levels. Therefore this materials must also be removed and the buildings must be cleaned.

Alternatives 4,5, and 6 were determined to meet the site specific remedial action objectives. That is, they are protective against ingestion of and dermal contact with soils having lead concentrations above 500 mg/kg, sediments having lead concentrations above 31 mg/kg, and dust caused by excess debris and materials that are now inside the abandoned buildings at SEAD-16.

Alternative 6 ranks the highest for long-term protectiveness of human health and the environment, permanence, and reductions in toxicity, mobility, and volume of hazardous constituents. Alternative 4, which involves offsite treatment and disposal, ranks highest for implementability and cost. Furthermore, Alternative 4 is far less costly than Alternative 6. However, Alternative 4 ranks lowest for short-term protectiveness because all the soils, some of which are characteristic RCRA hazardous waste (according to expected TCLP results), are transported offsite for disposal, while Alternative 5 ranks highest for short-term protectiveness because no hazardous materials are transported from the site.

APPENDIX A ANALYTICAL DATA

A STRUCTURA STATES TOTAL SAME

SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY Ta_A-la

SEAD-16 Building Materials Analytical Results

		1001	01.00	11 30	09 33	ES 50	1 7102	2016.7	2016.3	2016 4	5 7133	9 9100	1,9152	8-9155
		LOC_ID:	1,003	17,022	1,002	1,000	F510-1	F510-2	F310-3	1-0161	C-016-1	0-0101	12016.1	20161
		SAMP ID:	10024	77001	10023	10028	1-1-0154	1-7-0154	FS10-5-1	FS10-4-1	F310-3-1	F310-0-1	1-7-016-1	1-0-0-1
		OC CODE:	SA	SA	SA	DO	SA	SA	SA	SA	SA	SA	SA	SA
		TOP:									i	i		
		BOTTOM: MATRIX:	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS SOLIDS	SOLIDS	SOLIDS 17/6/03	SOLIDS 17/6/93	SOLIDS 17/6/93	SOLIDS 17/6/93
PARAMETER	LEVEL SOURCE		50		16:	.5		VALUE Q		VALUE Q		VALUE Q	VALUE Q	VALUE Q
VOLATILE ORGANICS														
1,1,1-Trichloroethane	800 NYSDEC TAGM UG/KG	GM UG/KG	7 J		25 U		11 U	10 U	11 0	18 U	11 U	11 U	25 UJ	21 UJ
Bromomethane		UG/KG	53 UJ		25 UJ	22 J	11 U	10 U	11 U	18 U	11 U	11 U	25 UJ	21 UJ
Chloroform	300 NYSDEC TAGM UG/KG	GM UG/KG	53 U		25 U	14 J	11 U	10 U	11 U	18 U	U 11	11 U	25 UJ	21 UJ
Chloromethane		UG/KG	53 UJ		25 UJ		11 U	10 U	11 U	18 U	11 U	11 U	25 UJ	21 UJ
Methylene Chloride	100 NYSDEC TAGM UG/KG	GM UG/KG	7 J		25 U	22 U	11 U	10 U	11 U	18 U	U 11	11 U	25 UJ	21 UJ
Toluene	1500 NYSDEC TAGM UG/KG	GM UG/KG	20 J		25 UJ	22 U	11 U	10 U	11 U	18 U	11 U	U II	25 UJ	21 UJ
Trichloroethene	700 NYSDEC TAGM UG/KG	GM UG/KG	13 J		25 U	22 U	11 U	10 U	11 U	18 U	11 U	11 U	25 UJ	21 UJ
SEMIVOLATILE ORGANICS	S													
2,4-Dinitrotoluene		UG/KG	3000000 J	19000000 J		720 UJ		340 U	5700 U	620 U	380 U	2700	2600 UJ	5100 UJ
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	GM UG/KG	74000 J	620000 U	U 008	720 U	E 3	340 U	5700 U	620 U	380 U	200 J	2600 UJ	5100 UJ
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	GM UG/KG	S00000 U		008 U	720 U		21 J	19000	49 J	40 J	360 U	180 J	5100 UJ
Acenaphthene	50000 NYSDEC TAGM UG/KG	GM UG/KG	S00000 U		008 n	720 U		340 U	4500 J	620 U	380 U	360 U	560 J	5100 UJ
Anthracene	50000 NYSDEC TAGM UG/KG	GM UG/KG	500000 U		008	720 U		340 U	2900 J	620 U	22 J	360 U	670 J	\$100 UJ
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	GM UG/KG	500000 U		N 008	720 U		40 1	L 0001	44 J	54 J	92 J	L 0091	330 J
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	GM UG/KG	500000 U		43 J	42 J		45 J	T70 J	61 J	54 J	90 J	L 0021	400 J
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	GM UG/KG	S00000 U		120 J	110 J	91 J	130 J	500 J	73 J	47 J	1 66	L 0091	750 J
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	GM UG/KG	S00000 U		74 J	720 UJ	J 360 U	120 J	870 J	620 U	380 U	61 J	360 J	5100 UJ
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	GM UG/KG	S00000 U		800 UJ	720 UJ		J 77	630 J	f 09	50 J	92 J	L 0091	630 J
Butylbenzylphthalate	50000 NYSDEC TAGM UG/KG	GM UG/KG	54000 J		55 J	720 U		340 U	5700 U	620 U	380 U	360 UR		5100 UJ
Carbazole		UG/KG	500000 U		N 008	720 U		340 U	5700 U	620 U	36 J	21 J	740 J	5100 UJ
Chrysene	400 NYSDEC TAGM UG/KG	GM UG/KG	200000 U		1 96 I	73 J		150 J	1400 J	74 J	120 J	110 J		f 089
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	GM UG/KG	000056		190 J			340 U	5700 U	620 U	50 J	710 UJ		5100 UJ
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	GM UG/KG	200000 U		800 M			26 J	500 J	620 U	380 U	360 U	2600 UJ	5100 UJ
Dibenzofuran	6200 NYSDEC TAGM UG/KG	GM UG/KG	200000 U		N 008	720 U		46 J	1500 J	620 U	22 J	360 U	390 J	5100 UJ
Diethylphthalate	7100 NYSDEC TAGM UG/KG	GM UG/KG	500000 U		008 n	720 U		340 U	530 J	620 U	380 U	360 U	2600 UJ	\$100 UJ
Fluoranthene	50000 NYSDEC TAGM UG/KG	GM UG/KG	200000 U		110 J	66 I	1000	920	3100 J	140 J		210 J	3900 J	630 J
Fluorene	50000 NYSDEC TAGM UG/KG	GM UG/KG	200000 U		N 008	720 U		340 U	0019	620 U		360 U	260 J	5100 UJ
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	GM UG/KG	200000 U		51 J	720 UJ	J 360 U	92 J	450 J	620 U	380 U	39 J	400 J	5100 UJ
N-Nitrosodiphenylamine (1)		UG/KG	200000 J		008	720 U	360 U	340 U	5700 U	620 U	380 U	450	2600 UJ	5100 UJ
Naphthalene	13000 NYSDEC TAGM UG/KG	GM UG/KG	500000 U		N 008	720 U	360 U	43 J	1600 J	620 U	19 J	360 U	410 J	5100 UJ
Pentachlorophenol	1000 NYSDEC TAGM UG/KG	GM UG/KG	1200000 U		220 J	1700 U	N 088	830 U	14000 U	1500 U	920 U	870 U	6300 UJ	12000 UJ
Phenanthrene	50000 NYSDEC TAGM UG/KG	GM UG/KG	S00000 U		64 J	720 U	130 J	550	22000	120 J	100 J	110 J	4100 J	360 J
Phenol	30 NYSDEC TAGM UG/KG	GM UG/KG	S00000 U		N 008	720 U	81 J	340 U	37000	150 J	380 U	360 U	2600 UJ	5100 UJ
Pyrene	50000 NYSDEC TAGM UG/KG	GM UG/KG	200000 U		95 J	130 J		570	5000 J	120 J	130 J	160 J	3200 J	720 J
bis(2-Ethylhexyl)phthalate	50000 NYSDEC TAGM UG/KG	GM UG/KG	500000 U		800 U	800 U	360 U	340 U	5700 U	440 J	5000 J	52 J	500 J	1300 J

SEAD-16 Building Materials Analytical Results

			LOC_ID:	BS-10	BS-11	FS-50		FS-50	FS16-1	FS16-2	FS16-3	FS16-4	FS16-5	FS16-6	FS16-7	FS16-8
			SAMP ID:	16024	16022	16023		16028	FS16-1-1	FS16-2-1	FS16-3-1	FS16-4-1	FS16-5-1	FS16-6-1	FS16-7-1	FS16-8-1
			QC CODE:	SA	SA	SA		DO	SA							
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNE		U ROUNDI	ESI							
			TOP:													
			BOTTOM:													
			MATRIX:	SOLIDS	SOLIDS	SOLIDS	25	SOLIDS								
			SAMPLE DATE:	96/8/8		96/8/8			12/6/93	12/6/93	12/6/93	12/6/93			12/6/93	
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	Q VALUE	Q VALUE	o	VALUE Q								
PESTICIDES/PCB																0.0000000000000000000000000000000000000
4,4'-DDD	2900 N	2900 NYSDEC TAGM UG/KG	M UG/KG	1000 U	1		8 U	7.2 U					35 J			76 UJ
4,4'-DDE	2100 N	2100 NYSDEC TAGM UG/KG	M UG/KG	1000 U	1	9	3.3	7.3 J					750			180 J
4,4'-DDT	2100 N	2100 NYSDEC TAGM UG/KG	M UG/KG	940 J			53	19				140	019			870 J
Aroclor-1254	N 00001	10000 NYSDEC TAGM UG/KG	M UG/KG	10000 U	1	1	JO J	120					75 U			1400 J
Aroclor-1260	10000 N	0000 NYSDEC TAGM UG/KG	M UG/KG	10000 U	1	4	45 J	61 J					68			630 J
Dieldrin	44 N	44 NYSDEC TAGM UG/KG	M UG/KG	1000 U	1		8 U	7.2 U				12 U	7.5 U			TO 97
Endosulfan I	N 006	900 NYSDEC TAGM UG/KG	M UG/KG	540 U	1	E	.3 J	3.7 U								39 UJ
Endosulfan II	N 006	900 NYSDEC TAGM UG/KG	M UG/KG	1000 L	1		8 U	7.2 U	3.6 U	3.4 J	5.7 J	12 U	3.9 J	3.6 U	39 UI	76 UJ
Endrin	100 N	100 NYSDEC TAGM UG/KG	M UG/KG	1000 U	1		8 U	7.2 U								76 UJ
Heptachlor epoxide	20 N	20 NYSDEC TAGM UG/KG	M UG/KG	540 U	1	4	1.1 U	3.7 U								
alpha-BHC	110 N	110 NYSDEC TAGM UG/KG	M UG/KG	540 U	J	m	3.7 J	2.5								39 UJ
alpha-Chlordane			UG/KG	540 U	1	(T)	3.8 J	3.7 J							13 J	
gamma-BHC (Lindane)	N 09	60 NYSDEC TAGM UG/KG	M UG/KG	540 U	J	4	1.1 U	3.7 U						1.8 U	20 UJ	39 UJ
gamma-Chlordane	540 N	540 NYSDEC TAGM UG/KG	M UG/KG	540 U	7	d	2.3 J	2.3 J	U 6.1	J 2.1 J	4.6 J	6.4 U	2.9 J	1.8 U	12 J	36 J

OTHER ANALYSES													
Amosite Asbestos	%, +-5%												
Chrysotile Asbestos	%												
Chrysotile Asbestos	%, +-5%												
Chrysotile Asbestos	%, +-2.5%.												
Chrysotile Asbestos	%, > THAN												
Nitrate/Nitrite-Nitrogen	MG/KG	14200		539	638	151	13.7	0.21	0.27	2	104	68'0	0.05
Percent Moisture (PEST/PCB)		8		59	54								
Percent Moisture (SVOCs)		8		58	54								
Percent Moisture (VOCs)		9		09	54								
Percent Solids (Metals)		91.5	72.5	41.2	45.8								

NITROAROMATICS													
1,3,5-Trinitrobenzene	UG/KG	120000 U	620000 U	1200 U	220 J	130 U	130 UJ	130 U	130 U	130 U	130 U	130 UJ	130 UJ
2,4,6-Trinitrotoluene	UG/KG	120000 U	620000 U	1200 U	120 U	170 J	130 UJ	130 U	130 U	130 U	130 U	130 UJ	130 UJ
2.4-Dinitrotoluene	UG/KG	3700000	19000000	36000	4600 J	130 U	72 J	130 U	2900	130 U	610	3100 J	610 J

SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Building Materials Analytical Results

	LOC_D: SAMP ID: QC CODE: STUDY ID:	BS-10 16024 SA RI ROUNDI	BS-11 16022 SA RI ROUNDI	FS-50 16023 SA RI ROUNDI	FS-50 16028 DU RI ROUND1	FS16-1 FS16-1-1 SA ESI	FS16-2 FS16-2-1 SA ESI	FS16-3 FS16-3-1 SA ESI	FS16-4 FS16-4-1 SA ESI	FS16-5-1 SA ESI	FS16-6 FS16-6-1 SA ESI	FS16-7 FS16-7-1 SA ESI	FS16-8 FS16-8-1 SA ESI
PARAMETER	TOP: BOTTOM: MATRIX: SAMPLE DATE: 1 FVFI SOIRCE INIT	SOLIDS ATE: 8/8/96 VALITE O	SOLIDS 8/8/96	SOLIDS 8/8/96	SOLIDS 8/8/96	SOLIDS 12/6/93	SOLIDS 12/6/93	SOLIDS 12/6/93	SOLIDS 12/6/93	SOLIDS 12/6/93	SOLIDS 12/6/93	SOLIDS 12/6/93	
METALS	SOONCE		AALOE			VALUE		۸ ۲	VALUE	VALUE Q	>	VALUE Q	VALUE Q
Aluminum	14593 NYSDEC TAGM MG/KG	13600 R		4590 R	9580 R	9540	7	0199	9550	2960	11300	1 0964	13700 J
Antimony	3.59 NYSDEC TAGM MG/KG	32.5 J	82.4 J	322 J	1050 J	4.6 U		1560	31.5	11.9 J	11.2 J	21.8 J	93.2 J
Barium	300 NYSDEC TAGM MG/KG	40500 J		225 1	381 J	145	15600	6.07	1.7	88.7	0.5	397 1	15.9 J
Beryllium	0.73 NYSDEC TAGM MG/KG	0.16	0.04 U	0.28	0.72	0.51 J	0.09 J	0.08 U	11.3	0.19 J	0.49 J	0.32 J	0.27 J
Cadmium	I NYSDEC TAGM MG/KG	54.6	0.41	0.94	1.5	22.2 R	36.8 R	156 R	1 R	3	1.2	72.8 J	127 J
Calcium	101904 NYSDEC TAGM MG/KG	5390	286	85900	107000	19800	13800	21200	23000	215000	41800	41600 J	67400 J
Chromium	22.13 NYSDEC TAGM MG/KG	518	4.3	36.7	2.09	15.8	220	33.2	6.4	33.2 R	21.3 R	22.1 R	174 R
Cobalt	30 NYSDEC TAGM MG/KG	26.3	2.7	8.9	10.9	15	20.9	9.7 J	3.3 J	5.6 J	6.6	6 J	40.6 J
Copper	25 NYSDEC IAGM MG/KG	00791	0976	1.66	130	211 3	38900 J	81400 J	129 J	f 06	I 861	593 J	757 J
Cyanide	26627 NYSDEC TAGM MG/KG	79200 1	1 0096	1 00	1 UJ	10700	1.4	20.74 U	1 U	0.61 U	0.58 U	2.3 J	4.4 J
Lead	21.86 NYSDEC TAGM MG/KG	4180	132	391	420	810	437000	577000	905	300	23000	1,200 J	1 00161
Magnesium	12222 NYSDEC TAGM MG/KG	8450	3370	8500	15300	4850	16400	19700	2470	15700	16400	10500 J	15700 J
Manganese	669.38 NYSDEC TAGM MG/KG	207	27.3	574	1040	488 J	334 J	214 J	194 J	480	456	301 J	458 J
Mercury	0.1 NYSDEC TAGM MG/KG	24.9	0.07 U	0.12 U	0.11	0.81	39.3	1.8	0.34	0.1	1.2	2.4 J	3.7 J
Nickel	33.62 NYSDEC TAGM MG/KG	154	2.1	20.9	60.1	21.1	119	8.99	7.9 J	18.8	30.5	21.5 J	124 J
Potassium	1761.5 NYSDEC TAGM MG/KG	00908	2830	3770	4980	10500	1570	636 J	1550 J	704 J	1480	1430 J	1360 J
Selenium	2 NYSDEC TAGM MG/KG	1.6	0.95	1.3	2.1	5.8 J	1.3 UJ	1.6 UJ	0.26 UJ	0.13 UJ	0.72 J	1.6 J	0.91 J
Silver	0.4 NYSDEC TAGM MG/KG	3.6		0.29 U	0.46 U	U 6.0	13.4	22.7	1.5 U	0.73 U	0.8 U	1.3 UJ	1.7 UJ
Sodium	103.74 NYSDEC TAGM MG/KG	3090 J		3460 J	4440 J	3690	2650	152 J	365 J		200 J	97.9 J	302 J
Vandium	150 NISDEC TAGM MG/KG	0.84 U	0.57 0	0 1 0	1.6 U	0.38 J	2.2 UJ	1.4.3	0.44 UJ	_	0.25 U	0.45 UJ	0.39 UJ
Zinc	82.5 NYSDEC TAGM MG/KG	42600	1640	334	495	715.1	12.9 I	16.2 J	178.1	8.3 J	18.3	20.6 J	11,000 1
							0 001 001	20000	0.017	010	67.9	6 0161	77000
HERBICIDES													
2,4,5-T	1900 NYSDEC TAGM UG/KG					3.9 J	5.2 U	U 6.9	9.4 U	5.8 U	5.5 U	12 UJ	13 J
2,4,5-TP (Silvex)	UG/KG					7.9 J	5.2 U	U 6.9	9.4 U	5.8 U	5.5 U	12 UJ	12 UJ
2,4-D	500 NYSDEC TAGM UG/KG					55 U	52 U	D 69	94 U	58 U	55 U	120 UJ	160 J
2,4-DB	UG/KG					130 J	52 U	Ω 69	94 U	58 U	55 U	120 UJ	120 UJ
Dichloroprop	UG/KG					61 J	52 U	Ω 69	94 U	28 U	55 U	120 UJ	120 UJ
MCPA	UG/KG					f 0009	5200 U	O 0069	9400 U	5800 U	5500 U	12000 UJ	12000 UJ
MCPP	UG/KG					22000 J	5200 U	O 0069	9400 U	2800 U	5500 U	12000 UJ	12000 UJ

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			LOC ID:	AS16-43	AS16-5	AS16-6	AS16-7	AS16-8	AS16-9
			SAMP ID:	AS16-43C	AS16-5	AS16-6	AS16-7	AS16-8	AS16-9
			QC CODE:	SA	SA	DO	SA	SA	SA
			STUDY ID:	RI ROUNDI	ESI	ESI	ESI	ESI	ESI
			TOP:					0	0
			BOTTOM:					0.2	0.2
			MATRIX:	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS
			SAMPLE DATE:	8/8/96 8:00					
PARAMETER	LEVEL	SOURCE	LIND	VALUE	Q VALUE	VALUE Q VALUE Q VALUE Q VALUE Q VALUE	VALUE Q	VALUE Q	VALUE Q
OTHER ANALYSES									
Amosite Asbestos			%, +-5%		1.1	J 1 L	1 1 1	1 0	I U
Chrysotile Asbestos			%	0	U 30	30	7.5	1 U	1 U
Chrysotile Asbestos			%, +-5%						
Chrysotile Asbestos			%, +-2.5%						
Chrysotile Asbestos			%, > THAN						

Table A-1b SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Building Material Analytical Results (Asbestos)

LOC_ID: AS16-10 AS16-11 AS16-12 AS16-13 AS16-14 AS16-15 AS16-15 AS16-15 AS16-17 AS16-17 AS16-17 AS16-18 SAMP ID: AS16-10 AS16-11 AS16-12 AS16-13 AS16-15 AS16-15 AS16-15 AS16-17 AS16-17 AS16-18 AS16-17 AS16-17 AS16-18 AS16-15 AS16-15 AS16-15 AS16-17 AS16-17 AS16-18 AS16-17 AS16-17 AS16-18 AS16-17 AS16-18 AS16-17 AS16-18 AS16-17 AS16-18 AS16-17 AS16-18 AS16-17 AS16-18 AS16-17 AS16-18 AS16-17 AS16-18 AS16-17 AS16-18 AS16-18 AS16-17 AS16-18 AS16-17 AS16-17 AS16-18 AS16-17 AS16-18 AS16-18 AS1															
SAMP ID: QC CODE: STUDY ID: TOP: BOTTOM: MATRIX: SAMPLE DATE: LEVEL SOURCE UNIT %, +-5%	LOC ID:		AS16-10	AS16-11	AS16-12	AS16-13	AS16-14	AS16-15	AS16-16	AS16-17			216-17	AS16-18	
QC CODE: STUDY ID: TOP: BOTTOM: MATRIX: SAMPLE DATE: LEVEL SOURCE UNIT %, +-5%	SAMP ID:		AS16-10	AS16-11	AS16-12	AS16-13	AS16-14	AS16-15	AS16-16	AS16-17A	AS16-17B		AS16-17C	AS16-18A	
STUDY ID: TOP: BOTTOM: MATRIX: SAMPLE DATE: LEVEL SOURCE UNIT %, +-5%	QC CODE:		SA			SA	SA								
TOP: BOTTOM: MATRIX: SAMPLE DATE: UNIT %, +-5%	STUDY ID:		ESI	RI ROUNDI	7		OUNDI	RI ROUNDI							
BOTTOM: MATRIX: SAMPLE DATE: UNIT %, +-5%	TOP:					0	0	0	0						
MATRIX: SAMPLE DATE: LEVEL SOURCE UNIT %, +-5%	BOTTOM:					0.2	0.2	0.2	0.2						
SAMPLE DATE: LEVEL SOURCE UNIT %, +-5%	MATRIX:	SOLIDS	SOLIDS		SOLIDS	SOLIDS									
LEVEL SOURCE UNIT %, +-5% %	SAMPLE DATE:									00:8 96/8/8	8/8/96 8:00	/8/8	00:8 96/8/8	00:8 96/8/8	
%, +-5% 40 % 20	TINU	VALUE Q	VALUE Q	VALUE Q	VALUE C	VALUE C	VALUE C	VALUE C	VALUE Q	VALUE	Q VALUE	O V.	ALUE Q	VALUE	\sim I
%, +-5% 40 % 9%2% 20															_
% 20	%, +-5%	40	1 U	1 0	10	1.0	1.0	1 10	10						_
	%	20	0.5 U	1 U	10	1.0	1 0	1 1	1 1 0	-		0 0	0 0	_	_
Chrysotile Asbestos %, +-5%	%, +-5%														_
Chrysotile Asbestos 96, +-2.5%	%, +-2.5%														_
Chrysotile Asbestos %, > THAN	%, > THAN			ε											

Page 4

SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

		LOC_ID:	AS16-18	AS16-18	AS16-18	AS16-19	AS16-19		AS16-20	AS16-21	AS16-21	AS16-22	AS16-23	
		SAMP ID:	AS16-18B	AS16-46A	AS16-46B	AS16-19A	AS16-19B		AS16-20	AS16-21A	AS16-21B	AS16-22	AS16-23	
		QC CODE:	SA	DO	DO	SA		SA	SA	SA	SA	SA	SA	
		STUDY ID:	RI ROUNDI	ESI	RI ROUNDI									
		TOP:												
		BOTTOM:												
		MATRIX:	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	
		SAMPLE DATE: 8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	00:8 96/8/8	8/8/96 8:00		8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	
PARAMETER LEVEL	SOURCE	UNIT	VALUE Q		Q VALUE	Q VALUE	Q VALUE	Q VALUE Q	VALUE	VALUE	VALUE	VALUE	VALUE Q	0
OTHER ANALYSES														Г
Amosite Asbestos		%, +-5%						1 U						
Chrysotile Asbestos		%	0.0	1	O 0	U OU		0 U 1 U	0 0	0.0	0.0	0 0	U O U	-
Chrysotile Asbestos		%, +-5%												_
Chrysotile Asbestos		%, +-2.5%												
Chrysotile Asbestos		%, > THAN												
														1

Table A-1b SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	AS16-24	AS16-24	AS16-2		1516-26	AS16-27	AS16-28	AS16-2		AS16-29	AS16-29		AS16-30
			SAMP ID:	AS16-24	AS16-45	AS16-25		AS16-26	AS16-27	AS16-28	AS16-25		4S16-29B	AS16-29C	AS16-3	AS16-30A
			QC CODE:	SA	DO	SA		SA	SA	SA			SA	SA		SA
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	24	J ROUNDI	RI ROUNDI	RI ROUNDI	I RI ROUNDI		RI ROUNDI			RI ROUNDI
			TOP:													
			BOTTOM:													
			MATRIX:	SOLIDS	SOLIDS	SOLIDS		SOLIDS	SOLIDS	SOLIDS	SOLIDS		SOLIDS	SOLIDS	SOLIDS	SOLIDS
			SAMPLE DATE: 8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00		8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	- 00		00:8 96/8/8	8/8/96 8:00		8/8/96 8:00
PARAMETER	LEVEL	SOURCE	LIND	VALUE	VALUE	Q VALUE	0 5	VALUE Q	VALUE	Q VALUE	O VALU	E O	VALUE	NALUE C	O VALUE C	VALUE Q VALUE
OTHER ANALYSES															,	
Amosite Asbestos			%, +-5%												50	
Chrysotile Asbestos			%	0.0	0	n	0 0	0 0	45	50		1	10	1	0 U 12.5	+
Chrysotile Asbestos			%, +-5%													
Chrysotile Asbestos			%, +-2.5%													
Chrysotile Asbestos			%, > THAN													

Tc...A-1b SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	AS16-30	AS	16-30	AS16-	31	AS16-32		AS16-33	A	AS16-34	AS16-3.	2	AS16-36		AS16-37	AS16-3	1
			SAMP ID:	AS16-30B	AS	AS16-30C	AS16-31	31	AS16-32	433	AS16-33	¥	AS16-34	AS16-35	2	AS16-36	4	AS16-37A	AS16-37B	7B
			QC CODE:	SA		SA	SA		SA		SA		SA	SA		SA		SA	SA	
			STUDY ID:	RI ROUNDI	RIR	J ROUNDI	RI ROUNDI	NDI	RI ROUNDI		RI ROUNDI	RIF	RI ROUNDI	RI ROUNDI	DI	RI ROUNDI		RI ROUNDI	RI ROUN	IDI
			TOP:																	
			BOTTOM:																	
			MATRIX:	SOLIDS	SC	SOLIDS	SOLIDS	SC	SOLIDS		SOLIDS	S	SOLIDS	SOLIDS	10	SOLIDS		SOLIDS	SOLIDS	S
			SAMPLE DATE: 8/8/96 8:00	00:8 96/8/8	/8/8	8/8/96 8:00	8/8/96 8:00	3:00	00:8 96/8/8		8/8/96 8:00	8/8	00:8 96/8/8	8/8/96 8:00	00	00:8 96/8/8		8/8/96 8:00	8/8/96 8:00	00
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	7 V	TUE (\ VALI	JE C	Q VALUE Q	0	VALUE (2	ALUE Q	VALUE	0	VALUE	0	VALUE	VALU.	D 3
OTHER ANALYSES																				
Amosite Asbestos			%, +-5%																	
Chrysotile Asbestos			%	0 1	1	0 0		0 0		0 0	0 0	_	0 0		0 0	0	0 0	0 0	_	0 0
Chrysotile Asbestos			%, +-5%																	
Chrysotile Asbestos			%, +-2.5%																	
Chrysotile Asbestos			%, > THAN																	

Table A-1b SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			TOC ID:	AS16-38	AS16-39	AS16-39		AS16-40	AS16-40	AS16-41		AS16-42	AS16-43	AS16-43
			- CO-	000000	201011									
			SAMP ID:	AS16-38	AS16-39A	AS16-39B		AS16-40	AS16-44	AS16-41A	AS16-41B	AS16-42	AS16-43A	AS16-43B
			OC CODE:	SA	SA	SA	SA	SA	DO	SA		SA	SA	SA
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	I ESI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUND
			TOP:											
			BOTTOM:									001.000	000	901.00
			MATRIX:	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS	SOLIDS
			SAMPLE DATE: 8/8/96 8:00	00:8 96/8/8	8/8/96 8:00	8/8/96 8:00	,	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00	8/8/96 8:00
PARAMETER	LEVEL	LEVEL SOURCE	UNIT	VALUE	VALUE	Q VALUE	Q VALUE	2 VALUE	Q VALUE	Q VALUE	VALUE Q	VALUE	Q VALUE	Q VALUE
OTHER ANALYSES														
Amosite Asbestos			%, +-5%				11	1						
Chrysotile Asbestos			%	0 [0 1	0.0	00 11	J 55	35	0.0	n o n) 65	0	0 0 0 0
Chrysotile Asbestos			%, +-5%											
Chrysotile Asbestos			%, +-2.5%											
Chrysotile Asbestos			%, > THAN											

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC ID:	SB16-1		SB16-3	SB16-3	SB16	5-4	SS16-1		SS16-10	SS16-11	SS16-12	S	S16-13
			SAMP ID:	16037		16032	16033	16030	30	SS16-1-1		SS16-10-1	SS16-11-1	SS16-12-1	SS	SS16-13-1
			QC CODE:	SA		SA	DO	SA	gr	SA		SA	SA	SA		SA
			STUDY ID:	RI ROUNDI	14	U ROUNDI	RI ROUNDI	RIROL	INDI	ESI		ESI	ESI	ESI		ESI
			TOP:	0		0	0	0		0		0	0	0		0
			BOTTOM:	0.2		0.2	0.2	0.2		0.2		0.2	0.2	0.2		0.2
				SURFACE		SURFACE	SURFACE	SURF	ACE	SURFACE		SURFACE	SURFACE	SURFACE	SC	JRFACE
			MATRIX:	SOIL		SOIL	SOIL	SOI	1	SOIL		SOIL	SOIL	SOIL		SOIL
			SAMPLE DATE:	8/14/96		8/14/96	8/14/96	8/14/	96/	10/20/93		11/9/93	10/20/93	10/20/93	-	10/20/93
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	VALUE (VALUE (YAL Y	UE Q	VALUE	0	VALUE Q	VALUE	VALUE	0	VALUE Q
VOLATILE ORGANICS																
1,1,2,2-Tetrachloroethane	600 1	600 NYSDEC TAGM UG/KG	M UG/KG	12	n	11 0			10 U	11	n	11 U			m	11 CI
Acetone	200 1	200 NYSDEC TAGM UG/KG	M UG/KG	7	ſ	11 0		201	10 U	=	n	11 U			0.1	11 UJ
Benzene	1 09	60 NYSDEC TAGM UG/KG	M UG/KG	12	n	11 U		0	10 U	=	n	11 U			E)	11 UJ
Carbon Disulfide	2700 1	2700 NYSDEC TAGM UG/KG	M UG/KG	12	n	11 0			10 U	Ξ	n	11 U			CO.	11 UI
Chloroform	300 1	300 NYSDEC TAGM UG/KG	M UG/KG	12	12 U	11 U	U 01		10 U	=	11 U	11 U	13 U	11 UJ	TO.	11 UI
Methylene Chloride	1001	100 NYSDEC TAGM UG/KG	M UG/KG	12	n	11 0			10 U	Ξ	n	11 U			_	11 03
Toluene	1500 1	1500 NYSDEC TAGM UG/KG	M UG/KG	12	n	11 0			10 J	Ξ	n	11 U			_	11 UI
Xylene (total)	1200 1	1200 NYSDEC TAGM UG/KG	M UG/KG	12	n	U 11			10 U	Π	n	11 U			T)	11 UJ

SEMIVOLATILE ORGANICS										2007 0000
2,4-Dinitrotoluene	UG/KG	420 U	1800 U	3500 U	1100 U	2200 J	1800 U	440 U	360 U	750 U
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	1100 U	180 J	1800 U	440 U	360 U	750 U
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	71.3	710 UR	1800 U	440 U	360 U	750 U
3,3'-Dichlorobenzidine	UG/KG	420 U	1800 U	3500 U	1100 U	710 UR	1800 U	440 U	360 U	750 U
3-Nitroaniline	500 NYSDEC TAGM UG/KG	1000 U	4200 U	8400 U	2800 U	1700 UR	4300 U	1100 U	N 088	1800 U
Acenaphthene	50000 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	72 J	710 UR	1800 U	440 U	360 U	750 U
Acenaphthylene	41000 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	310 J	70 J	1800 U	440 U	360 U	750 U
Anthracene	50000 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	390 J	82 J	1800 U	27 J	360 U	750 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	1800	420 J	1800 U	110 J	31 J	45 J
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	4400	f 095	1800 U	f 66	27 J	40 J
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	3800	480 J	1800 U	100 J	31 J	49 J
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	32 J	f 006	340 J	6300	160 J	1800 U	62 J	360 U	750 U
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	2300	740 J	1800 U	1 86	34 J	53 J
Carbazole	UG/KG	420 U	1800 U	3500 U	100 J	710 UR	1800 U	22 J	360 U	750 U
Chrysene	400 NYSDEC TAGM UG/KG	420 U	96 J	3500 U	2100	500 J	1800 U	130 J	49 J	72 J
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	150 J	1300 J	120 J	250 J	19 J	750 U
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	26 J	260 J	220 J	1100 J	710 UR	1800 U	440 U	360 U	750 U
Dibenzofuran	6200 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	1100 U	710 UR	1800 U	440 U	360 U	750 U
Diethylphthalate	7100 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	1100 U	710 UR	1800 U	440 U	360 U	750 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	420 U	91 J	3500 U	1800	470 J	1800 U	240 J	83 J	120 J
Fluorene	50000 NYSDEC TAGM UG/KG	420 U	1800 U	3500 U	1100 U	710 UR	1800 U	440 U	360 U	750 U
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	32 J	470 J	320 J	4600	710 UR	1800 U	30 J	360 U	750 U

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SB16-1		SB16-3		SB16-3	0050	SB16-4	V 1	SS16-1		01-9188	SS16-11	SSI	SS16-12	SS16-13	53	
			SAMP ID:	16037		16032		16033		16030	Š	1-1-9189	S	S16-10-1	SS16-11-1	SS16-12-	12-1	SS16-1.	3-1	
			QC CODE:	SA		SA		DO		SA		SA		SA	SA	S	SA	SA		
			STUDY ID:	RI ROUNDI		RI ROUNDI		RI ROUNDI	R	ROUNDI		ESI		ESI	ESI	Щ	ESI	ESI		
			TOP:	0		0		0		0		0		0	0	0	_	0		
			BOTTOM:	0.2		0.2		0.2		0.2		0.2		0.2	0.2	0	2	0.2		
				SURFACE		SURFACE		SURFACE	S	URFACE	SL	URFACE	S	URFACE	SURFACE	SURE	URFACE	SURFACE	CE	
			MATRIX:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	SOIL	SO	SOIL	SOIL		
			SAMPLE DATE:	8/14/96		8/14/96		8/14/96		8/14/96	Ĩ	0/20/93		11/9/93	10/20/93	10/2	0/20/93	10/20/93	93	
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	VALUE	0	VALUE	0	VALUE	2	'ALUE	0	VALUE Q	VALUE	Q VAI	ALUE (VALUE	E O	
N-Nitrosodiphenylamine (1)			UG/KG	420 U	n	1800 U	n	3500 U	1	1100 U	_	680 J	à	1800 U	22 J		360 U		43 J	
Naphthalene	13000 1	13000 NYSDEC TAGM UG/KG	M UG/KG	420	n	1800	n	3500 L	7	180 J		710 1	IR	1800 U	440 L	J	360 U	**	750 U	
Pentachlorophenol	10001	1000 NYSDEC TAGM UG/KG	M UG/KG	1000	D	4200	n	8400 L	-	2800 U	-	1700 [R	4300 U	1100 L	J	880 U	=	300 U	
Phenanthrene	50000 1	50000 NYSDEC TAGM UG/KG	M UG/KG	420	D	1800	D	3500 L	5	620 J		140 3		1800 U	130 J		45 J		81 J	
Pyrene	50000 1	50000 NYSDEC TAGM UG/KG	M UG/KG	420	D	1800	n	3500 L	ī	2100		086		1800 U	200 J	200	66 J		97 J	
bis(2-Ethylhexyl)phthalate	50000 1	50000 NYSDEC TAGM UG/KG	M UG/KG	30	ī	1800	n	3500 L	ī.	67 J		7101	R	1800 U	540 J		360 U		320 J	

PESTICIDES/PCB	14									
4,4'-DDD	2900 NYSDEC TAGM UG/KG	4.2 U	3.5 U	3.5 U	35 U	5 J	3.6 UJ	4.4 U	3.6 U	3.7 U
4,4'-DDE	2100 NYSDEC TAGM UG/KG	4.2 U	2 J	3.5 U	35 U	19 J	3.6 UJ	15 J	38	9
4,4'-DDT	2100 NYSDEC TAGM UG/KG	4.2 U	3.5 U	3.5 U	35 U	12 J	3.6 UJ	6.3 J	5	2.6 J
Aldrin	41 NYSDEC TAGM UG/KG	2.2 U	1.8 U	1.8 U	18 U	1.8 UJ	1.8 UJ	2.3 U	U 6.1	U 6.1
Aroclor-1254	10000 NYSDEC TAGM UG/KG	42 U	35 U	35 U	350 U	30 UJ	36 UJ	44 U	36 U	37 U
Aroclor-1260	10000 NYSDEC TAGM UG/KG	42 U	35 U	35 U	350 U	35 U	36 UJ	110	36 U	37 U
Dieldrin	44 NYSDEC TAGM UG/KG	4.2 U	3.5 U	3.5 U	26 J	3.5 UJ	3.6 UJ	4.4 U	3.6 U	3.7 U
Endosulfan I	900 NYSDEC TAGM UG/KG	1.4 U	1.2 U	1.8 U	25 J	14 J	1.8 UJ	2.3 U	1.4 J	U 6.1
Endosulfan II	900 NYSDEC TAGM UG/KG	4.2 U	3.5 U	3.5 U	35 U	4,4 J	3.6 UJ	4.4 U	3.6 U	3.7 U
Endosulfan sulfate	1000 NYSDEC TAGM UG/KG	4.2 U	3.5 U	3.5 U	35 U	3.5 UJ	3.6 UJ	4.4 U	3.6 U	3.7 U
Endrin	100 NYSDEC TAGM UG/KG	2.2 U	3.5 U	3.5 U	35 U	3.5 UJ	3.6 UJ	4.4 U	3.6 U	3.7 U
Endrin aldehyde	UG/KG	4.2 U	3.5 U	3.5 U	35 U	3.5	3.6 UJ	6.5 J	3.6 U	3.7 U
Endrin ketone	UG/KG	4.2 U	3.5 U	3.5 U	35 U	3.4 J	3.6 UJ	4.4 U	3.6 U	3.7 U
Heptachlor	100 NYSDEC TAGM UG/KG	2.2 U	1.8 U	1.8 U	18 U	1.8 UJ	1.8 UJ	2.3 U	1.9 U	U 6.1
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	1.6 J	1.8 U	1.8 U	18 U	1.8 UJ	1.8 UJ	2.3 U	1.6 J	2.1 J
Toxaphene	UG/KG	220 U	180 U	180 U	1800 U	180 UJ	180 UJ	230 U	D 061	190 U
alpha-Chlordane	UG/KG	2.2 U	1.8 U	1.8 U	18 U	1.8 UJ	1.8 UJ	2.3 U	1.9 U	U 6.1
beta-BHC	200 NYSDEC TAGM UG/KG	2.2 U	1.8 U	1.8 U	18 U	1.8 UJ	1.8 UJ	2.3 U	1.9 U	U 6.1
gamma-BHC (Lindane)	60 NYSDEC TAGM UG/KG	2.2 U	1.8 U	1.8 U	18 U	1.8 UJ	1.8 UJ	2.3 U	1.9 U	U 6.1
gamma-Chlordane	540 NYSDEC TAGM UG/KG	2.2 U	1.8 U	1.8 U	18 U	1.8 UJ	1.8 UJ	2.3 U	1.9 U	11 6 1



8.05

39.5

35.2

0.02 U 342

355 J 0.2 23 1290

0.51 J 12.3 J 1060

0.04 J 409 J

0.05 U 397 J

40.3 J 1690

0.1 J

0.1 NYSDEC TAGM MG/KG 33.62 NYSDEC TAGM MG/KG 1761.48 NYSDEC TAGM MG/KG

Manganese Mercury

Potassium Nickel

22.4

SEAD-16 AND 17 FEASIBILITY STUDY SENECA ARMY DEPOT Table A-2

		LOC_ID: SAMP ID:	SB16-1 16037	SB16-3 16032	SB16-3 16033	SB16-4 16030	SS16-1 SS16-1-1	SS16-10 SS16-10-1	SS16-11 SS16-11-1	SS16-12 SS16-12-1	SS16-13 SS16-13-1
		OC CODE:	SA	SA	DO	SA	SA	SA	SA	SA	SA
		STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	ESI	ESI	ESI	ESI	ESI
		TOP:	0	0	0	0	0	0	0	0	0
		BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
		MATDIV.	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SORFACE	SORFACE	SOIL
		SAMPLE DATE:	1000	8/14/96	8/14/96	8/14/96	10/20/93	11/9/93	10/20/93	10/20/93	10/20/93
PARAMETER	LEVEL SOURCE	E UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q
OTHER ANALYSES			3	1 170000		100000000000000000000000000000000000000	27.00.00.00.00	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.0000000	1000	200-100
Nitrate/Nitrite-Nitrogen		MG/KG	2.2	0.01	0.01	0.02	0.05	0.07	0.23	0.04	0.05
Percent Moisture (PEST/PCB)			22	9	2	S					
Percent Moisture (SVOCs)			22	9	5	4					
Percent Moisture (VOCs)			18	9	5	5					
Percent Solids (Metals)			78	93.8	94.6	95.4					
Total Organic Carbon		MG/KG									
SOLLYMORYGUIN											
2.4 Distratelliere		116/86	170 11	1 0089	780 1	0000	320	130 11	130 11	130 11	130 11
z,4-Diminotolucine	T CHARLES COOL	DAIDO	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	,		4	11001	1300	120 021	1300	1300
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	AGM UG/KG	120 U				0 051	130 0	130 0	130 0	0 051
2-amino-4,6-Dinitrotoluene		UG/KG	120 U	250 U	120 U	120 U	130 U	130 U	130 U	130 U	130 U
Tetryl		UG/KG	120 U	250 U	120 U	120 U	130 U	130 U	130 U	130 U	130 U
METALS											
Aluminum	14592.8 NYSDEC TAGM MG/KG	AGM MG/KG	19700 R	12500 R	11700 R	5100 R	6550	9720	17200	10400	14100
Antimony	3.59 NYSDEC TAGM MG/KG	'AGM MG/KG	0.42 UJ	U 0.39 UJ	J 0.38 UJ	1.6 J	17.1	0.6 U	13.9 U	0.6 U	8.2 U
Arsenic	7.5 NYSDEC TAGM MG/KG	AGM MG/KG	5 J	4 J	3.8 J	3 J	4.9	5.2 J	7.7	5.2	8.9
Barium	300 NYSDEC TAGM MG/KG	AGM MG/KG	I 861	67.6 J	61.5 J	44.4 J	102	33.6	195	52	88.2
Beryllium	0.73 NYSDEC TAGM MG/KG	'AGM MG/KG	0.72	0.41	0.38	0.08	0.32 J	0.36 J	0.91 J	0.46 J	0.59 J
Cadmium	1 NYSDECT	1 NYSDEC TAGM MG/KG	0.36	0.06 U	0.06 U	0.18	0.44 U	0.41 UR	0.87 U	0.41 U	0.51 U
Calcium	101904 NYSDEC TAGM MG/KG	'AGM MG/KG	6180	30600	45500	26600	147000	13800	9820	30300	28700
Chromium	22.13 NYSDEC TAGM MG/KG	'AGM MG/KG	24.7	21.2	20.5	8.6	12.6	13.9	25.5	19.2	26.7
Cobalt	30 NYSDEC TAGM MG/KG	'AGM MG/KG	14.9 J	12.6 J	13 J	4.6	6.2 J	7.6	16.7	10.6	13.7
Copper	25 NYSDEC TAGM MG/KG	'AGM MG/KG	I 61	35.6 J	33 J	39.7 J		29 J	199	54.8	204
Cyanide	0.3 NYSDEC TAGM MG/KG	AGM MG/KG	0.55 UJ	J 0.52 UJ	J 0.5 UJ	I 0.47 UJ	0.64 U	0.53 U	O 69.0	0.64 U	0.63 U
Iron	26626.7 NYSDEC TAGM MG/KG	'AGM MG/KG	31900 J	27100 J	25600 J	100001	12300	23200	30600	22700	30400
Lead	21.86 NYSDEC TAGM MG/KG	AGM MG/KG	21.9 J	£ 6.59 J	51.7 J	193 J	269	16.1	919	195	460
Magnesium	12221.8 NYSDEC TAGM MG/KG	AGM MG/KG	4380	8010	9320	24900	34900	5500	5200	5830	7350
Manganese	669.38 NYSDEC TAGM MG/KG	'AGM MG/KG	1060	397 J	409 J	417 J	355 J	342	706 J	329 J	417 J
	TOUGUE	ON ON THOUSAND		11 300	1 100			11 000	0.43	100	

5.7 U 5700 U

5.5 U 5500 U

0.7 U 6700 U

5.4 U 5400 U

5.4 U 5400 U

UG/KG

1900 NYSDEC TAGM UG/KG

HERBICIDES 2,4,5-T MCPP

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SB16-1		SB16-3	SB16-3		SB16-4	SS16-1		SS16-10	SS16-11	SS16-12	SS16-13	13
			SAMP ID:	16037		16032	16033		16030	SS16-1-1		SS16-10-1	SS16-11-1	SS16-12-1	SS16-13-1	3-1
			QC CODE:	SA		SA	DO		SA	SA		SA	SA	SA	SA	
			STUDY ID:	RI ROUNDI	R	ROUNDI	RI ROUNDI	R	ROUNDI	ESI		ESI	ESI	ESI	ESI	
			TOP:	0		0	0		0	0		0	0	0	0	
			BOTTOM:	0.2		0.2	0.2		0.2	0.2		0.2	0.2	0.2	0.2	
				SURFACE	S	URFACE	SURFACE	SI	SURFACE	SURFACE		SURFACE	SURFACE	SURFACE	SURFACE	CE
			MATRIX:	SOIL		SOIL	SOIL		SOIL	SOIL		SOIL	SOIL	SOIL	SOIL	
			SAMPLE DATE:	8/14/96		8/14/96	8/14/96		8/14/96			11/9/93		10/20/93	10/20/93	93
PARAMETER	LEVEL	SOURCE	TIND	VALUE	0	VALUE Q	VALUE Q		VALUE Q	VALUE Q	0	VALUE Q	VALUE Q	VALUE	Q VALUE (JE Q
Selenium	2 N	2 NYSDEC TAGM MG/KG	M MG/KG	1.5	ı	0.82 J	0.45		0.44 UJ		n	0.22 UJ				21 J
Silver	N 4.0	0.4 NYSDEC TAGM MG/KG	M MG/KG	0.3		0.25 U	0.25 U		0.24		n	0.84 UJ				10
Sodium	103.74 N	103.74 NYSDEC TAGM MG/KG	M MG/KG	55.8	n	29.9	99.2		53.4	213	1.3	49.7 J	72.2 J	108	1	125 J
Thallium	0.28 N	0.28 NYSDEC TAGM MG/KG	M MG/KG	1.8		0.82 U	0.79	1	72.0	1.6	n s	0.24 UJ	0.26 U	0.25	U 0.	U 917
Vanadium	150 N	150 NYSDEC TAGM MG/KG	M MG/KG	33.6	'n	22.4 J	20.4		11.2 J	36.5	_	16.9	28.8	15	21	11
Zinc	82.5 N	82.5 NYSDEC TAGM MG/KG	M MG/KG	8.66		84.5	79.8		90.4	219		65.8 J	1270	68	1	128

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-14	SS16-15	SS	91-91	SS16-17		816-18	SS16-19		SS16-2	SS16-20		SS16-21
			SAMP ID:	SS16-14-1	SS16-15-1	SSI	SS16-16-1	16040		16041	16042		SS16-2-1	16043		16058
			QC CODE:	SA	SA		SA	SA		SA	SA		SA	SA		SA
			STUDY ID:	ESI	ESI		ESI	RI ROUNDI	щ	ROUNDI	RI ROUNDI		ESI	RI ROUNE	_	I ROUNDI
			TOP:	0	0		0	0		0	0		0	0		0
			BOTTOM:	0.2	0.2	-	0.2	0.2		0.2	0.2		0.2	0.2		0.2
				SURFACE	SURFACE	SUR	FACE	SURFACE		RFACE	SURFACE		URFACE	SURFACE	***	SURFACE
			MATRIX:	SOIL	SOIL	S	OIL	SOIL		SOIL	SOIL		SOIL	SOIL		SOIL
			SAMPLE DATE:	10/20/93	10/20/93	10/	10/20/93	8/19/96		96/61/1	8/19/96		10/20/93	8/19/96		8/21/96
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	2 VALUE	Q VA	ALUE Q	VALUE	0	VALUE Q	VALUE	0	VALUE	VALUE	0	VALUE
VOLATILE ORGANICS																
1,1,2,2-Tetrachloroethane	N 009	600 NYSDEC TAGM UG/KG	4 UG/KG	111	11 11	n	11 U	12	n	12 U		m	12 U		1 03	10
Acetone	200 N	200 NYSDEC TAGM UG/KG	A UG/KG	111	J 11 UJ	n	11 U	9	Ω9	N 8		10 UJ	12 U		11 UJ	10
Benzene	N 09	60 NYSDEC TAGM UG/KG	A UG/KG	111	1 1	n	11 U	12	n	12 U		m	12 U		2 J	10
Carbon Disulfide	2700 N	2700 NYSDEC TAGM UG/KG	A UG/KG	111		m	11 U	12	n	12 U		m o	1.3		1 03	10
Chloroform	300 N	300 NYSDEC TAGM UG/KG	A UG/KG	11 U		m	11 U	9	n	0.9		m s	12 U		s un	5 U
Methylene Chloride	100 N	100 NYSDEC TAGM UG/KG	4 UG/KG	3.3		m	11 U	12	n	12 U		m (12 U		1 UJ	10
Toluene	1500 N	1500 NYSDEC TAGM UG/KG	A UG/KG	=		n	11 U	12	n	12 U			12 U		3 J	10
Xylene (total)	1200 N	1200 NYSDEC TAGM UG/KG	4 UG/KG	111		n	11 U	12	n	12 U		In o	12 U		1 03	10

SEMIVOLATILE ORGANICS										
2,4-Dinitrotoluene	UG/KG	370	350 U	1800 UJ	390 U	420 U	340 U	160	58 J	15000
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	56 J	350 U	1800 UJ	390 U	420 U	340 U	410 U	350 U	1200 J
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	350 J	350 U	2300 U
3,3'-Dichlorobenzidine	UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	410 U	350 U	2300 U
3-Nitroaniline	500 NYSDEC TAGM UG/KG	N 068	D 098	4500 UJ	950 U	1000 U	820 U	1000 U	850 U	2600 U
Acenaphthene	50000 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	410 U	350 U	2300 U
Acenaphthylene	41000 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	65 J	350 U	2300 U
Anthracene	50000 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	55 J	350 U	2300 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	26 J	350 U	1800 UJ	390 U	420 U	340 U	260 J	26 J	2300 U
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	24 J	350 U	1800 UJ	22 J	420 U	340 U	300 J	34 J	2300 U
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	33 J	350 U	1800 UJ	21 J	420 U	20 J	200	32 J	2300 U
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	19 J	350 U	1800 UJ	390 U	420 U	340 U	130 J	350 U	2300 U
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	30 J	350 U	1800 UJ	22 J	420 U	16 J	310 J	32 J	2300 U
Carbazole	UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	48 J	350 U	2300 U
Chrysene	400 NYSDEC TAGM UG/KG	44 J	16 J	1800 UJ	22 J	19 J	24 J	470	37 J	2300 U
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	76 J	350 U	1800 UJ	390 U	420 U	340 U	710	350 U	2300 U
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	410 U	32 U	2300 U
Dibenzofuran	6200 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	100 J	350 U	2300 U
Diethylphthalate	7100 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	I 61	16 J	410 U	350 U	2300 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	f 89	23 J	1800 UJ	37 J	28 J	39 J	580	43 J	2300 U
Fluorene	50000 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	410 U	350 U	2300 U
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	30 J	350 U	2300 U

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC ID:	SS16-14	SS16-15	SS16-16	SS16-17	SS16-18	SS16-19	SS16-2	SS16-20	SS16-21
			SAMP ID:	SS16-14-1	SS16-15-1	SS16-16-1	16040	16041	16042	SS16-2-1	16043	16058
			OC CODE:	SA	SA	SA	SA	SA	SA	SA	SA	SA
			STUDY ID:	ESI	ESI	ESI	RI ROUNDI	RI ROUNDI	RI ROUNDI	ESI	RI ROUNDI	RI ROUNDI
			TOP:	0	0	0	0	0	0	0	0	0
			BOTTOM:	0.2 STIRFACE	0.2 STIRFACE	0.2 SURFACE						
			MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			SAMPLE DATE:	10/20/93	10/20/93	10/20/93	8/19/96	96/61/8	8/19/96	10/20/93	96/61/8	8/21/96
PARAMETER	LEVEL	SOURCE	UNIT	VALUE Q	VALUE	VALUE Q	VALUE	VALUE Q	VALUE Q	VALUE Q	VALUE	VALUE
N-Nitrosodiphenylamine (1)			UG/KG	17 J	350 U	1800 UJ				150 J	350 U	1600 J
Nanhthalene	13000 1	13000 NYSDEC TAGM UG/KG	M UG/KG	370 U	350 U	1800 UJ	390 U	420 U	340 U	230 J	350 U	2300 U
Pentachlorophenol	10001	1000 NYSDEC TAGM UG/KG	M UG/KG	U 068	N 098	4500 UJ	950 U	1000 U	820 U	1000 U	850 U	
Phenanthrene	50000	50000 NYSDEC TAGM UG/KG	M UG/KG	36 J	25 J	1800 UJ	19 J	420 U	29 J	420	27 J	2300 U
Pvrene	50000	50000 NYSDEC TAGM UG/KG	M UG/KG	54 J	19 J	1800 UJ	26 J	22 J	30 J	520	41 J	2300 U
bis(2-Ethylhexyl)phthalate	50000	50000 NYSDEC TAGM UG/KG	M UG/KG	370 J	350 U	1800 UJ	24 U	26 U	84 U	410 U	200 U	2300 U

PESTICIDES/PCB										No. Octobrilla
4,4'-DDD	2900 NYSDEC TAGM UG/KG	7.3 U	3.5 U	7.4 U	3.9 U	4.2 U	3.4 U	4.1 UR	3.5 U	3.5 R
4.4'-DDE	2100 NYSDEC TAGM UG/KG	59	28 J	38	3.9 U	4.2 U	14	9.4 J	37	34 J
4.4'-DDT	2100 NYSDEC TAGM UG/KG	19	2.1 J	68	3.9 U	4.2 U	1.8 J	8.1 J	6.7	22 J
Aldrin	41 NYSDEC TAGM UG/KG	3.8 U	1.8 U	3.8 U	2 U	2.2 U	1.7 U	2.1 UR	1.8 U	1.8 R
Aroclor-1254	10000 NYSDEC TAGM UG/KG	73 U	35 U	74 U	39 U	42 U	34 U	41 UR	35 U	35 R
Aroclor-1260	10000 NYSDEC TAGM UG/KG	73 U	22 J	74 U	39 U	42 U	34 U	41 UR	35 U	35 R
Dieldrin	44 NYSDEC TAGM UG/KG	7.3 U	3.5 U	7.4 U	3.9 U	4.2 U	3.4 U	4.1 UR	3.5 U	3.5 R
Endosulfan I	900 NYSDEC TAGM UG/KG	3.8 U	f 96.0	3.8 U	2 U	2.2 U	2 J	3.4 J	1.8 U	1.8 J
Endosulfan II	900 NYSDEC TAGM UG/KG	7.3 U	3.5 U	7.4 U	3.9 U	4.2 U	3.4 U	4.1 UR	3.5 U	3.5 R
Endosulfan sulfate	1000 NYSDEC TAGM UG/KG	7.3 U	3.5 U	7.4 U	3.9 U	4.2 U	3.4 U	4.1 UR	3.5 U	3.5 R
Endrin	100 NYSDEC TAGM UG/KG	7.3 U	3.5 U	7.4 U	3.9 U	4.2 U	3.4 U	4.1 UR	3.5 U	3.5 R
Endrin aldehyde	UG/KG	7.3 U	3.5 U	7.4 U	3.9 U	4.2 U	3.4 U	4.1 UR	3.5 U	3.5 J
Endrin ketone	UG/KG	7.3 U	3.5 U	7.4 U	3.9 U	4.2 U	3.4 U	4.1 UR	3.5 U	3.5 R
Heptachlor	100 NYSDEC TAGM UG/KG	3.8 U	1.8 U	3.8 U	2 U	2.2 U	1.7 U	2.1 UR	1.8 U	1.8 J
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	3.8 U	1.8 U	3.8 U	2 U	2.2 U	1.7 U	2.1 UR	1.8 U	1.8 R
Toxaphene	UG/KG	380 U	180 U	380 U	200 U	220 U	170 U	210 UR	180 U	180 J
alpha-Chlordane	UG/KG	4.8	1.8 U	3.8 U	2 U	2.2 U	1.7 U	2.1 UR	1.8 U	1.3 J
beta-BHC	200 NYSDEC TAGM UG/KG	3.8 U	1.8 U	3.8 U	2 U	2.2 U	1.7 U	2.1 UR	1.8 U	1.8 R
gamma-BHC (Lindane)	60 NYSDEC TAGM UG/KG	3.8 U	1.8 U	3.8 U	2 U	2.2 U	1.7 U	2.1 UR	1.8 U	1.8 R
gamma-Chlordane	540 NYSDEC TAGM UG/KG	3.4 J	1.8 U	3.8 U	2 U	2.2 U	1.7 U	2.1 UR	1.8 U	1.8 R

Taure A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-14	SS16-15	SS16-16			81-918	SS16-19		SS16-2		SS16-20	SS16-21	
			SAMP ID:	SS16-14-1	SS16-15-1	SS16-16-1			16041	16042		SS16-2-1		16043	16058	
			QC CODE:	SA	SA	SA			SA	SA		SA		SA	SA	
			STUDY ID:	ESI	ESI	ESI	RI ROUNDI	H.	U ROUNDI	RI ROUNDI		ESI	R	U ROUNDI	RI ROUNDI	10
			TOP:	0	0	0			0	0		0		0	0	
			BOTTOM:	0.2	0.2	0.2			0.2	0.2		0.2		0.2	0.2	
				SURFACE	SURFACE	SURFACE			IRFACE	SURFACE		URFACE	S	URFACE	SURFACI	ш
			MATRIX:	SOIL	SOIL	SOIL			SOIL	SOIL		SOIL		SOIL	SOIL	
			SAMPLE DATE:	10/20/93	10/20/93	10/20/93			96/61/8	96/61/8		10/20/93		96/61/8	8/21/96	
PARAMETER	LEVEL	SOURCE	TINU	VALUE Q	VALUE	Q VALUE	0	0	ALUE (2 VALUE	0	VALUE	0	VALUE	VALUE	
OTHER ANALYSES																
Nitrate/Nitrite-Nitrogen			MG/KG	0.05	0.04	0.2	71	4	0.49	0.0	4	6.0		0.11	0.	53
Percent Moisture (PEST/PCB)							15	9	21	wici)	2			9		9
Percent Moisture (SVOCs)							71	9	21	930	2			9		9
Percent Moisture (VOCs)							21	6	11		4			9		S
Percent Solids (Metals)							8	4	79.3	97.	7			94	94.6	9.4
Total Organic Carbon			MG/KG												11000	00

NITROAROMATICS										
2,4-Dinitrotoluene	UG/KG	1200	130 U	150	74000	120 U	220	200	310	7300
,,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	130 U	130 U	130 U	2500 U	120 U	120 U	130 U	120	250 U
-amino-4,6-Dinitrotoluene	UG/KG	130 U	130 U	130 U	2500 U	120 U	120 U	130 U	120 U	250 U
Fetryl	UG/KG	130 U	130 U	130 U	2500 U	120 U	120 U	130 U	120 U	250 U

METALS										
Aluminum	14592.8 NYSDEC TAGM MG/KG	7680	7510	6310	10200 J	13600 J	f 0296	6340	14100 J	12200 J
Antimony	3.59 NYSDEC TAGM MG/KG	8.4	6.2 U	Ω6	2.9 J	2.5 J	3.5 J	55.6	f 6'6	20.8 J
Arsenic	7.5 NYSDEC TAGM MG/KG	6.6	4.8	3.8	4.7 J	4.1 J	4.5 J	9.91	5.2 J	6.5
Barium	300 NYSDEC TAGM MG/KG	211	35.1	56.6	168 J	148 J	124 J	1200	175 J	442 J
Beryllium	0.73 NYSDEC TAGM MG/KG	0.41 J	0.34 J	0.37 J	0.24	0.75	0.37	0.42 J	0.52	0.46
Cadmium	1 NYSDEC TAGM MG/KG	0.61 J	0.39 U	0.56 U	0.45	0.25	0.36	1.6 R	0.49	69.0
Calcium	101904 NYSDEC TAGM MG/KG	178000	26800	135000	7470	5200	113000	11700	36300	34900
Chromium	22.13 NYSDEC TAGM MG/KG	14.4	15.6	14.1	91	6.61	20.4	16.5	29.1	40.3
Cobalt	30 NYSDEC TAGM MG/KG	8.2	8.1	10.4	9.3	7.9	12.7 J	6.7 J	16.1 J	12.7
Copper	25 NYSDEC TAGM MG/KG	163	42.6	69.2	74.4 3	60.1 J	99.4 J	911	207 J	379
Cyanide	0.3 NYSDEC TAGM MG/KG	0.64 U	0.63 U	U 29.0	0.59 U	0.53 U	0.51 U	0.74 U	0.49 U	0.52 U
Iron	26626.7 NYSDEC TAGM MG/KG	16500	17500	11700	19700 J	22700 J	21900 J	25900	30600 J	27100 J
Lead	21.86 NYSDEC TAGM MG/KG	720	210	643	304 J	L 781	f 699	3780	1370 J	2030
Magnesium	12221.8 NYSDEC TAGM MG/KG	2990	4770	00099	3520	3190	10100	4400	8330	8560
Manganese	669.38 NYSDEC TAGM MG/KG	270 J	227 J	310 J	948	353	413	178 J	417	381
Mercury	0.1 NYSDEC TAGM MG/KG	0.07 J	0.05 J	0.04 J	1.2 J	0.77 J	0.04 U	4	0.13 J	0.26
Nickel	33.62 NYSDEC TAGM MG/KG	29.4	30.5	28.5	22.7 J	20.3 J	38.8 J	21.7	55.6 J	45.7
Potassium	1761.48 NYSDEC TAGM MG/KG	1100	802	2300	1170	1150	1840	673 J	2020	1240

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Surface Soil Analytical Results

						******	,,,,,	,									
			LOC_ID:	SS16-14	SS16-15	SS16-16	SS16-17	.17	SS16-18		SS16-19	SS	6-2	SS	S16-20	SS16-21	_
			SAMP ID:	SS16-14-1	SS16-15-1	SS16-16-1	16040	0,	16041		16042	SSI	5-2-1	16	16043	16058	255
			QC CODE:	SA	SA	SA	SA		SA		SA	S	SA	0,	3A	SA	
			STUDY ID:	ESI	ESI	ESI	RI ROUNDI	NDI	RI ROUNDI	- F	N ROUNDI	E	ESI	RIRC	AI ROUNDI	RI ROUNDI	ID1
			TOP:	0	0	0	0		0		0		0		0	0	
			BOTTOM:	0.2	0.2	0.2	0.2		0.2		0.2	0	2).2	0.2	
				SURFACE	SURFACE	SURFACE	SURF	1CE	SURFACE		SURFACE	SUR	ACE		FACE	SURFAC	E
			MATRIX:	SOIL	SOIL	SOIL	SOIL	L	SOIL		SOIL	SC	II.		SOIL	SOIL	
			SAMPLE DATE:	10/20/93	10/20/93	10/20/93	-	96/61/8	8/19/96		96/61/8	10/2	0/93	~	96/61/8	8/21/96	100
PARAMETER	LEVEL	SOURCE	UNIT	VALUE Q	VALUE	Q VALUE Q	>	ALUE (VALUE	0	VALUE	VA.	VALUE Q	A VA	TUE	VALUE	O 3
Selenium	2.1	2 NYSDEC TAGM MG/KG	M MG/KG	0.41 J	0.22 UJ	-		0.59	0.93	3	0.47		0.4 J		0.46 U		1.2
Silver	0.4 1	0.4 NYSDEC TAGM MG/KG	M MG/KG	0.93 U	0.79 U	_		0.26		0.32 U	0.31		1.5 U		0.28	0	121 U
Sodium	103.74 1	103.74 NYSDEC TAGM MG/KG	M MG/KG	176 J	90.1 J	240		51.8 U	. 99	D 2	128		121 J		107		101
Thallium	0.28 1	0.28 NYSDEC TAGM MG/KG	M MG/KG	0.14 U	0.24 L	J 0.23	D	1.7 J		1	0.74 J		0.19 U		0.92 J		0.8 J
Vanadium	150 1	150 NYSDEC TAGM MG/KG	M MG/KG	13.4	10.8	61.9		20.1 J	24.	5 J	16.5 J		14.5		21.5 J	-	7.1
Zinc	82.5 1	82.5 NYSDEC TAGM MG/KG	M MG/KG	104	9.89	93.8		107	87.	10	111		478		174	2	246

6.3 U 6300 U

5.6 U 5600 U

5.4 U 5400 U

8.3 5600 U

1900 NYSDEC TAGM UG/KG

HERBICIDES 2,4,5-T MCPP

UG/KG

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Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-21	21	S16-22	SS16-23	SS16-24		SS16-25	S	S16-26	SS16-27		SS16-28	SS16-29
			SAMP ID:	16059		16049	16051	16060		16050		16046	16047		16044	16045
			QC CODE:	DO		SA		SA		SA		SA	SA		SA	SA
			STUDY ID:	RI ROUNDI	R	ROUND1		RI ROUND		RI ROUNDI	RIF	SOUNDI	RI ROUNDI	2	ROUNDI	RI ROUND
			TOP:	0		0		0		0		0	0		0	0
			BOTTOM:	0.2 SURFACE	S	0.2 SURFACE	0.2 SURFACE	0.2 SURFACE	(34)	0.2 SURFACE	SU	0.2 SURFACE	0.2 SURFACE	S	0.2 SURFACE	0.2 SURFACE
			MATRIX:	SOIL		SOIL	SOIL	SOIL		SOIL		SOIL	SOIL		SOIL	SOIL
			SAMPLE DATE:	8/21/96		8/20/96	8/20/96	8/21/96		8/20/96	8	8/20/96	8/20/96		96/61/8	8/19/96
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	VALUE Q	VALUE	Q VALUE	0	VALUE	0	VALUE Q	VALUE	0	VALUE Q	VALUE
VOLATILE ORGANICS																
1,1,2,2-Tetrachloroethane	₹ 009	600 NYSDEC TAGM UG/KG	M UG/KG	10 UJ	11	11 UJ	12	11 n	in c	11 L	11	11 U	==	ח	10 U	10 UJ
Acetone	200 ₽	200 NYSDEC TAGM UG/KG	M UG/KG	10 U	1	11 U	12	U 14	m c	11 UJ	11	5 U	=	11 U	10 U	11 UJ
Benzene	₹ 09	60 NYSDEC TAGM UG/KG	M UG/KG	101	П	11 U	12	ם	2 J	11 UJ	11	11 0	11	n	10 U	
Carbon Disulfide	2700 P	2700 NYSDEC TAGM UG/KG	M UG/KG	10 L)	11 U	12	U 10	m c	11 L	11	11 U		D	10 U	10 UJ
Chloroform	300 ₺	300 NYSDEC TAGM UG/KG	M UG/KG	5 1	J	0 9	0.9	 D	S UJ	2 J		5 U	5	n	5 U	.005 120
Methylene Chloride	1001	100 NYSDEC TAGM UG/KG	M UG/KG	101	1	11 U	12 U		m c	11 UI	11	11 U	Π	n	10 U	
Toluene	1500 1	500 NYSDEC TAGM UG/KG	M UG/KG	2 J	21	11 UJ	12		4 J	2 J		1.3		3 J	10 U	
Xylene (total)	1200 1	1200 NYSDEC TAGM UG/KG	M UG/KG	10 UJ	п	11 UJ	12 U		m c	111	11	U 11		n	10 U	

SEMIVOLATILE ORGANICS										
2,4-Dinitrotoluene	UG/KG	19000	95 J	380 U	1800	39 J	870	85000	200	1800
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	I 0091	360 U	380 U	160 J	340 U	350 U	8000 J	51 J	150 J
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	2900 U	19 J	380 U	76 J	340 U	27 J	14000 U	350 U	340 U
3,3'-Dichlorobenzidine	UG/KG	2900 U	360 U	380 U	340 U	340 U	350 U	14000 U	350 U	340 U
3-Nitroaniline	500 NYSDEC TAGM UG/KG	7100 U	N 028	920 U	830 U	830 U	850 U	35000 U	840 U	820 U
Acenaphthene	50000 NYSDEC TAGM UG/KG	2900 U	360 U	380 U	37 J	340 U	64 J	14000 U	350 U	340 U
Acenaphthylene	41000 NYSDEC TAGM UG/KG	2900 U	19 J	380 U	340 U	340 U	22 J	14000 U	350 U	340 U
Anthracene	50000 NYSDEC TAGM UG/KG	2900 U	32 J	380 U	44 J	340 U	120 J	14000 U	350 U	340 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	2900 U	190 J	380 U	340 U	26 J	200	1300 J	42 J	340 U
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	2900 U	250 J	380 U	340 U	30 J	520	1500 J	f 19	17 J
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	2900 U	420	380 U	480	28 J	810	L 0081	84 J	17.1
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	2900 U	210 U	380 U	340 U	24 J	440 U	14000 U	350 U	340 U
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	2900 U	290 J	380 U	340 U	33 J	009	1500 J	65 J	340 U
Carbazole	UG/KG	2900 U	26 J	380 U	41 J	340 U	110 J	14000 U	350 U	340 U
Chrysene	400 NYSDEC TAGM UG/KG	2900 U	370	380 U	340 U	40 J	720	f 0091	70 J	17 J
Di-n-buty1phthalate	8100 NYSDEC TAGM UG/KG	2300 U	32 J	380 U	340 U	340 U	430	16000	350 U	150 J
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	2900 U	U 76	380 U	38 J	340 U	100 U	O 089	28 U	340 U
Dibenzofuran	6200 NYSDEC TAGM UG/KG	2900 U	21 J	380 U	110 J	340 U	33 J	14000 U	350 U	340 U
Diethylphthalate	7100 NYSDEC TAGM UG/KG	2900 U	360 U	380 U	340 U	340 U	350 U	14000 U	350 U	340 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	2900 U	420	380 U	520	56 J	1200	3100 J	94 J	21 J
Fluorene	50000 NYSDEC TAGM UG/KG	2900 U	360 U	380 U	24 J	340 U	67 J	14000 U	350 U	340 U
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	2900 U	210 U	380 U	340 U	22 J	440 U	14000 U	350 U	340 U

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SURFACE SURFACE SI SOIL SOIL SOIL	2 0.2 0.2 0.2 0.2 0.2	TOP: 0 0 0 0 0 0 0 0 0	STUDY ID: RI ROUNDI	QC CODE: DU SA SA SA SA SA	SAMP ID: 16059 16049 16051 16060 16050 16046 16047 16044	LOC_D: SS16-21 SS16-22 SS16-23 SS16-24 SS16-25 SS16-26 SS16-27 SS16-28	CE CE 66 6 6 6 6 6 7 100 J 350 U 37 J 840 U 37 J 81 J
SOIL SOIL SOIL	SURFACE SURFACE SURFACE SURFACE S	SURFACE SURFACE SURFACE SURFACE SURFACE	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RIROUNDI R	RIROUNDI R	16051 16060 16050 16046 16047 16044 SA	8/19/96 VALUE Q 110 J 340 U 820 U 340 U 23 J

PESTICIDES/PCB										
4,4'-DDD	2900 NYSDEC TAGM UG/KG	2 U	5.4 J	3.8 U	8.9 J	3.4 U	23 J	17 J	1.8 J	3.4 U
4,4'-DDE	2100 NYSDEC TAGM UG/KG	20	73 J	21	110 J	20	210 J	190 J	20	5.7
4,4'-DDT	2100 NYSDEC TAGM UG/KG	32 J	18 J	22	24 J	5.2	340 J	320 J	2.7 J	3.4 U
Aldrin	41 NYSDEC TAGM UG/KG	1.8 R	1.8 U	2 U	1.8 R	1.8 U	5 J	1.8 U	1.8 U	1.8 U
Aroclor-1254	10000 NYSDEC TAGM UG/KG	35 R	36 U	38 U	1100 J	34 U	180 U	280	34 U	34 U
Aroclor-1260	10000 NYSDEC TAGM UG/KG	35 R	55 J	38 U	160 J	34 U	340 J	310 J	34 U	34 U
Dieldrin	44 NYSDEC TAGM UG/KG	3.5 R	3.6 U	3.8 U	2.9 U	2 UJ	18 U	4.3 J	3.4 U	3.4 U
Endosulfan I	900 NYSDEC TAGM UG/KG	2.1 J	5.9 J	2.3 J	13 J	1.6 UJ	η 6	· 21 J	2.2 J	1.8 U
Endosulfan II	900 NYSDEC TAGM UG/KG	3.5 R	3.6 U	3.8 U	3.4 R	3.4 U	O 6.6	2.3 J	3.4 U	3.4 U
Endosulfan sulfate	1000 NYSDEC TAGM UG/KG	3.5 R	3.6 U	3.8 U	2.8 U	3.4 U	18 U	2.1 J	3.4 U	3.4 U
Endrin	100 NYSDEC TAGM UG/KG	2.1 R	2.2 J	3.8 U	9.1 J	3.1 UJ	17 U	6.4 J	3.4 U	3.4 U
Endrin aldehyde	UG/KG	1.9 U	3.4 U	3.8 U	4.9 J	3.4 U	15 U	14 J	3.4 U	3.4 U
Endrin ketone	UG/KG	3.5 R	3.6 U	3.8 U	3.4 R	3.4 U	18 U	3.6 J	3.4 U	3.4 U
Heptachlor	100 NYSDEC TAGM UG/KG	1.8 R	1.8 U	2 U	1.8 R	1.8 U	η 6	1.8 U	1.8 U	1.8 U
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	1.8 R	1.8 U	2 U	6.7 J	1.8 U	D 6	1.6 J	1.3	1.8 U
Toxaphene	UG/KG	180 R	180 U	200 U	180 R	180 U	D 006	180 U	180 U	U 081
alpha-Chlordane	UG/KG	1.2 U	5.7	2 U	14 J	1.8 U	170 J	11.3	4.6	1.8 U
beta-BHC	200 NYSDEC TAGM UG/KG	1.8 R	1.8 U	2 U	1.8 R	1.8 U	N 6	2.3	1.8 U	1.8 U
gamma-BHC (Lindane)	60 NYSDEC TAGM UG/KG	1.8 R	2.3 J	2 U	1.8 R	1.8 U	N 6	1.8 U	1.8 U	1.8 U
gamma-Chlordane	540 NYSDEC TAGM UG/KG	1.3 J	2.5 J	2 U	11.3	1.8 U	200 J	6.4	5.2	1.8 U



Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

		LOC ID:	SS16-21	SS16-22	SS16-23	SS16-24	SS16-25	SS16-26	SS16-27	SS16-28	SS16-29	
		SAMP ID:	16059	16049	16051	16060	16050	16046	16047	16044	16045	
		QC CODE:	DO	SA	SA	SA	SA	SA	SA	SA	SA	
			RI ROUNDI	RIF	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	
			0		0	0	0	0	0	0	0	
		BOTTOM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
			SURFACE	SI	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		SAMPLE DATE:	8/21/96	8/20/96	8/20/96	8/21/96	8/20/96	8/20/96	8/20/96	96/61/8	8/19/96	
PARAMETER	LEVEL SOURCE	TINU	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE	Q VALUE Q	VALUE	Q VALUE Q	ا_
OTHER ANALYSES												
Nitrate/Nitrite-Nitrogen		MG/KG	0.34	0.03	80.0	0.04	90.0	0.39	0.11	90'0	0.11	
Percent Moisture (PEST/PCB)			9	00	13	4	4	9	00	4	3	_
Percent Moisture (SVOCs)			9	80	13	4	4	9	80	5	es.	
Percent Moisture (VOCs)			4	13	18	4	6	6	6	5	-	_
Percent Solids (Metals)			94.5	92	87.4	95.8	95.8	93.5	91.9	95.5	97.4	_
Total Organic Carbon		MG/KG			- LONDANA C	Transcotta			56400			_
												r
NITROAROMATICS		2000		1000								_
2,4-Dinitrotoluene		UG/KG	7700	160 J	120 U	450 J	200 J	490	7500 J	310		_
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	M UG/KG	250 U	120 U	120 U	120 U	120 U	120 U	J 320 J	120 U	J 120 U	_
2-amino-4,6-Dinitrotoluene		UG/KG	250 U	120 U	120 U	120 U	120 U	120 U	J 250 U	120 U	J 120 U	_
Tetryl		UG/KG	250 U	120 U	120 U	120 U	120 U	120 U	J 250 U	120 U	J 120 U	
												Г
METALS												
Aluminum	14592.8 NYSDEC TAGM MG/KG	M MG/KG	12900 J	12200 J	10400 J	11100 J	14100 J	6370 J	11300 J	10000 J	3860 J	
Antimony	3.59 NYSDEC TAGM MG/KG	MG/KG	19.2 J	20.3 J	10.4 J	7.1 J	3.1 J	1930 J	I 122 J	6.7 .		_
Arsenic	7.5 NYSDEC TAGM MG/KG	M MG/KG	7.2	6.2 J	6.7	6.1	4 J			5.2 J		_
Barium	300 NYSDEC TAGM MG/KG	MG/KG	f 929	169 J	263 J	148 J	121 J	9340 J	L 5190 J	107 J	48.1 J	_
Beryllium	0.73 NYSDEC TAGM MG/KG	3M MG/KG	0.52	0.46	0.49	0.46	0.53	0.02 U		0.36	0.17	_
Cadmium	1 NYSDEC TAGM MG/KG	3M MG/KG	0.87	1.3	92.0	1.2	0.25	7.1	9.91	0.3	0.11	_
mii.0100	101904 NVSDEC TAGM MG/KG	M MG/KG	40200	56900	25400	20600	39200	68400	00266	57200	260000	_

Aluminum 14592.8 NYSDEC TAGM MG/KG 12900 J 12200 J 10400 J 11100 J 14100 J Antimony 3.59 NYSDEC TAGM MG/KG 19.2 J 20.3 J 10.4 J 7.1 J 3.1 J Arsenic 7.5 NYSDEC TAGM MG/KG 7.2 6.2 J 7.9 6.1 J 4 J Barium 300 NYSDEC TAGM MG/KG 6.6 J 26.3 J 148 J 121 J Beryllium 0.73 NYSDEC TAGM MG/KG 0.52 0.46 0.49 0.46 0.45 0.25 0.46 0.49 0.46 0.25 0.25 Cadenium 101904 NYSDEC TAGM MG/KG 0.87 1.3 0.76 1.2 0.46 0.45 0.05 39200 39200 Cadetium 22.13 NYSDEC TAGM MG/KG 12.9 1.2.7 J 9 13.5 17.8 J 17.8 J Copper 2.0 obalt 30 NYSDEC TAGM MG/KG 5.8 G 0.5 U 0.56 U 0.46 U 0.44 U Cyanide 0.3 NYSDEC TAGM MG/KG 28700 J 25700 J 2560 J 27600 J 439 J Iron 21.86 NYSDEC TAGM MG/KG 373 414 350								
3.59 NYSDEC TAGM MG/KG 7.2 6.2 J 7.3 NYSDEC TAGM MG/KG 7.2 6.2 J 7.9 6.1 7.9 6.1 7.9 6.1 7.9 6.1 7.9 6.1 148 J 6.1 300 NYSDEC TAGM MG/KG 0.52 0.46 0.76 1.2 101904 NYSDEC TAGM MG/KG 0.87 1.3 0.76 1.12 1.02 1.13 NYSDEC TAGM MG/KG 0.5 U	12900 J		11100 J	14100 J	6370 J	11300 J	100001	3860 J
7.5 NYSDEC TAGM MG/KG 676 J 169 J 263 J 148 J 300 NYSDEC TAGM MG/KG 0.52 0.46 0.49 0.46 1 NYSDEC TAGM MG/KG 0.87 1.3 0.76 1.2 101904 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 0.5 U 0.5 U 0.5 U 0.5 U 0.5 U 0.5 U 22.13 NYSDEC TAGM MG/KG 0.5 U 0.5 U 0.5 U 0.5 U 0.5 U 0.46 U 22.6626.7 NYSDEC TAGM MG/KG 0.5 U 0.5 U 0.5 U 0.5 U 0.5 U 0.46 U 22.18 NYSDEC TAGM MG/KG 2640 8610 7510 8200 0.1 NYSDEC TAGM MG/KG 0.5 U 0.5 U 0.5 U 0.5 U 0.5 U 0.46 U 26626.7 NYSDEC TAGM MG/KG 2640 8610 7510 8200 0.1 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 0.4	19.2 J		7.1 J	3.1 J	1930 J	122 J	£ 2.9	1.1
300 NYSDEC TAGM MG/KG 0.52 0.46 0.73 NYSDEC TAGM MG/KG 0.87 1.3 0.76 1.12 101904 NYSDEC TAGM MG/KG 0.87 1.3 0.76 1.12 1.12 1.10 1.2.13 NYSDEC TAGM MG/KG 0.5 U 0.5	7,2		6.1	4 J	23 J	32.2 J	5.2 J	2.9 J
101904 NYSDEC TAGM MG/KG 0.52 0.46 0.49 0.46 1 NYSDEC TAGM MG/KG 0.87 1.3 0.76 1.2 101904 NYSDEC TAGM MG/KG 40200 56900 25400 50600 22.13 NYSDEC TAGM MG/KG 12.9 12.7 J 9 13.5 25 NYSDEC TAGM MG/KG 536 357 J 291 374 0.3 NYSDEC TAGM MG/KG 28700 J 25700 J 20500 27600 J 21.8 NYSDEC TAGM MG/KG 2840 25700 J 20500 27600 J 22.18 NYSDEC TAGM MG/KG 8600 8610 7510 8200 0.1 NYSDEC TAGM MG/KG 373 414 350 432 0.1 NYSDEC TAGM MG/KG 9600 8610 7510 8200	f 949		148 J	121 J	9340 J	£ 0615	107 J	48.1 J
1 NYSDEC TAGM MG/KG 0.87 1.3 0.76 1.2 101904 NYSDEC TAGM MG/KG 40200 56900 25400 50600 22.13 NYSDEC TAGM MG/KG 12.9 12.7 J 9 13.5 23 NYSDEC TAGM MG/KG 536 357 J 291 324 24 Signal	0.52		0.46	0.53	0.02 U	0.13	0.36	0.17
101904 NYSDEC TAGM MG/KG 40200 56900 25400 50600 20.13 NYSDEC TAGM MG/KG 12.9 12.7 J 9 13.5 20.4 26.6 25.0 NYSDEC TAGM MG/KG 536 357 J 291 324 20.5 Co.3 NYSDEC TAGM MG/KG 0.5 U 0.5 U 0.5 U 0.5 U 0.5 U 0.46 U 26626.7 NYSDEC TAGM MG/KG 28700 J 25700 J 20500 27600 J 21.86 NYSDEC TAGM MG/KG 2640 2520 J 1360 1450 1450 251.8 NYSDEC TAGM MG/KG 8600 8610 7510 8200 2560 0 1 1221.8 NYSDEC TAGM MG/KG 8600 8610 7510 8200 2560 0 1 1221.8 NYSDEC TAGM MG/KG 8600 8610 7510 8200 2560 0 1 1221.8 NYSDEC TAGM MG/KG 9600 8610 7510 8200 2560 0 1 17 1 1 0.93 0.27	0.87	Billin	1.2	0.25	7.1	9.91	0.3	0.11
22.13 NYSDEC TAGM MG/KG 12.9 12.7 J 9 13.5 25 NYSDEC TAGM MG/KG 536 357 J 291 324 25 NYSDEC TAGM MG/KG 0.5 U 0.5 U 0.5 U 0.46 U 0.5 CO.5 U 0.5 CO.5 CO.5 CO.5 CO.5 CO.5 CO.5 CO.5 CO	40200		20600	39200	68400	00266	57200	260000
30 NYSDEC TAGM MG/KG 12.9 12.7 J 9 13.5 25 NYSDEC TAGM MG/KG 536 357 J 291 324 324 324 324 324 324 324 324 324 324	38		26.6	28.4	47.5	43.7	20.5	8.4
25 NYSDEC TAGM MG/KG	12.9		13.5	17.8 J	8.8	9.6	10.2 J	5.3
5. 0.3 NYSDEC TAGM MG/KG 0.5 U 0.5 U 0.56 U 0.46 U 26626.7 NYSDEC TAGM MG/KG 28700 J 25700 J 20500 27600 J 21.86 NYSDEC TAGM MG/KG 2640 2920 J 1360 1450 1450 iiim 12221.8 NYSDEC TAGM MG/KG 8600 8610 7510 8200 655 C 0.3 NYSDEC TAGM MG/KG 373 414 350 432 0.27 0.3 NYSDEC TAGM MG/KG 0.3 17.3 0.93 0.27	536		324	86.6 J	37900 J	3200 J	192 J	28.3 J
26626.7 NYSDEC TAGM MG/KG 28700 J 25700 J 20500 27600 J 21.86 NYSDEC TAGM MG/KG 8600 8610 7510 8200 2221.8 NYSDEC TAGM MG/KG 8600 8610 7510 8200 256 669.38 NYSDEC TAGM MG/KG 373 414 350 432 21.86 NYSDEC TAGM MG/KG 373 414 350 432	0.5 U		0.46 U	0.44 U	0.53 U	0.54 U	0.49 U	0.47 U
21.86 NYSDEC TAGM MG/KG 2640 2920 J 1360 1450 um 12221.8 NYSDEC TAGM MG/KG 8600 8610 7510 8200 ese 6693.8 NYSDEC TAGM MG/KG 373 414 350 432 0.1 NYSDEC TAGM MG/KG 0.3 1.7 J 0.93 0.27	28700 J		27600 J	28800 J	17900 J	20500 J	21900 J	8870 J
um 12221.8 NYSDEC TAGM MG/KG 8600 8610 7510 8200 ese 669.38 NYSDEC TAGM MG/KG 373 414 350 432 0.1 NYSDEC TAGM MG/KG 0.3 1.7.1 0.93 0.27	2640		1450	439 J	140000 J	12600 J	626 J	f 9.99
ese 669.38 NYSDEC TAGM MG/KG 373 414 350 432	8600		8200	8170	9100	22300	5510	4880
0.1 NVSDEC TAGM MG/KG 0.3 1.7.1 0.93 0.27	373		432	465	367	581	322	215
Significant of the same of the	0.3		0.27	0.4 J	I 9'I	2.6 J	0.11 J	0.03 U
44.1 J 25 48	49.8		48	53.5 J	30.2 J	31.3 J	35.1 J	18.1 J
2200 1080 1540	1560		1540	2280	599	1510	1300	972

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-21		SS16-22	SS16-23		SS16-2	5	SS16-26	SS16-27	SST		SS16-29	
			SAMP ID:	16059		16049	16051		16050	9200	16046	16047	160		16045	
			QC CODE:	DO		SA	SA	SA	SA		SA	SA	S		SA	
			STUDY ID:	RI ROUNDI	R	ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUN	IDI	RI ROUNDI	RI ROUNDI	RI RO		RI ROUNDI	
			TOP:	0		0	0	0	0		0	0	J		0	
			BOTTOM:	0.2		0.2	0.2	0.2	0.2		0.2	0.2	0		0.2	
				SURFACE	<i>S</i> 1	URFACE	SURFACE	SURFACE	SURFA	CE	SURFACE	SURFACE	SUR		SURFACE	
			MATRIX:	SOIL		SOIL	SOIL	SOIL	SOIL		SOIL	SOIL	SC		SOIL	
			SAMPLE DATE:	8/21/96		8/20/96	8/20/96	8/21/96	8/20/9	2	8/20/96	8/20/96	8/18		96/61/8	
PARAMETER	LEVEL	SOURCE	UNIT	VALUE Q	0	VALUE Q	VALUE Q	VALUE Q VA	Q VALUE Q	E Q	VALUE Q	Q VALUE Q	Q VAI	VALUE Q	VALUE	0
Selenium	2 N.	2 NYSDEC TAGM MG/KG		0.81		0.54	0.73 U	1 75.0	J (39.0	0.59	0.52	n		0.43	n
Silver	0.4 N	0.4 NYSDEC TAGM MG/KG		0.25	n	0.33	0.27	0.28	_	1.32				0.41	0.37	
Sodium	103.74 NY	103.74 NYSDEC TAGM MG/KG		102		89.1	138	120		51.3				77.8	115	
Thallium	0.28 NY	0.28 NYSDEC TAGM MG/KG		1.1	1	f 6'0	0.85 U	1 99'0	J ().82 U		I 1.2 J		0.86 U	0.75	n
Vanadium	150 NY	150 NYSDEC TAGM MG/KG	M MG/KG	18.6		26.7 J	20.1	21.3	33	22.5 J				16.3 J	8.2	
Zinc	82.5 N	82.5 NYSDEC TAGM MG/KG	M MG/KG	307	THE PERSON NAMED IN	299	411	327		113	14600			115	42.7	_

IERBICIDES	
T-5,4,	1900 NYSDEC TAGM UG/KG
ICPP	UG/KG

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Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC ID:	SS16-3	SS16-30	SS16-31		SS16-32	SS16-33	SS16-34	-91SS		SS16-36	SS1	6-37
			SAMP ID:	SS16-3-1	16048	16062		16052	16067	16053	1606		16061	16	054
			QC CODE:	SA	SA	SA		SA	SA	SA	SA		SA	0,1	, Y
			STUDY ID:	ESI	RI ROUNDI	RIROUNI	-	1 ROUNDI	RI ROUNDI	RI ROUNDI	RI ROU		RI ROUNDI	RI RC	10NU
			TOP:	0	0	0		0	0	0	0		0		0
			BOTTOM:	0.2	0.2	0.2		0.2	0.2	0.2	0.2		0.2	0 2115	0.2 STIREACE
			MATRIX:	SOIL	SOIL	SOIL		SOIL	SOIL	SOIL	SOII		SOIL	S	JIC
			SAMPLE DATE:	-	8/20/96	8/21/96		8/20/96	8/22/96	8/20/96	8/22/6		8/21/96	8/2	96/0
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	VALUE	Q VALUE	0	VALUE Q	VALUE Q	VALUE (Q VALUE	0	VALUE (Q VA	VALUE Q
VOLATILE ORGANICS															
1,1,2,2-Tetrachloroethane	N 009	600 NYSDEC TAGM UG/KG	M UG/KG	11 U			11 U	10 U			J	10 UJ	10 U	11	11 U
Acetone	200 N	200 NYSDEC TAGM UG/KG	M UG/KG	11 U			11 U	10 U			7	10 UJ	10 U	11	11 U
Benzene	N 09	60 NYSDEC TAGM UG/KG	M UG/KG	U 11			11 U	10 U			J	10 U	5 J		11 U
Carbon Disulfide	2700 N	2700 NYSDEC TAGM UG/KG	M UG/KG	11 U			11 U	10 U			J	10 U	2 J		11 U
Chloroform	300 N	300 NYSDEC TAGM UG/KG	M UG/KG	11 U			5 U	SU			J	10 U	5 C	11	5 U
Methylene Chloride	N 001	100 NYSDEC TAGM UG/KG	M UG/KG	U 11			11 U	10 U			J	10 U	10 C	11	11 U
Toluene	1500 N	1500 NYSDEC TAGM UG/KG	M UG/KG	4 J	II UI		11 U	10 U	11 UJ	J 21 U	J	10 UJ	10 J		11 U
Xylene (total)	1200 N	1200 NYSDEC TAGM UG/KG	M UG/KG	11 U			11 U	10 U		2.04	J	10 UJ	10 C	11	11 U
SEMIYOLATILE OBGANICS	S														
2.4-Dinitrotoluene			UG/KG	7100			00 UJ	340 U				90069	700 L		350 U
2,6-Dinitrotoluene	1000 N	1000 NYSDEC TAGM UG/KG	M UG/KG	310 J	f 089		91000 UJ	350 U	510 U	1800 U		400 J	700 U	1	350 U
2-Methylnaphthalene	36400 N	36400 NYSDEC TAGM UG/KG	M UG/KG	510 J			00 J	f 86				850 U	700 L	1	350 U

SEMIVOLATILE ORGANICS										
2,4-Dinitrotoluene	UG/KG	7100	9400	91000 UJ	340 U	510 U	1800 U	0069	700 U	350 U
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	310 J	680 J	91000 UJ	350 U	510 U	1800 U	400 J	700 U	350 U
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	510 J	1300 U	19000 J	1 86	510 U	1800 U	850 U	700 U	350 U
3.3'-Dichlorobenzidine	UG/KG	1100 U	1300 U	91000 UJ	350 U	510 UJ	1800 U	850 J	700 U	350 U
3-Nitroaniline	500 NYSDEC TAGM UG/KG	2700 U	3100 U	220000 UJ	850 U	1200 UJ	4200 U	2100 J	1700 U	D 098
Acenaphthene	50000 NYSDEC TAGM UG/KG	1100 U	1300 U	72000 J	30 J	55 J	1800 U	140 J	700 U	350 U
Acenaphthylene	41000 NYSDEC TAGM UG/KG	1100 U	1300 U	91000 U	140 J	40 J	1800 U	850 U	700 U	350 U
Anthracene	50000 NYSDEC TAGM UG/KG	1100 U	1300 U	120000 J	120 J	310 J	1800 U	260 J	700 U	350 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	110 J	1300 U	220000 J	092	1900	1800 U	1000	700 U	350 U
Benzo(a)pvrene	61 NYSDEC TAGM UG/KG	120 J	1300 U	200000 J	1800	1900	1800 U	1000	700 U	350 U
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	170 J	1300 U	200000 J	2500	3300 J	1800 U	850 U	700 U	350 U
Benzo(g.h.i)perylene	50000 NYSDEC TAGM UG/KG	1100 U	1300 U	L 000001	1100	1000	1800 U	570 J	700 U	350 U
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	97 J	1300 U	170000 J	350 U	510 U	1800 U	L 0071	700 U	350 U
Carbazole	UG/KG	1100 U	1300 U	f 00068	34 J	160 J	1800 U	410 J	700 U	350 U
Chrysene	400 NYSDEC TAGM UG/KG	200 J	170 J	220000 J	950	1700	1800 U	910	700 U	350 U
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	1200	1500	91000 UJ	350 U	510 U	1800 U	2000	700 U	350 U
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	1100 U	1300 U	49000 J	520	700	1800 U	390 J	700 U	350 U
Dibenzofuran	6200 NYSDEC TAGM UG/KG	110 J	1300 U	S0000 J	350 U	33 J	1800 U	62 J	700 U	350 U
Diethylphthalate	7100 NYSDEC TAGM UG/KG	1100 U	1300 U	91000 UJ	350 U	510 U	1800 U	850 U	700 U	350 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	200 J	180 J	\$30000 J	700	2400	1800 U	2400	700 U	350 U
Fluorene	50000 NYSDEC TAGM UG/KG	1100 U	1300 U	L 00087	350 U	83 J	1800 U	110 J	JO 007	350 U
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	1100 U	1300 U	1000001	066	1500	1800 U	700 J	700 U	350 U

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-3	SS16-30	SS16-31	S	SS16-32	SS16-33	33	SS16-34	-34	SS16-35		SS16-36	SS16-37	12
			SAMP ID:	SS16-3-1	16048	16062		16052	1606	7	16053	53	16066		19091	16054	-
			QC CODE:	SA	SA	SA		SA	SA		SA		SA		SA	SA	
			STUDY ID:	ESI	RI ROUNDI	RI ROUNDI	R	ROUNDI	RI ROU	DI	RI ROUND	INDI	RI ROUNDI	RI	I ROUND!	RI ROUN	4DI
			TOP:	0	0	0		0	0		0		0		0	0	
			BOTTOM:	0.2	0.2	0.2		0.2	0.2		0.2		0.2		0.2	0.2	
				SURFACE	SURFACE	SURFACE	St	URFACE	SURFA	CE	SURF	URFACE	SURFACE	nia.	URFACE	SURFACE	CE
			MATRIX:	SOIL	SOIL	SOIL		SOIL	SOIL		SOIL	T.	SOIL		SOIL	SOIL	
			SAMPLE DATE: 10/22/93	10/22/93	8/20/96	8/21/96		8/20/96	8/22/96	90	8/20	8/20/96	8/22/96		8/21/96	8/20/96	9.
PARAMETER	LEVEL	SOURCE	UNIT	VALUE Q	VALUE	VALUE	0	VALUE C	>	ALUE Q	VAL	ALUE Q	VALUE	0	VALUE	O VALUE	VALUE O
N-Nitrosodiphenylamine (1)			UG/KG	1400	780 J	91000 U.	m	180 J		510 U	4	1800 U	760 J	J	700 U		350 U
Naphthalene	13000 N	13000 NYSDEC TAGM UG/KG	M UG/KG	320 J	1300 U	C 00099	J	55 J		510 U		1800 U	850 U	n	1 002		350 U
Pentachlorophenol	1000 N	1000 NYSDEC TAGM UG/KG	M UG/KG	2700 U	3100 U	220000 U.	n	850 U		1200 J		4200 U	2100 UJ	В	1 0021	8	N 098
Phenanthrene	S0000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	360 J	99 J	490000	7	350 U		1200		1800 U	1300		700 1	-	350 U
Pyrene	S0000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	200 J	220 J	36000	1	1200		3200		1800 U	2000		700 1	-	350 U
bis(2-Ethylhexyl)phthalate	S0000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	390 J	1300 U	91000	m	350 L		510 11		1800 U	066		700 1	-	350 U

PESTICIDES/PCB										
4,4'-DDD	2900 NYSDEC TAGM UG/KG	3.9 UJ	2.65	3.2 U	3.5 U	1.6 J	3.5 U	34 U	3.5 R	3.5 U
4,4'-DDE	2100 NYSDEC TAGM UG/KG	32 J	6.12	12	11	20	3.5 U	290	2.3 R	3.5 U
4,4'-DDT	2100 NYSDEC TAGM UG/KG	18 J	21.5 J	43	6.6	17	2.3 J	340	7.4 J	3.5 U
Aldrin	41 NYSDEC TAGM UG/KG	2.8 J	2 U	1.9 U	1.8 U	U 6.1	1.8 U	18 U	1.8 R	1.8 U
Aroclor-1254	10000 NYSDEC TAGM UG/KG	39 UJ	38 U	36 U	35 U	36 U	35 U	340 U	35 R	35 U
Aroclor-1260	10000 NYSDEC TAGM UG/KG	110 J	80	36 U	35 U	36 U	35 U	160 J	35 R	35 U
Dieldrin	44 NYSDEC TAGM UG/KG	3.9 UJ	3.8 U	3.6 U	3.5 U	3.6 U	3.5 U	34 U	3.5 R	3.5 U
Endosulfan I	900 NYSDEC TAGM UG/KG	2 UJ	10.5 J	7.7	33 J	1.9 U	1.8 U	18 U	1.2 R	1.8 U
Endosulfan II	900 NYSDEC TAGM UG/KG	4.6 J	3.8 U	3.6 U	5 J	3.6 U	3.5 U	34 U	3.5 R	3.5 U
Endosulfan sulfate	1000 NYSDEC TAGM UG/KG	3.9 UJ	3.8 U	3.6 U	3.5 U	3.6 U	3.5 U	34 U	3.5 R	3.5 U
Endrin	100 NYSDEC TAGM UG/KG	3.9 UJ	3.8 U	3.6 U	6.6	3.6 U	3.5 U	34 U	3.5 R	3.5 U
Endrin aldehyde	UG/KG	3.9 UJ	4.15 J	3.6 U	3.7 R	3.6 U	3.5 U	34 U	3.5 R	3.5 U
Endrin ketone	UG/KG	3.3 J	3.8 U	1.7 J	3.4 U	3.6 U	3.5 U	34 U	3.5 R	3.5 U
Heptachlor	100 NYSDEC TAGM UG/KG	2 UJ	2 U	1.9 U	1.8 U	1.9 U	1.8 U	18 U	1.8 R	1.8 U
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	2 UJ	2 U	U 6.1	1.5 R	1.9 U	1.8 U	18 U	1.8 R	1.8 U
Toxaphene	UG/KG	200 UJ	200 U	U 061	180 U	190 U	180 U	1800 U	180 R	180 U
alpha-Chlordane	UG/KG	4.7 J	10.1	5.1 J	8.6 J	1.9 U	1.8 U	18 J	1.8 R	U.8.U
beta-BHC	200 NYSDEC TAGM UG/KG	1.3 J	2 U	1.9 U	1.8 U	U 6.1	1.8 U	18 U	1.8 R	1.8 U
gamma-BHC (Lindane)	60 NYSDEC TAGM UG/KG	2 UJ	2 U	U 6.1	U.8.U	U 6.1	1.8 U	18 U	1.8 R	1.8 U
gamma-Chlordane	540 NYSDEC TAGM UG/KG	4.7 J	17.4	5.3	9.4	1.9 U	1.8 U	15.3	1.8 R	18.11

0.04 U

0.04 U 24.7

0.12 28.6 1340

0.03 U 23.7

0.12 31.2 1650

0.12 36.3

0.07 28.9 1260

11.4 J 37.3 886

669.38 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 33.62 NYSDEC TAGM MG/KG 1761.48 NYSDEC TAGM MG/KG

2.3 J 22.7 J

27.6

SEAD-16 AND 17 FEASIBILITY STUDY SENECA ARMY DEPOT Table A-2

SEAD-16 Surface Soil Analytical Results

		1 OC 10.	5616.3	05 7100	15 9133	66 7133	22 9133	15 7133	35 7133	36 3100	25 7133	
		SAMP ID:	5516-3	16048	16062	2510-27	16067	16053	16066	16061	16051	
		OC CODE.	S.A.S.	SA	SA	SA	SA	SA	SA	VS.	F2001	
		CTITING ID.	100	TOTAL OF THE	TOTAL COLOR	TOTAL OUT O	TOWN COLUM	oc and a	TOTAL OUT O	ימומו (סמומ	renerio de re	
		TOP.	0	O O	NI ROUNDI	N ROUNDI	NI ROUNDI	N KOUNDI	N KOUNDI	NI ROUNDI	KI KOUNDI	
		DOTTOM.	, (, (, (, (, (, ,	, ,	, ,	
		BOI LOIM:	SURFACE	SURFACE	SURFACE	U.Z SURFACE	O.2 SURFACE	SURFACE	U.Z SURFACE	SURFACE	0.2 SURFACE	
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		SAMPLE DATE:	10/22/93	8/20/96	8/21/96	8/20/96	8/22/96	8/20/96	8/22/96	8/21/96	8/20/96	
PARAMETER	LEVEL SOURCE	UNIT	VALUE Q	VALUE Q	VALUE	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE	Q VALUE Q	
OTHER ANALYSES												
Nitrate/Nitrite-Nitrogen		MG/KG	0.26	4.8	0.41	0.11	0.04	0.04	80.0	0.16	0.02	
Percent Moisture (PEST/PCB)				13	6	9	6	9	4	9	7	
Percent Moisture (SVOCs)				13	6	9	6	9	4	9	7	
Percent Moisture (VOCs)				11	7	5	6	\$	2	5	9	
Percent Solids (Metals)				86.8	90.5	94.1	9.06	93.9	95.9	94.4	93.3	
Total Organic Carbon		MG/KG			4		NOON NOON	The state of the s		A Processing	A Short Market	
OCALL PROGET CHALLE												
NIIKOAKOMAIICS				80000								
2,4-Dinitrotoluene		UG/KG	1100	510	120 U	120 U	120 U	4400	3000 J	120 U	120 U	
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	GM UG/KG	130 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
2-amino-4,6-Dinitrotoluene		UG/KG	430 J	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
Tetryl		UG/KG	220 J	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
METALS					and a substitute for the substitute of		100 mm	3				
Aluminum	14592.8 NYSDEC TAGM MG/KG	GM MG/KG	7250	8420 J	11300 J	12000 J	13500 J	8660 J	6930 J	10200 J	10200 J	
Antimony	3.59 NYSDEC TAGM MG/KG	GM MG/KG	121 R	28.1 J	0.81 J	1.5 J	1.2 J	0.35 UJ	7.1 J	0.5 J	0.37 UJ	
Arsenic	7.5 NYSDEC TAGM MG/KG	GM MG/KG	23.6	11.2 J	9.9	5.1	9	5.8	5.3	6.7	5.5	
Barium	300 NYSDEC TAGM MG/KG	GM MG/KG	1540 R	1220 J	70.9 J	85.3 J	70.7 J	47.7 J	314 J	42.3 J	42 J	
Beryllium	0.73 NYSDEC TAGM MG/KG	GM MG/KG	0.39 J	0.27	0.47	0.42	0.47	0.3	0.24	0.34	0.28	
Cadmium	1 NYSDEC TAGM MG/KG	GM MG/KG	2.5	1.2	0.49	0.5	0.06 U	0.31	5.3	0.29	0.14	
Calcium	101904 NYSDEC TAGM MG/KG	GM MG/KG	21400	77300	32800	56100	10700	59700	110000	22400	24100	
Chromium	22.13 NYSDEC TAGM MG/KG	GM MG/KG	33.3	19.4	18.4	24.5	22.6	13.2	35.3	14.7	15.9	
Cobalt	30 NYSDEC TAGM MG/KG	GM MG/KG	9.1	8.4	12.2	11.4	10.9	7.7	8.2	8.1	9.5	
Copper	25 NYSDEC TAGM MG/KG	GM MG/KG	1730	L 119	39.5	104	44.6	41.5	407	34.4	30.9	
Cyanide	0.3 NYSDEC TAGM MG/KG	GM MG/KG	0.68 U	0.51 U	0.54 U	0.49 U	0.53 U	0.49 U	1.5	0.51 U	0.46 U	
Iron	26626.7 NYSDEC TAGM MG/KG	GM MG/KG	25700	17600 J	23000 J	23900	25800	20300	18300	22700 J	23700	
Lead	21.86 NYSDEC TAGM MG/KG	GM MG/KG	9140	2560 J	81.1	265	131	43.7	1290	34.7	23.6	
Magnesium	12221.8 NYSDEC TAGM MG/KG	GM MG/KG	4300	9010	10700	11200	7130	7480	27000	10100	5890	
Manganese	669.38 NYSDEC TAGM MG/KG	GM MG/KG	4140	365	459	808	443 J	422	375 J	337	502	
	CA CAL MONTO TA CAR MAN I O	ON ON THE		* * *	t	****	****	11 000				

Potassium

Mercury Nickel

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Surface Soil Analytical Results

			LOC_ID:	SS16-3	SS16-30	SS16-31	SS	16-32	SS16-33	SS16-34	SS16-35	SS16-36		SS16-37
			SAMP ID:	SS16-3-1	16048	16062	1	6052	16067	16053	16066	19091		16054
			QC CODE:	SA	SA	SA		SA	SA	SA	SA	SA		SA
			STUDY ID:	ESI	RI ROUNDI	RI ROUND	I RIR	ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	1 R	I ROUND!
			TOP:	0	0	0		0	0	0	0	0		0
			BOTTOM:	0.2	0.2	0.2		0.2	0.2	0.2				0.2
				SURFACE	SURFACE	SURFACE		SFACE	SURFACE	SURFACE	000	7.7		SURFACE
			MATRIX:	SOIL	SOIL	SOIL		SOIL	SOIL	SOIL	SOIL	SOIL		SOIL
			SAMPLE DATE: 10/22/9	10/22/93	8/20/96	8/21/96		8/20/96	8/22/96	8/20/96		8/21/96		8/20/96
PARAMETER	LEVEL	SOURCE	UNIT	VALUE Q	VALUE	Q VALUE Q	^	ALUE Q	VALUE Q	VALUE Q	Q VALUE	Q VALUE	0	VALUE Q
Selenium	2 N	2 NYSDEC TAGM MG/KG	M MG/KG	0.22 UJ	99'0			92.0	0.52 U	0.62 L	J 1.2 J	J 0.55 U	.s u	O.66 U
Silver	0.4 N	0.4 NYSDEC TAGM MG/KG	M MG/KG	1.1 UI	0.44	0.26 L	S U	0.35	0.28 U	0.3	0.5	0.	2 U	0.24 U
Sodium	103.74 N	103.74 NYSDEC TAGM MG/KG	M MG/KG	147 J	91.6	53.	2	126	28 U	78.6	137	41.	1 N	83.2
Thallium	0.28 N	0.28 NYSDEC TAGM MG/KG	M MG/KG	0.24 U	0.71 L	1.	1.1	1.3	U 16.0	86'0	0.78	O 0.6	.64 U	U 77.0
Vanadium	150 1	150 NYSDEC TAGM MG/KG	M MG/KG	17.9	18.3 J	20.	3	28.9	22.7	28.4	33.8	18.	00	18.2
Zinc	82.5 1	82.5 NYSDEC TAGM MG/KG	M MG/KG	929	573	13.		157	L 601	109	466	J 95.	2	9.08

HERBICIDES		
2,4,5-T	1900 NYSDEC TAGM UG/KG	7.2
MCPP	UG/KG	O 0009

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Taure A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-38	SS16-4		5816-5	SS16-6	SS16-7		SS16-8	SS16-9	
			SAMP ID:	16068	SS16-4-1	S	\$16-5-1	SS16-6-1	SS16-7-1		SS16-8-1	1-6-91SS	
			QC CODE:	SA	SA		SA	SA	SA		SA	SA	
			STUDY ID:	RI ROUNDI	ESI		ESI	ESI	ESI		ESI	ESI	
			TOP:	0	0		0	0	0		0	0	
			BOTTOM:	0.2 SURFACE	0.2 SURFACE	SI	0.2 URFACE	0.2 SURFACE	0.2 SURFACE	0,	0.2 SURFACE	0.2 SURFACE	
			MATRIX:	SOIL	SOIL		SOIL	SOIL	SOIL		SOIL	SOIL	
			SAMPLE DATE:	8/22/96	10/20/93	-	0/20/93	10/20/93			10/20/93	11/9/93	
PARAMETER	LEVEL	SOURCE	LIND	VALUE (VALUE	0	VALUE Q	VALUE	0	0	VALUE Q	VALUE	_
VOLATILE ORGANICS													1
1,1,2,2-Tetrachloroethane	8YN 009	IYSDEC TAGN	A UG/KG	10 UJ	J 11	n	11 U	101		3 U	10 U	Ξ	1
Acetone	200 NYS	TYSDEC TAGN	A UG/KG	10 UJ	J 17		11 U	10 U	2	53 U	10 U		
Benzene	SAN 09	IYSDEC TAGN	A UG/KG	10 U		n	11 U	101		3 U	10 U	- ==	D
Carbon Disulfide	2700 NYS	IYSDEC TAGM	A UG/KG	10 U		n	11 U	1 01		3 U	10 U	111	D
Chloroform	300 NYS	DEC.	TAGM UG/KG	10 U	J 11 U	n	11 U	2 J		3 U	10 U	111	D
Methylene Chloride	100 NYS	IYSDEC TAGM UG/K	A UG/KG	10 U	3.17.23	n	2 J	1 01		3 U	10 U	Ξ	D
Toluene	1500 NYS	IYSDEC TAGN	A UG/KG	10 U	J 111	n	5 J	3.3		3 U	2 J		D
Xylene (total)	1200 NYS	TYSDEC TAGN	A UG/KG	10 U	J 11	n	11 U	1 01		3 U	10 U	11 U	

SEMIVOLATILE ORGANICS				1				
2,4-Dinitrotoluene	UG/KG	350 U	7200 U	530 J	14000 U	1300 U	1800 U	2700 U
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	350 U	7200 U	750 U	14000 U	1300 U	1800 U	2700 U
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	350 U	7200 U	97 J	14000 U	1300 U	1800 U	2700 U
3,3'-Dichlorobenzidine	UG/KG	350 U	7200 U	750 U	14000 U	1300 U	1800 U	2700 U
3-Nitroaniline	500 NYSDEC TAGM UG/KG	840 U	18000 U	1800 U	34000 U	3100 U	4200 U	O 0099
Acenaphthene	50000 NYSDEC TAGM UG/KG	350 U	7200 U	44 J	14000 U	1300 U	1800 U	2700 U
Acenaphthylene	41000 NYSDEC TAGM UG/KG	350 U	7200 U	750 U	14000 U	1300 U	1800 U	2700 U
Anthracene	50000 NYSDEC TAGM UG/KG	350 U	7200 U	70 J	14000 U	1300 U	1800 U	2700 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	17 J	7200 U	240 J	14000 U	1300 U	1800 U	2700 U
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	I 61	7200 U	270 J	14000 U	1300 U	1800 U	2700 U
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	350 U	7200 U	350 J	14000 U	1300 U	1800 U	2700 U
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	54 J	7200 U	180 J	14000 U	1300 U	1800 U	2700 U
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	350 U	7200 U	330 J	14000 U	1300 U	1800 U	2700 U
Carbazole	UG/KG	350 U	7200 U	78 J	14000 U	1300 U	1800 U	2700 U
Chrysene	400 NYSDEC TAGM UG/KG	22 J	7200 U	340 J	14000 U	1300 U	1800 U	2700 U
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	350 U	7200 U	350 J	14000 U	1300 U	1400 J	510 J
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	350 U	7200 U	750 U	14000 U	1300 U	1800 U	2700 U
Dibenzofuran	6200 NYSDEC TAGM UG/KG	350 U	7200 U	82 J	14000 U	1300 U	1800 U	2700 U
Diethylphthalate	7100 NYSDEC TAGM UG/KG	350 U	7200 U	750 U	14000 U	1300 U	1800 U	2700 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	22 J	7200 U	710 J	14000 U	1300 U	1800 U	2700 U
Fluorene	50000 NYSDEC TAGM UG/KG	350 U	7200 U	750 U	14000 U	1300 U	1800 U	2700 U
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	350 U	7200 U	200 J	14000 U	1300 U	1800 U	2700 U

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-38	SS16-4		SS16-5	SS16-6		SS16-7	8-9188	6-9ISS
			SAMP ID:	16068	SS16-4-1		SS16-5-1	SS16-6-1	S	S16-7-1	SS16-8-1	1-6-9188
			QC CODE:	SA	SA		SA	SA		SA	SA	SA
				RI ROUNDI	ESI		ESI	ESI		ESI	ESI	ESI
			TOP:	0	0		0	0		0	0	0
			BOTTOM:	0.2	0.2		0.2	0.2		0.2	0.2	0.2
				SURFACE	SURFACE	ш	SURFACE	SURFACE			SURFACE	SURFACE
			MATRIX:	SOIL	SOIL		SOIL	SOIL		SOIL	SOIL	SOIL
			SAMPLE DATE:	8/22/96	10/20/93		10/20/93	10/20/93	1770		10/20/93	11/9/93
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	VALUE	0	VALUE Q	VALUE	0	VALUE Q	VALUE Q	VALUE
N-Nitrosodiphenylamine (1)			UG/KG	350 U		7200 U	130 J	14000 U	n	1300 U	350 J	2700 U
Naphthalene	13000 NYS	SDEC TAGN	M UG/KG	350 U		7200 U	750 U	14000 U	n	1300 U	1800 U	2700 U
Pentachlorophenol	1000 NYS	SDEC TAG	M UG/KG	840 UJ	-	8000 U	1800 U	34000 U	n	3100 U	4200 U	O 0099
Phenanthrene	50000 NYS	SDEC TAG	M UG/KG	22 J	720	0 0	410 J	14000 U	n	1300 U	1800 U	2700 U
Pyrene	50000 NY	SDEC TAG	M UG/KG	31 J	720	O O	550 J	14000	D	1300 U	1800 U	I 091
bis(2-Ethylhexyl)phthalate	50000 NYS	SDEC TAG	M UG/KG	350 U	720	O O	450 J	14000 U	n	1300 U	1800 U	2100 J

PESTICIDES/PCB								
4,4'-DDD	2900 NYSDEC TAGM UG/KG	3.5 U	36 U	U 61	3.5 UJ	3.5 U	7 U	3.5 UJ
4,4'-DDE	2100 NYSDEC TAGM UG/KG	5.1	1400	130	3.5 UJ	6.3	84 J	2.8 J
4,4'-DDT	2100 NYSDEC TAGM UG/KG	2.1 J	180	29	1.8 J	5.6	79 J	2.9 J
Aldrin	41 NYSDEC TAGM UG/KG	1.8 U	19 U	9.7 U	1.8 UJ	1.8 U	3.6 U	1.8 UJ
Aroclor-1254	10000 NYSDEC TAGM UG/KG	35 U	360 U	U 061	35 UJ	35 U	57 UJ	35 UJ
Aroclor-1260	10000 NYSDEC TAGM UG/KG	35 U	360 U	U 061	35 UJ	35 U	70 U	35 UJ
Dieldrin	44 NYSDEC TAGM UG/KG	3.5 U	36 U	19 U	3.5 UJ	3.5 U	7 U	3.5 UJ
Endosulfan I	900 NYSDEC TAGM UG/KG	1.8 U	U 61	6.2 J	1.8 UJ	1.8 U	1.9 J	1.8 UJ
Endosulfan II	900 NYSDEC TAGM UG/KG	3.5 U	36 U	U 61	3.5 UJ	2.2 J	7 U	3.5 UJ
Endosulfan sulfate	1000 NYSDEC TAGM UG/KG	3.5 U	36 U	U 61	3.5 UJ	3.5 U	7 U	3.5 UJ
Endrin	100 NYSDEC TAGM UG/KG	3.5 U	36 U	U 61	3.5 UJ	3.5 U	7 U	3.5 UJ
Endrin aldehyde	UG/KG	3.5 U	36 U	D 61	3.5 UJ	3.5 U	7 U	3.5 UJ
Endrin ketone	UG/KG	3.5 U	36 U	D 61	3.5 UJ	3.5 U	7 U	3.5 UJ
Heptachlor	100 NYSDEC TAGM UG/KG	1.8 U	U 61	9.7 U	1.8 UJ	1.8 U	3.6 U	1.8 UJ
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	1.8 U	19 U	0.7 U	1.8 UJ	1.8 U	3.6 U	1.8 UJ
Toxaphene	UG/KG	180 U	U 0061	970 U	180 UJ	180 U	360 U	180 UJ
alpha-Chlordane	UG/KG	1.8 U	19 U	9.7 U	1.8 UJ	6.1	3.6 U	1.8 UJ
beta-BHC	200 NYSDEC TAGM UG/KG	1.8 U	19 U	9.7 U	1.8 UJ	1.8 U	3.6 U	1.8 UJ
gamma-BHC (Lindane)	60 NYSDEC TAGM UG/KG	1.8 U	U 61	0.7 U	1.8 UJ	1.8 U	3.6 U	1.8 UJ
gamma-Chlordane	540 NYSDEC TAGM UG/KG	1.8 U	D 61	9.7 U	1.8 UJ	7	3.6 U	1.8 UJ

Taole A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-38	(10) (10)	SS16-4		3816-5	SS	9-919		SS16-7	SS16-	8	SS16-9	
			SAMP ID:	16068	S	S16-4-1	S	\$16-5-1	SS	1-9-9	S	1-7-918	SS16-8	7	1-6-91SS	
			QC CODE:	SA		SA		SA	55	SA		SA	SA		SA	
			STUDY ID:	RI ROUNDI		ESI		ESI		ESI		ESI	ESI		ESI	
			TOP:	0		0		0		0		0	0		0	
			BOTTOM:	0.2		0.2		0.2	~	0.7		0.2	0.2		0.2	
				SURFACE	S	JRFACE	SL	RFACE	SUR	FACE	S	URFACE	SURFA	CE	SURFACE	
			MATRIX:	SOIL		SOIL		SOIL	S	OIL		SOIL	SOIL		SOIL	
			SAMPLE DATE:	8/22/96	-	0/20/93	-	0/20/93	10/	20/93	_	0/20/93	10/20/9	93	11/9/93	
PARAMETER	LEVEL	SOURCE	LIND	VALUE	0	VALUE	2	VALUE Q	VA	VALUE	0	VALUE Q	VALUE	E Q	VALUE	0
OTHER ANALYSES																
Nitrate/Nitrite-Nitrogen			MG/KG	=		0.45		0.5		0.42		0.05	0	0.23	U 10.0	5
Percent Moisture (PEST/PCB)				9												
Percent Moisture (SVOCs)				9												
Percent Moisture (VOCs)				S												
Percent Solids (Metals)				94												
Total Organic Carbon			MG/KG	8400												

NITROAROMATICS								
2,4-Dinitrotoluene	UG/KG	120 U	170	780 J	130 U	130 U	770	450 J
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	120 U	130 U					
2-amino-4,6-Dinitrotoluene	UG/KG	120 U	130 U					
Tetryl	UG/KG	120 U	130 U					

METALS								
Aluminum	14592.8 NYSDEC TAGM MG/KG	14400	11900	13600	9650	8670	7600	10700
Antimony	3.59 NYSDEC TAGM MG/KG	0.56 J	26.3	27.3	7.9 U	8.8 U	8.2 U	7 U
Arsenic	7.5 NYSDEC TAGM MG/KG	3.8	11.3	10.8	5.1	5	5.2	4.2 J
Barium	300 NYSDEC TAGM MG/KG	127 J	227	630	45.1	41.2	72.2	53.6
Beryllium	0.73 NYSDEC TAGM MG/KG	0.56	0.45 J	0.56 J	0.24 J	0.29 J	0.39 J	0.43 J
Cadmium	1 NYSDEC TAGM MG/KG	0.06 U	0.55 U	2.8	0.49 U	0.55 U	0.52 U	0.43 UR
Calcium	101904 NYSDEC TAGM MG/KG	18000	92900	37100	25600	36600	107000	35400
Chromium	22.13 NYSDEC TAGM MG/KG	25.4	24	43.3	12.9 R	11.9	15.9	17.6
Cobalt	30 NYSDEC TAGM MG/KG	12.4	11.9	13.4	7.9	7.5 J	8.1	8.2
Copper	25 NYSDEC TAGM MG/KG	34.4	399	635	26.2	28.9	88.9	31.4 J
Cyanide	0.3 NYSDEC TAGM MG/KG	0.53 U	0.6 U	0.63 U	0.58 U	0.6 U	0.58 U	0.52 U
Iron	26626.7 NYSDEC TAGM MG/KG	26500	27700	36500	22100	20000	16700	22400
Lead	21.86 NYSDEC TAGM MG/KG	60.3	2940	2860	8.5	81.2	1890	76.2
Magnesium	12221.8 NYSDEC TAGM MG/KG	0609	0698	7930	7710	13800	9940	15300
Manganese	669.38 NYSDEC TAGM MG/KG	391 J	411 J	444 J	305 J	478 J	333 J	349
Mercury	0.1 NYSDEC TAGM MG/KG	0.04 U	0.21	66'0	0.03 U	0.04 U	0.08	0.05 J
Nickel	33.62 NYSDEC TAGM MG/KG	43.5	41.6	148	22.7	21.7	28.7	29.3
Potassium	1761.48 NYSDEC TAGM MG/KG	2020	1250	1410	720 J	794 J	1150	1160

Table A-2 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-38		SS16-4	SS16-5	SS16-6	SS16-7		SS16-8	SS16-9	
			SAMP ID:	16068	S	S16-4-1	SS16-5-1	SS16-6-1	SS16-7-1	-	SS16-8-1	SS16-9-1	
			QC CODE:	SA		SA	SA	SA	SA		SA	SA	
			STUDY ID:	RI ROUNDI		ESI	ESI	ESI	ESI		ESI	ESI	
			TOP:	0		0	0	0	0		0	0	
			BOTTOM:	0.2		0.2	0.2	0.2	0.2		0.2	0.2	
				SURFACE	SI	SURFACE	SURFACE	SURFACE	SURFACE	CE	SURFACE	SURFACE	
			MATRIX:	SOIL		SOIL	SOIL	SOIL	SOIL		SOIL	SOIL	
			SAMPLE DATE:	8/22/96	_	10/20/93	10/20/93	10/20/93	10/20/93	5	10/20/93	11/9/93	
PARAMETER	LEVEL	SOURCE	TINU	VALUE	0	VALUE Q	VALUE	VALUE (2 VALUE	В О	VALUE	VALUE	0
Selenium	2 NY	YSDEC TAGN	A MG/KG	0.55 J	5	0.2 UJ	0.22 UJ	I 0.13 UJ		0.13 UJ	0.21 UJ	J 0.19 U	=
Silver	0.4 NY	YSDEC TAGN	A MG/KG	0.25 U	ח	1.1 U	1 U	1.0		1.1 U	1 U	0.88 L	п
Sodium	103.74 NY	YSDEC TAGN	4 MG/KG	84.1		128 J	132 J	79.6 J		109 J	L 071	125 J	-
Thallium	0.28 NY	YSDEC TAGN	A MG/KG	0.82 U	n	0.22 U	0.24 U	0.14 U		0.14 U	0.23 U		II
Vanadium	150 NY	YSDEC TAGN	A MG/KG	22.6		20.3	23.9	38.1	ĸ	35.7	34.5	22.8	
Zinc	82.5 NY	YSDEC TAGN	A MG/KG	117	ı	416	562	65.8	99	1.99	105	78.8 J	900

HERBICIDES							
2,4,5-T	1900 NYSDEC TAGM UG/KG	5.5 U	5.7 U	5.3 U	5.3 U	5.3 U	5.5 U
MCPP	UG/KG	5500 U	16000	5300 U	5300 U	5300 U	5500 U

Table A-3 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Subsurface Soil Analytical Results

			LOC_ID:	SB16-1		SB16-1		SB16-2	SI	B16-4		SB16-5		SB16-5	
			SAMP ID:	16038		16093		16036	-	6031		16034		16035	
			QC CODE:	SA		SA		SA		SA		SA		SA	
			STUDY ID:	RI ROUNDI	RI	U ROUNDI	R	J ROUNDI	RIR	J ROUNDI	R	RI ROUNDI	Н	U ROUND!	
			TOP:	2		9		-		7		-		2	
			BOTTOM:	33		12		2		4		2		3.3	
			MATRIX:	SOIL		SOIL		SOIL	<i>J</i> ₂	SOIL		SOIL		SOIL	
			SAMPLE DATE:	8/14/96		8/22/96		8/14/96	/8	14/96		8/14/96		8/14/96	
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	VALUE	0	VALUE Q	Λ,	/ALUE	0	VALUE	0	VALUE	O
VOLATILE ORGANICS															
2-Butanone	300 N	300 NYSDEC TAGA	A UG/KG	12 U	Ω	11 U	Ω	U II		5 3	200	2	Ω	111	_
Acetone	200 N	200 NYSDEC TAGM UG/KG	A UG/KG	111 J	1	11 U	Ω	11 U		46		12	12 U	11 U	_
Benzene	N 09	60 NYSDEC TAGN	A UG/KG	12 U	n	=	n	2 J		2 J		11	Ω	111	_
Toluene	1500 N	1500 NYSDEC TAGA	A UG/KG	12 U	n	П	m	3 J		2 J		2	2 J	6 9	545

2,4-Dinitrotoluene 2,6-Dinitrotoluene 2.6-Methylnaphthalene 36400							
Ä	UG/KG	390 U	67 J	1700	U 0061	1800 U	370 U
	1000 NYSDEC TAGM UG/KG	390 U	340 U	160 J	1900 U	1800 U	370 U
	36400 NYSDEC TAGM UG/KG	390 U	340 U	190 J	U 0061	1800 U	370 U
Acenaphthene 50000	50000 NYSDEC TAGM UG/KG	390 U	340 U	380 U	1900 U	1100 J	370 U
e e	41000 NYSDEC TAGM UG/KG	390 U	340 U	380 U	300 J	1800 U	370 U
Anthracene 50000	50000 NYSDEC TAGM UG/KG	390 U	340 U	380 U	310 J	2000	40 J
Benzo(a)anthracene 224	224 NYSDEC TAGM UG/KG	390 U	340 U	55 J	420 J	0099	110 J
Benzo(a)pyrene 61	61 NYSDEC TAGM UG/KG	390 U	20 J	63 J	1400 J	6200	170 J
Benzo(b)fluoranthene 1100	1100 NYSDEC TAGM UG/KG	390 U	18 J	72 J	670 J	0009	110 J
	50000 NYSDEC TAGM UG/KG	390 U	26 J	84 J	11000	4500	099
Benzo(k)fluoranthene 1100	100 NYSDEC TAGM UG/KG	390 U	20 J	f 09	f 069	2600	110 J
10	50000 NYSDEC TAGM UG/KG	390 U	18 J	380 U	1900 U	1800 U	370 U
Carbazole	UG/KG	390 U	340 U	380 U	1900 U	730 J	370 U
Chrysene 400	400 NYSDEC TAGM UG/KG	390 U	22 J	f 06	480 J	7000	120 J
Di-n-butylphthalate 8100	8100 NYSDEC TAGM UG/KG	390 U	35 J	240 J	U 0061	1800 U	370 U
Dibenz(a,h)anthracene 14	14 NYSDEC TAGM UG/KG	390 U	340 U	32 J	2500	1700 J	220 J
Dibenzofuran 6200	6200 NYSDEC TAGM UG/KG	390 U	340 U	45 J	1900 U	270 J	370 U
Fluoranthene 50000	50000 NYSDEC TAGM UG/KG	390 U	32 J	110 J	480 J	13000	190 J
Fluorene 50000	50000 NYSDEC TAGM UG/KG	390 U	340 U	380 U	U 0061	800 J	370 U
Indeno(1,2,3-cd)pyrene 3200	3200 NYSDEC TAGM UG/KG	390 U	24 J	65 J	7100	3900	510

Table A-3
SENECA ARMY DEPOT
SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Subsurface Soil Analytical Results

			LOC_ID:	SB16-1	SB16-1	SB16-2		SB16-4		SB16-5	SB	SB16-5
			SAMP ID:	16038	16093	16036		16031		16034	16	16035
			QC CODE:	SA	SA	· SA		SA		SA		SA
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI		RI ROUNDI		RI ROUNDI	4	U ROUNDI
			TOP:	2	9	-		2		-		2
			BOTTOM:	3	12	2		4		2		3.3
			MATRIX:	SOIL	SOIL	SOIL		SOIL		SOIL	S	OIL
			SAMPLE DATE:	8/14/96	8/22/96	8/14/96		8/14/96		8/14/96	/8	/14/96
PARAMETER	LEVEL	SOURCE	LIND	VALUE Q	VALUE	Q VALUE	0	VALUE Q	0	VALUE Q	_	'ALUE
N-Nitrosodiphenylamine (1)			UG/KG	390 U	340 U	J 530		U 0061	n	1800 U	U	370
Naphthalene	13000 N	13000 NYSDEC TAGA	FAGM UG/KG	390 U	340 L	J 120	ſ	1 0061	n	1800 U	D	370 1
Pentachlorophenol	10001	1000 NYSDEC TAGA	TAGM UG/KG	940 U	830 L	J 920	n	4600 L	n	4400 [ח	120 J
Phenanthrene	50000 N		TAGM UG/KG	390 U	23 J	160	-	160	-	2600		100
Pyrene	50000 h	50000 NYSDEC TAGM	M UG/KG	390 U	25 J	80	-	550	7	11000		160 J
bis(2-Ethylhexyl)phthalate	50000 N	50000 NYSDEC TAGA	M UG/KG	390 U	340 L	J 110	-	1900 L	n	1800 1	מ	370

PESTICIDES/PCB							
4,4'-DDE	2100 NYSDEC TAGM UG/KG	3.9 U	8.3	38 U	3.8 U	37 U	3.7 U
4,4'-DDT	2100 NYSDEC TAGM UG/KG	3.9 U	1.7 J	38 U	3.8 U	37 U	3.4 J
Dieldrin	44 NYSDEC TAGM UG/KG	3.9 U	3.4 U	38 U	12	37 U	3.7 U
Endosulfan I	900 NYSDEC TAGM UG/KG	2 U	1.8 U	20 U	7.3 J	15 U	2.4 J
Endrin	100 NYSDEC TAGM UG/KG	3.9 U	3.4 U	38 U	2.9 J	37 U	3.4 U

OTHER ANALYSES							
Nitrate/Nitrite-Nitrogen	MG/KG	0.11	0.32	0.78	0.3	0.00	0.17
Percent Moisture (PEST/PCB)		15	4	13	13	10	11
Percent Moisture (SVOCs)		15	4	13	13	10	=
Percent Moisture (VOCs)		16	9	12	10	13	13
Percent Solids (Metals)		85.3	95.6	87.3	87.2	8.68	88.7
Total Organic Carbon	MG/KG			9850		899	1010

TROAROMATICS							
Dinitrotoluene	UG/KG	120 U	280 J	150 J	200	120 U	120 U

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Table A-3 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Subsurface Soil Analytical Results

			2 3.3 SOIL 8/14/96 O VALIE	3 SC 8/1/8	2 3.3 SOIL 8/14/96 Q VALUE	2 3.3 SOIL 8/14/96 Q VALUE 50 R 10500 55 J 0.4	2 3.3 SOII 8/14/9 Q VALU Q VALU S0 R 10 .9 J	2 3.3 SOIL 8/14/9 Q VALU Q VALU S0 R 10 85 J 85	2 3.3 SOIL 8/14/9 Q VALU Q VALU 50 R 10 55 J 10 52 J 10 54	3.3 SOIL 8/14/9 Q VALU Q VALU S0 R 10 10 J J 10 10 J 1	3.3 SOIL 8/14/9 Q VALU Q VALU S0 R 10 50 R 10 10.2 J 1 54 C 10 59 J 10 50 J 10	3.3 SOIL 8/14/9 Q VALU Q VALU SOR 10 50 R 10 50 B J 85 J 85 J 85 J 85 J 85 J 86 H 87 J 88 J 89 J 80 B 81 J 80 J 80 J 80 J 80 J 80 J 80 J 80 J 80	3.3 SOIII 8/14/9 Q VALU 90 R 10 55 J 85 J	3.3 SOIII 8/14/9 Q VALU O NALU 55 J 9 J 9 J 9 J 9 J 12 J 12 J 12 J 12 J 12 J 12 J 13 S 14 S 16 S 16 S 17 S 18 S 18 S 18 S 18 S 18 S 18 S 18 S 18	3.3 SOII. 8/14/9 Q VALU Q VALU S5 J 9 J 9 J 9 J 9 J 12 J 18 S 18 S 18 S 18 S 18 S 18 S 18 S 18 S	3.3 SOII. 8/14/9 Q VALU Q VALU 9.5 9.5 9.5 9.5 9.6 9.6 9.6 9.6 9.7 9.8 9.8 9.9 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	3.3 SOIII 8/14/9 Q VALU Q VALU 10 J J 10 J J 10 J J 10 J 10 J 10 J 10	3.3 SOIII 8/14/9 Q VALU Q VALU 9.5 9.5 9.5 9.5 9.7 9.8 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9	3.3 SOIII 8/14/9 Q VALU Q VALU 95 J 95 J 97 J 97 J 97 J 98 J 1.5 J	3.3 SOIII 8/14/9 Q VALU Q VALU 95 J 15 J 10 J 10 J 11 J 12 J 12 J 13 J 14 (17 J 15 J 16 J 17 J 18 J 18 J 18 J 18 J 18 J 18 J 18 J 18	3.3 SOIII 8/14/9 Q VALUI 60 R 10 85 J 12 J 12 J 18 18 18 18 18 18 18 18 18 18 18 18 18	3.3 SOIL 8/14/9 Q VALU Q VALU 95 J 102 J 109 97 18 18 18 18 15 J 100 J 115 J 115 J 115 J	3.3 SOIL 8/14/9 Q VALU Q VALU 9.9 J 10.2 J 10.0 97 11.0 111 11.0 11	3.3 8/14/9 8/14/9 9 VALU 9 J 9 J 9 J 9 J 9 J 9 J 9 J 9 J	3.3 SOIII 8/14/9 Q VALU 9 J 9 J 9 J 10 J 10 J 10 J 11 J 11 J 12 J 13 J 14 J 16 J 17 J 18 J 18 J 19 J 10 J 10 J 11 J 11 J 12 J 13 J 14 J 16 J 17 J 18 J	3.3 SOIII 8/14/9 Q VALU Q VALU 9.5 9.5 9.7 10.0 11.0 10.0 11.	2 3.3 3.3 SOIL 8/14/9 Q VALU Q VALU Q VALU Q VALU Q VALU Q VALU Q 97 Q 9
	soil soil	0	,		13200 R	13200 R 0.41 UJ	13200 R 0.41 UJ 5.2 J	13200 R 0.41 UJ 5.2 J 51.8 J	13200 R 0.41 UJ 5.2 J 51.8 J 0.43	13200 R 0.41 UJ 5.2 J 51.8 J 0.43	J 0.41 UJ 5.2 J 5.2 J 0.43 0.06 3	J 0.41 UJ 5.2 J 5.2 J 5.2 J 6.43 0.06 3 25000 3	J 0.41 UJ 5.2 J 5.2 J 5.2 J 0.43 0.06 3 25000 3 12.2 J	J 0.41 UJ 5.2 J 5.2 J 5.2 J 6.43 0.06 3 25000 3 21.1 J 12.2 J 16.4 J	H 13200 R 9 J 5.2 J 5.2 J 5.2 J 5.2 J 6.43 0.06 25000 37 21.11 12.2 J 16.4 J 0.52 J	H 13200 R 9 9 0.41 UJ 5.2 J 5.2 J 5.2 J 6.43 0.06 25000 37 21.11 J 12.2 J 16.4 J UJ 0.52 J 21 21 J 27300 J 21 21	J 5.2 J 5.2 J 5.2 J 5.2 J 5.2 J 6.43 J 6.43 0.06 25000 37 21.1 J 12.2 J 16.4 J J 16.4 J 3.1 21.4 J 3.1 21.4 J 3.1 21.4 J 3.1 3.1	H 13200 R 9 J 5.2 J 5.2 J 5.2 J 5.2 J 6.43 0.06 25000 37 21.1 J 12.2 J 16.4 J J 27300 J J 27300 J J 13300 7	B 13200 R 9 J 0.41 UJ 5.2 J J 5.2 J 5.2 J O.043 0.06 37 25000 37 21.1 21.1 J 12.2 J J 16.4 J J 27300 J J 27300 J J 457 J	H 13200 R 9 J 5.2 J 5.2 J 5.2 J 6.43 0.06 25000 37 21.1 J 12.2 J J 16.4 J J 27300 J J 27300 J J 457 J J 6.64 J J 457 J J 6.04 J	H 13200 R 9 J 5.2 J 5.2 J 5.2 J 5.2 J 6.43 0.06 25000 37 21.1 J 12.2 J J 16.4 J 0.52 J J 27300 J 37 13300 7 13300 7 1 3300 J 457 J J 0.04 J J 30.7 J	Hamilton Brown Bro	H 13200 R 9 J 5.2 J 5.2 J 5.2 J 5.2 J 6.43 0.06 25000 37 21.11 J 12.2 J 12.2 J 0.52 J J 27300 J 27300 J 457 J J 6.64 J J 0.64 J	H 13200 R 9 J 5.2 J 5.2 J 5.2 J 5.2 J 6.43 J 0.43 J 0.06 25000 37 21.1 J 12.2 J J 12.2 J J 12.2 J J 27300 J 27300 J 457 J J 0.04 J J 0.04 J J 0.04 J J 0.054 J J 0.057 U J 0.054 J J 0.054 J J 0.057 U	H 13200 R 9 9 0.41 UJ 5.2 J 51.8 J 0.43 0.06 37 25000 37 21.1 J 12.2 J 16.4 J 36 1.4	H 13200 R 9 J 5.2 J 5.2 J 5.2 J 5.2 J 6.43 0.06 25000 37 21.1 J 12.2 J 12.2 J 16.4 J 0.52 J J 27300 J 27300 J 36.7 J J 180 J 0.04 J 0.057 U 180 J 0.057 U 180 J 0.057 U	H 13200 R 9 J 5.2 J 5.2 J 5.2 J 5.2 J 6.43 0.06 25000 37 21.1 J 12.2 J J 16.4 J J 27300 J 27300 J 457 J J 0.04 J J 0.057 U J 0.64 J J 0.057 U J 0.87 U J 19.6 J
	SOIL SOIL	8/14/96	· · · · · · · · · · · · · · · · · · ·	12800 J 9350 R							7	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1	1 1 2 2	, , , , , , , , , , , , , , , , , , ,	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 2 U 2 2	1 1 1 1 2 2 2 2 3								
	3 SOIL	8/14/96	,	13200 R		0.45 UJ	0.45 UJ 3.3 J	0.45 UJ 3.3 J 98 J	0.45 UJ 3.3 J 98 J 0.51	0.45 UJ 3.3 J 98 J 0.51	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J 0.58 UJ	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J 0.58 UJ 20700 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J 0.58 UJ 20700 J 12.6 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J 0.58 UJ 20700 J 12.6 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J 0.58 UJ 20700 J 12.6 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J 0.58 UJ 20700 J 12.6 J 12.6 J 23.8 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 7 23.6 J 0.58 UJ 20700 J 12.6 J 12.6 J 210 2004 U 23.8 J 23.8 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 7 23.6 J 0.58 UJ 20700 J 12.6 J 12.6 J 12.6 J 23.8 J 1990 0.04 U 23.8 J	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 7 23.6 J 0.58 UJ 20700 J 12.6 J 12.6 J 12.6 J 23.8 J 1990 0.54 UJ 0.54 UJ 0.54 UJ 0.54 UJ 0.55 UJ	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 7 23.6 J 0.58 UJ 20700 J 12.6 J 12.6 J 12.6 J 12.6 J 12.6 U 210 0.04 U 23.8 J 1990 0.54 UJ 0.59 U 59.8 U	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J 0.58 UJ 20700 J 12.6 J 12.6 J 12.6 J 12.6 J 0.04 U 23.8 J 1990 0.54 UJ 6.29 U 55.8 U	0.45 UJ 3.3 J 98 J 0.51 0.07 U 67700 18.2 7 23.6 J 0.58 UJ 20700 J 12.6 J 12.6 J 1990 0.54 UJ 6.29 U 59.8 U 6.29 U 59.8 U 6.29 U 59.8 U 6.29 U 59.8 U
MATRIX	BOTTOM: MATRIX:	SAMPLE DATE		14592.8 NYSDEC TAGM MG/KG		3.59 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG I NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 1 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 1 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 1 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 1 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 12626.7 NYSDEC TAGM MG/KG 26626.7 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 26626.7 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 2626.7 NYSDEC TAGM MG/KG 2626.7 NYSDEC TAGM MG/KG 2626.7 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 25.13 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 25.18 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 25.13 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 25.18 NYSDEC TAGM MG/KG 262.67 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 71.61.48 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 33.62 NYSDEC TAGM MG/KG 21.48 NYSDEC TAGM MG/KG 22 NYSDEC TAGM MG/KG 22 NYSDEC TAGM MG/KG 23 NYSDEC TAGM MG/KG 22 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 2662.7 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG 12221.8 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 1221.8 NYSDEC TAGM MG/KG 21.86 NYSDEC TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 2 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 0.4 NYSDEC TAGM MG/KG 0.6 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG 7.5 NYSDEC TAGM MG/KG 300 NYSDEC TAGM MG/KG 0.73 NYSDEC TAGM MG/KG 101904 NYSDEC TAGM MG/KG 22.13 NYSDEC TAGM MG/KG 30 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 0.3 NYSDEC TAGM MG/KG 25 NYSDEC TAGM MG/KG 26626.7 NYSDEC TAGM MG/KG 112221.8 NYSDEC TAGM MG/KG 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TAGM MG/KG 669.38 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 33.62 NYSDEC TAGM MG/KG 0.1 NYSDEC TAGM MG/KG 1761.48 NYSDEC TAGM MG/KG 0.4 NYSDEC TAGM MG/KG 0.6 NYSDEC TAGM MG/KG 103.74 NYSDEC TAGM MG/KG 150 NYSDEC TAGM MG/KG
		THE AN ATTERN	METALS	Aluminum		Antimony	Antimony Arsenic	Antimony Arsenic Barium	Antimony Arsenic Barium Beryllium	Antimony Arsenic Barium Beryllium Cadmium	Antimony Arsenic Barium Beryllium Cadmium Calcium	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper	Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Copper Cyanide Iron	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Lyanide Iron Lead Magnesium	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Loan Iron Lead Magnesium Manganese	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead Magnesium Manganese	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead Magnesium Manganese Mercury Nickel	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead Maganese Mercury Nickel Potassium	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium	Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Cyanide Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Selenium Silver Sodium Thallium

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Table A-4
SENECA ARMY DEPOT
SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS16-500-N	SS	16-500-S	1000-	Z	1000	s-		N-0002		2000-N	2000-S		3000-N	3000	S	
				16074		16086	1608	3	1608	12		16089		16090	16085		16088	1605	9	
			OC CODE:	SA		SA	SA		SA			SA		DO	SA		SA	SA		
			STUDY ID:	RI ROUNDI	R	RI ROUNDI	RI ROUNDI	DI	RI ROUNDI	NDI	R	U ROUNDI	R	U ROUNDI	RI ROUNDI	DI	RI ROUNDI	RI ROUNDI	NDI	
			TOP:	0		0	0		0			0		0	0		0	0		
			BOTTOM:	0.2		0.2	0.2		0.2	-		0.2		0.2	0.2		0.2	0.2		
				SURFACE	SL	RFACE	SURFA	CE	SURF,	1CE	SI	IRFACE	S	URFACE	SURFAC	Œ	SURFACE	SURF	CE	
			MATRIX:	SOIL		SOIL	SOIL	100	SOIL	ı		SOIL		SOIL	SOIL		SOIL	SOI		
			SAMPLE DATE:	8/22/96	30	1/22/96	8/22/9	9	8/22/	96	್	3/22/96		8/22/96	8/22/96		8/22/96	8/20/	96	
PARAMETER	LEVEL	SOURCE	TINO	VALUE	2	'ALUE C	VALL	E Q	VAL	CE	0	ALUE	0	VALUE	VALUI	0	VALUE	VALUE	JE Q	
VOLATILE ORGANICS																				_
Benzene	V 09	60 NYSDEC TAGM UG/KG	M UG/KG	16 U	-	13 U		11 U		12	ſ	12.1	n	12 U		12 U	12 U		11 U	_
Toluene	1500 N	1500 NYSDEC TAGM UG/KG	M UG/KG	16 U	_	13 UJ	100	11 UJ		12 U	J	12 U	ב	12 U		12 U	12 U		11 U	

PARAMETER	LEVEL	SOURCE	UNIT	VALUE	VALUE O	VALUE O	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE
VOLATILE ORGANICS				1				1		1		
Benzene	N 09	60 NYSDEC TAGM UG/KG	M UG/KG	16 U	13 U	11 UJ	12 U	12 U	12 U	12 U	12 U	11 U
Toluene	1500 N	1500 NYSDEC TAGM UG/KG	M UG/KG	16 U	13 UJ	5	12 U	12 U	12 U	12 U	12 U	11 U
SEMIVOLATILE ORGANICS	S											
2,4-Dinitrotoluene			UG/KG	450 U	410 U	370 U	380 U	390 U	390 U	410 U	380 U	380 U
2-Methylnaphthalene	36400 N	36400 NYSDEC TAGM UG/KG	M UG/KG	450 UJ	410 U	370	380 U	390 U	390 U	410 U	380 U	380 U
2-Methylphenol	100 N	100 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U		380 U	390 U	390 U	120 J	380 U	380 U
Acenaphthene	S0000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	370 U	18 J	390 U	390 U	410 U	380 U	380 U
Acenaphthylene	41000 N	41000 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U		380 U	390 U	390 U	410 U	380 U	380 U
Anthracene	50000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U		380 U	390 U	390 U	410 U	380 U	380 U
Benzo(a)anthracene	224 N	224 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U		85 J	57 J	52 J	19 J	54 J	380 U
Benzo(a)pyrene	61 N	61 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	39 J	110 J	f 69	62 J	22 J	T3 J	380 U
Benzo(b)fluoranthene	1100 N	1100 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U		120 J	68 J	54 J	410 U	58 J	380 U
Benzo(g,h,i)perylene	S0000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	35 J	130 J	65 J	55 J	51 J	78 J	380 U
Benzo(k)fluoranthene	1100 N	1100 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	47 J	94 J	65 J	f 19	38 J	73 J	380 U
Carbazole			UG/KG	450 UJ	410 U	370 UJ	380 U	390 U	390 U	410 UJ	380 U	380 U
Chrysene	400 N	400 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	55 J	110 J	J 07	62 J	25 J	I 69	380 U
Di-n-butylphthalate	8100 N	8100 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U		380 U	390 U	390 U	410 U	380 U	380 U
Dibenz(a,h)anthracene	14 N	14 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U		54 J	34 J	30 J	410 U	39 J	18 J
Dibenzofuran	6200 N	6200 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	370 U	380 U	390 U	390 U	410 U	380 U	380 U
Fluoranthene	S0000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U		160 J	110 J	93 J	36 J	100 J	380 U
Fluorene	S0000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	370 U	380 U	390 U	390 U	410 U	380 U	380 U
Indeno(1,2,3-cd)pyrene	3200 N	3200 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	32 J	110 J	55 J	50 J	20 J	70 J	380 U
N-Nitrosodiphenylamine (1)			UG/KG	450 U	410 U		380 U	390 U	390 U	410 U	380 U	380 U
Naphthalene	13000 N	13000 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	370 U	380 U	390 U	390 U	410 U	380 U	380 U
Phenanthrene	S0000 N	50000 NYSDEC TAGM UG/KG	M UG/KG	450 U	410 U	34 J	90 J	36 J	35 J	410 U	42 J	380 U
Pyrene	S0000 N	50000 NYSDEC TAGM UG/KG	4 UG/KG	22 J	410 U	76 J	160 J	92 J	81 J	38 J	90 J	380 U

Table A-4 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

		LOC_ID:	N-000-0100	2-000-0155	10001	5-0001	1-000	FT-0007	2-2003	1-0000	0-0000
		SAMP ID:	16074	16086	16083	16087	16089	16090	16085	16088	16056
		QC CODE:	SA	SA	SA	SA	SA	DO	SA	SA	SA
		STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI
		TOP:	0	0	0	0	0	0	0	0	0
		BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
			SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLE DATE:	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/20/96
PARAMETER	LEVEL SOURCE	UNIT	VALUE Q			VALUE Q	VALUE Q	VALUE		Q VALUE Q	
PESTICIDES/PCB											
4,4'-DDE	2100 NYSDEC TAGM UG/KG	A UG/KG	4.5 U	4.1 U	5.2 J	1.9 J	3.9 U	3.9 U	4.1 U	3.8 U	3.7 U
4,4'-DDT	2100 NYSDEC TAGM UG/KG	A UG/KG	4.5 U	4.1 U	6 J	3.8 U	3.9 U	3.9 U	4.1 U	3.8 U	3.7 U
Dieldrin	44 NYSDEC TAGM UG/KG	A UG/KG	4.5 U	4.1 U	3.7 U	3.8 U	3.9 U	3.9 U	4.1 U	8.4 J	3.5 UJ
Endosulfan I	900 NYSDEC TAGM UG/KG	A UG/KG	2.3 U	2.1 U	1.6 J	2 U	2 U	2 U	2.1 U	2 U	U 6.1
Endosulfan sulfate	1000 NYSDEC TAGM UG/KG	A UG/KG	4.5 U	4.1 U	3.7 U	3.8 U	3.9 U	3.9 U	1 4.1 U	3.8 U	3.7 U
Endrin	100 NYSDEC TAGM UG/KG	A UG/KG	4.5 U	4.1 U	3.7 U	3.8 U	3.9 U	3.9 U	1 4.1 U	1 3.8 U	3.7 U
Endrin ketone		UG/KG	4.5 U	4.1 U	3.7 U	3.8 U	3.9 U	3.9 U		3.8 U	3.7 U
alpha-Chlordane		UG/KG	2.3 U	2.1 U	1.1 J	2 U	2 U	2 U	J 2.1 U	1 2 U	U 6.1
beta-BHC	200 NYSDEC TAGM UG/KG	A UG/KG	2.3 U	2.1 U	U 6.1	2 U	2 U	2 U		1 2 U	U 6.1
delta-BHC	300 NYSDEC TAGM UG/KG	4 UG/KG	2.3 U	2.1 U		2 U	2 U	2 U	7 2.1 U	1 2 U	I.9 U
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen		MG/KG	0.16	0.35	0.34	0.27	6.1	9	0.27	0.64	90.0
Percent Moisture (PEST/PCB)			27	61	11	14	91	91	19	14	12
Percent Moisture (SVOCs)			27	19	=	14	16	16	61	14	12
Percent Moisture (VOCs)			38	21	=	14	17	17	20	18	=
Percent Solids (Metals)			73.4	9.08	88.7	86.1	83.5	83.6	81.4	85.7	87.9

111 051 11 051 111 051	LIKOAKOMATICS										
	6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	120 U	120 UJ	120 U	120 111	120 111	170 111	170 11	111 071	11.001



Table A-4
SENECA ARMY DEPOT
SEAD-16 AND 17 FEASIBILITY STUDY

	LOC_ID:	SS16-500-N	SS16-500-S	N-0001	1000-S	2000-N	Z000-N	2000-S	3000-N	3000-S
	SAMP ID:	16074	16086	16083	16087	16089	16090	16085	16088	16056
	QC CODE:	SA	SA	SA	SA	SA	DO	SA	SA	SA
	STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI
	TOP:	0	0	0	0	0	0	0	0	0
	BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
		SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	SAMPLE DATE:	: 8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/20/96
PARAMETER	LEVEL SOURCE UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE	VALUE Q
METALS										
Aluminum	14592,8 NYSDEC TAGM MG/KG	14600 J	-	13900 J	11600 J	11700 J	11500 J	14100 J	12700 J	11800 J
Antimony	3.59 NYSDEC TAGM MG/KG	0.54 UJ		0.7	0.8 J	0.39 U	0.45 U	0.36	0.7 J	0.37 UJ
Arsenic	7.5 NYSDEC TAGM MG/KG	4.1	3.5 J	4.9	4.5 J	4.6 J	4.5 J	5.1	5.1 J	5.6
Barium	300 NYSDEC TAGM MG/KG	128 J		81.8 J	90.3 J	113 J	I 601	129 J	98.7 J	f 1.69
Beryllium	0.73 NYSDEC TAGM MG/KG	0.64		0.54	0.48	0.41	0.44	0.57	0.43	0.51
Cadmium	1 NYSDEC TAGM MG/KG	0.08 U		0.07	0.34	0.21	0.21	0.21	0.1	0.18
Calcium	101904 NYSDEC TAGM MG/KG	4280		9650	14500	3410	3420	3600	18200	10800
Chromium	22.13 NYSDEC TAGM MG/KG	20.5		24.4	18.5	14.8	14.8	19.5	18.4	19.9
Cobalt	30 NYSDEC TAGM MG/KG	8.5	9.2	15.7	9.2	7.2	7.1	10.7	10.3	12.3
Copper	25 NYSDEC TAGM MG/KG	25.4	20.8	39	21.2	17.9	17.7	6.61	20.4	28.9
Iron	26626.7 NYSDEC TAGM MG/KG	23400	21300	29300	22500	19100	19100	24000	23600	24900
Lead	21.86 NYSDEC TAGM MG/KG	53.4	33.4	52	58	19.7	19.5	29	19.3	16.7
Magnesium	12221.8 NYSDEC TAGM MG/KG	3940	3850	6120	5330	3230	3200	3840	6820	5330
Manganese	669.38 NYSDEC TAGM MG/KG	295 J	647	399 J	452	663	587	704 J	029	550
Mercury	0.1 NYSDEC TAGM MG/KG	0.16	0.05	90'0	90.0	0.07	60.0	90.0	0.56	0.05
Nickel	33.62 NYSDEC TAGM MG/KG	24.5	21.7	8.05	26.4	16.6	16.4	25.9	27.2	34.6
Potassium	1761.48 NYSDEC TAGM MG/KG	1200	106	1460	1100	1030	1060	1730	1420	1320
Selenium	2 NYSDEC TAGM MG/KG	1.3 J	1.6	1.3 J	1.4	1.3	1.5	1.4 J	1.2	0.74
Sodium	103.74 NYSDEC TAGM MG/KG	73 U	56.3 U	83.1	59.2 U	51.7 U	D 6.68	49.4	57.9 U	49.5 U
Thallium	0.28 NYSDEC TAGM MG/KG	U I.I U	0.88 U	0.88 U	0.93 U	0.81 U	0.94 U	0.83	0.91 U	1.2
Vanadium	150 NYSDEC TAGM MG/KG	24.1	21.7	20.5	19	19.4	19.5	22.3	20.1	19
Zinc	82.5 NYSDEC TAGM MG/KG	85.2 J	56.4	L 601	92.5	55.8	55.8	78.7 J	68.2	6.76

Table A-4 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

11 U 2 J	2 J 3 J	A UG/KG	60 NYSDEC TAGM UG/KG 1500 NYSDEC TAGM UG/KG	60 N 1500 N	VOLATILE ORGANICS Benzene Toluene
VALUE Q	VALUE Q	UNIT	SOURCE	LEVEL	PARAMETER
8/20/96	8/22/96	SAMPLE DATE:			
SOIL	SOIL	MATRIX:			
SURFACE	SURFACE				
0.2	0.2	BOTTOM:			
0	0	TOP:			
RI ROUNDI	RI ROUNDI	STUDY ID:		1:	
SA	SA	QC CODE:			
16055	16084	SAMP ID:			
3500-S	3500-N	LOC_ID:			

SEMIVOLATILE ORGANICS			
2,4-Dinitrotoluene	UG/KG	880	400
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	340 U	28 J
2-Methylphenol	100 NYSDEC TAGM UG/KG	340 U	350 U
Acenaphthene	50000 NYSDEC TAGM UG/KG	340 U	33 J
Acenaphthylene	41000 NYSDEC TAGM UG/KG	1 96 J	35 J
Anthracene	50000 NYSDEC TAGM UG/KG	110 J	130 J
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	720	480
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	940	640
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	2200 J	580
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	710	540
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	340 U	530
Carbazole	UG/KG	85 J	40 J
Chrysene	400 NYSDEC TAGM UG/KG	029	520
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	340 U	90 J
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	470	200 J
Dibenzofuran	6200 NYSDEC TAGM UG/KG	340 U	36 J
Fluoranthene	50000 NYSDEC TAGM UG/KG	1000	780
Fluorene	50000 NYSDEC TAGM UG/KG	340 U	38 J
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	240	520
N-Nitrosodiphenylamine (1)	UG/KG	95 J	47 J
Naphthalene	13000 NYSDEC TAGM UG/KG	16 J	29 J
Phenanthrene	50000 NYSDEC TAGM UG/KG	320 J	360
Pyrene	50000 NYSDEC TAGM UG/KG	1200	620

Table A-4 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Downwind Surface Soil Analytical Results

			LOC_ID:	3500-N		3500-S	
			SAMP ID:	16084		16055	
			QC CODE:	SA		SA	
			STUDY ID:	RI ROUNDI	1	RI ROUNDI	
			TOP:	0		0	
			BOTTOM:	0.2		0.2	
				SURFACE		SURFACE	
			MATRIX:	SOIL		SOIL	
			SAMPLE DATE:	8/22/96		8/20/96	
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	VALUE	0
PESTICIDES/PCB							
4,4'-DDE	2100 N	2100 NYSDEC TAGM UG/KG	4 UG/KG	8.9		140 1	1
4,4'-DDT	2100 N	2100 NYSDEC TAGM UG/KG	1 UG/KG	13	_	35	35 U
Dieldrin	4 N	44 NYSDEC TAGM UG/KG	A UG/KG	3.4 U	n	17	17 U
Endosulfan I	N 006	900 NYSDEC TAGM UG/KG	1 UG/KG	12	-	430	1
Endosulfan sulfate	1000 N	1000 NYSDEC TAGM UG/KG	A UG/KG	3.4 U	n	20	-
Endrin	N 001	100 NYSDEC TAGM UG/KG	A UG/KG	5.6		43	
Endrin ketone			UG/KG	4.8		71	
alpha-Chlordane			UG/KG	1.8	n	=	R
beta-BHC	200 N	200 NYSDEC TAGM UG/KG	A UG/KG	1.8.1	D	20	ы
delta-BHC	300 N	300 NYSDEC TAGM UG/KG	A UG/KG	1.8 U	n	18	18 U

OTHER ANALYSES			
Nitrate/Nitrite-Nitrogen	MG/KG	0.34	0.44
Percent Moisture (PEST/PCB)		m	9
Percent Moisture (SVOCs)		E	9
Percent Moisture (VOCs)		m	∞
Percent Solids (Metals)		97.2	93.7

f 006

Table A-4 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

		LOC ID:	3500-N	3500-S	
		SAMP ID:	16084	16055	
		QC CODE:	SA	SA	
		STUDY ID:	RI ROUNDI	RI ROUNDI	DI
		TOP:	0	0	
		BOTTOM:	0.2	0.2	Ļ
			SUKFACE	SUKFA	ų
		MATRIX: SAMPLE DATE:	SOIL 8/22/96	SOIL 8/20/96	10
PARAMETER	LEVEL SOURCE	UNIT	190	Q VALUE	E 0
METALS			ń		
Aluminum	14592.8 NYSDEC TAGM MG/KG	I MG/KG	4120 J		8620 J
Antimony	3.59 NYSDEC TAGM MG/KG	I MG/KG	0.56		0.74 J
Arsenic	7.5 NYSDEC TAGM MG/KG	1 MG/KG	3.8		4.5
Barium	300 NYSDEC TAGM MG/KG	1 MG/KG	27.2 J		86.4 J
Beryllium	0.73 NYSDEC TAGM MG/KG	1 MG/KG	0.16	0	0.32
Cadmium	1 NYSDEC TAGM MG/KG	1 MG/KG	0.23	J	0.32
Calcium	101904 NYSDEC TAGM MG/KG	1 MG/KG	229000	107	00020
Chromium	22.13 NYSDEC TAGM MG/KG	1 MG/KG	9.3		14
Cobalt	30 NYSDEC TAGM MG/KG	1 MG/KG	4.7		8.9
Copper	25 NYSDEC TAGM MG/KG	1 MG/KG	14.9		9.62
Iron	26626.7 NYSDEC TAGM MG/KG	1 MG/KG	0926	15	15800 J
Lead	21.86 NYSDEC TAGM MG/KG	1 MG/KG	36.7		36
Magnesium	12221.8 NYSDEC TAGM MG/KG	A MG/KG	8430	9	6310
Manganese	669.38 NYSDEC TAGM MG/KG	4 MG/KG	286 J	1	258
Mercury	0.1 NYSDEC TAGM MG/KG	A MG/KG	0.04 U		0.05
Nickel	33.62 NYSDEC TAGM MG/KG	A MG/KG	15.8		18.1
Potassium	1761.48 NYSDEC TAGM MG/KG	A MG/KG	848	_	1410
Selenium	2 NYSDEC TAGM MG/KG	A MG/KG	0.5 J	ı	1.2
Sodium	103.74 NYSDEC TAGM MG/KG	A MG/KG	383		6.89
Thallium	0.28 NYSDEC TAGM MG/KG	A MG/KG	0.74 U	n	-
Vanadium	150 NYSDEC TAGM MG/KG	M MG/KG	15.5		8.61
Zinc	82.5 NYSDEC TAGM MG/KG	M MG/KG	53.2 J		8.06

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Table A-5 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SW/SD16-1	S	W/SD16-10	SW/S	:W/SD16-2	SW/SD16-3	•	W/SD16-4	SV	V/SD16-4	SW/S	SD16-5	SW/SD1	9-9
			SAMP ID:	16143A		16129A	161	35A	16133A		16119A		16125A	161	16142A	16126/	_
			QC CODE:	SA		SA	S.	SA	SA		SA		DO	0,	SA	SA	
			STUDY ID:	RI ROUNDI	R	I ROUNDI	RI RO	UNDI	RI ROUNDI	24	ROUNDI	RI	ROUNDI	RIRC	I ROUNDI	RI ROUNDI	DI
			TOP:	0		0	0		0		0		0		0	0	
			BOTTOM:	9		9	9	932	9		9		9		9	9	
			MATRIX:	SEDIMENT	S	SEDIMENT	SEDIA	EDIMENT	SEDIMENT	s.	EDIMENT	SE	EDIMENT	SEDI	EDIMENT	SEDIMENT	ZZ
			SAMPLE DATE:	96/81/6		9/18/96	96/81/6	96/	96/81/6		9/18/96	(T)	9/18/96	9/1	9/18/6	9/18/96	
PARAMETER	LEVE	SOURCE	TINO	VALUE	0	VALUE Q	\ VAL	VALUE Q	VALUE	0	VALUE (0	VALUE	AV C	/ALUE O	VALUE	0
VOLATILE ORGANICS																	
2-Butanone			UG/KG	24	n	U 8 I		17 U	21	Ω	22 U	_	16 U	377	13 U		14 U
Acetone			UG/KG	37	n	20		17 U	21	21 U	21 J		20		13 U		36

SEMIVOLATILE ORGANICS	S										
2,4-Dinitrotoluene			UG/KG	5400	620 U	720 U	480 U	430 UJ	1000 UJ	430 U	820
2-Methylnaphthalene			UG/KG	850 U	620 U	55 J	480 U	430 UJ	1000 UJ	430 U	40 J
Acenaphthene	5110	5110 NYS BALCT	UG/KG	850 U	32 J	720 U	480 U	430 UJ	1000 UJ	430 U	530 U
Acenaphthylene			UG/KG	54 J	620 U	41 J	480 U	430 UJ	1000 UJ	430 U	530 U
Anthracene			UG/KG	1 66	57 J	42 J	480 U	430 UJ	1000 UJ	430 U	530 U
Benzo(a)anthracene	47.45	NYS HHB	UG/KG	S70 J	260 J	240 J	480 U	430 UJ	1000 UJ	430 U	110 J
Benzo(a)pyrene	47.45	NYS HHB	UG/KG	£ 009	320 J	270 J	480 U	430 UJ	1000 UJ	430 U	120 J
Benzo(b)fluoranthene	47.45	NYS HHB	UG/KG	1200	480 J	450 J	480 U	430 UJ	1000 UJ	430 U	200 J
Benzo(g,h,i)perylene			UG/KG	530 J	280 J	250 J	41 J	430 UJ	1000 UJ	430 U	110 J
Benzo(k)fluoranthene	47.45	NYS HHB	UG/KG	780 J	320 J	370 J	480 U	430 UJ	1000 UJ	430 U	130 J
Carbazole			UG/KG	110 J	52 J	720 U	480 U	430 UJ	1000 UJ	430 U	530 U
Chrysene	47.45	NYS HHB	UG/KG	1200	440 J	440 J	480 U	430 UJ	1000 UJ	430 U	220 J
Di-n-butylphthalate			UG/KG	250 J	210 J	720 U	480 U	430 UJ	1000 UJ	430 U	160 J
Dibenz(a,h)anthracene			UG/KG	170 J	100 J	720 U	480 U	430 UJ	1000 UJ	430 U	38 J
Fluoranthene	37230	37230 NYS BALCT	UG/KG	1600	550 J	490 J	33 J	430 UJ	1000 UJ	430 U	250 J
Indeno(1,2,3-cd)pyrene	47.45	NYS HHB	UG/KG	200 J	250 J	240 J	39 J	430 UJ	1000 UJ	430 U	L 86
N-Nitrosodiphenylamine (1)			UG/KG	f 009	620 U	720 U	480 U	430 UJ	1000 UJ	430 U	530 U
Phenanthrene	4380	4380 NYS BALCT UG/KG	UG/KG	420 J	340 J	140 J	31 J	430 UJ	1000 UJ	430 U	150 J
Pyrene			UG/KG	1400	620 J	510 J	30 J	430 UJ	1000 UJ	430 U	240 J
bis(2-Ethylhexyl)phthalate	7300	7300 NYS BALCT UG/KG	UG/KG	180 J	270 J	720 U	120 J	27 J	160 J	430 U	73 J

Table A-5 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Sediment Analytical Results

										-	
			LOC_ID:	SW/SD16-1	SW/SD16-10	SW/SD16-2	SW/SD16-3	SW/SD16-4	SW/SD16-4	SW/SD16-5	SW/SD16-6
			SAMP ID:	16143A	16129A	16135A	16133A	16119A	16125A	16142A	16126A
			QC CODE:	SA	SA	SA	SA	SA	DO	SA	SA
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI
			TOP:	0	0	0	0	0	0	0	0
			BOTTOM:	9	9	9	9	9	9	9	9
			MATRIX:	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
			SAMPLE DATE:	9/18/96	9/18/96	9/18/96	9/18/96	96/81/6	9/18/96	9/18/96	9/18/96
PARAMETER	LEVE !	SOURCE	UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE	Q VALUE Q
PESTICIDES/PCB											
4,4'-DDD	0.37 N	NYS HHB	UG/KG	730 J	19	4,4 J	3.3	4.3 U	10 UJ	J 4.3 U	11.3
4,4'-DDE	0.37	NYS HITB	UG/KG	570 J	150	13 J	32	3.5	LS J	4.3 J	120 J
4,4'-DDT	0.37	NYS HHB	UG/KG	420 J	25	5.3 J	4.9 U	4.3 U	7.9 J	4.3 U	31
Aroclor-1254	0.03	NYS HHB	UG/KG	029	100 J	72 U	41.3	43 U	100 UJ	J 43 U	J 65 J
Aroclor-1260	0.03	NYS HHB	UG/KG	130 J	72.5	72 U	39 J	43 U	100 UJ	J 43 U	J 36 U
Endosulfan I	1.10 N	NYS BALCT	UG/KG	26	8.8	111 J	2.3 J	2.2 U	5.2 UJ	J 2.2 U	J 5.5 J
Endosulfan II	1.10 N	NYS BALCT	UG/KG	8.5 U	6.3 J	7.2 U	4.9 U	2.6 J	6.8 J	4.3 U	J 4.6 U
Endosulfan sulfate			UG/KG	18 J	6.2 U	J 7.2 U	4.9 U	4.3 U	IO 01	J 4.3 U	J 2.7 U
Endrin aldehyde			UG/KG	8.5 U	6.2 U	J 7.2 U	3.2 J	4.3 U	10 UJ	J 4.3 U	J 3.2 U
Heptachlor epoxide	0.03	NYS HHB	UG/KG	4.4 U	3.2 U	J 2.8 J	2.5 U	2.2 U	5.2 UJ	J 2.2 U	J 2.4 U
alpha-Chlordane			UG/KG	10 J	3.2 U	J 3.7 U	2.5 U	2.2 U	5.2 UJ	J 2.2 U	J 2.4 U
gamma-Chlordane			UG/KG	4.4 U	3.2 U	J 3.7 U	2.5 U	2.2 U	5.2 UJ	J 2.2 U	U 1.4 U
OTHER ANALYSES							40.				
Nitrate/Nitrite-Nitrogen			MG/KG	0.67	0.00	0.24	0.01 U	0.01 U	0.03 U	0.12	0.14
Percent Moisture (PEST/PCB)				61	47	54	32	24	19	24	28
Percent Moisture (SVOCs)				19	47	54	32	24	19	24	38
Percent Moisture (VOCs)				59	44	40	52	54	39	23	28
Percent Solids (Metals)				38.9	52.8	46.2	8.79	75.5	33.1	75.6	71.8
Total Organic Carbon			MG/KG	62500	26600	30300	28900	7150	26800	2780	19400
NITROAROMATICS											
2,4-Dinitrotoluene			UG/KG	190 J	120 U	J 120 UJ	170 0	170 O	120 UJ	120 U	U 910 J

h:\eng\seneca\s1617fs\section2\16TABA.XLS

Table A-5 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SW/SD16-1	SW/SD16-10	SW/SD16-2	SW/SD16-3	SW/SD16-4	SW/SD16-4	SW/SD16-5	SW/SD16-6	
			SAMP ID:	16143A	16129A	16135A	16133A	16119A	16125A	16142A	16126A	
			QC CODE:	SA	SA	SA	SA	SA	DO	SA	SA	
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	
			TOP:	0	0	0	0	0	0	0	0	
			BOTTOM:	9	9	9	9	9	9	9	9	
			MATRIX:	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
			SAMPLE DATE:	9/18/96	96/81/6	9/18/96	9/18/96	9/18/6	9/18/6	96/81/6	9/18/6	
PARAMETER	LEVE	SOURCE	UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE	VALUE	Q VALUE Q	~[
METALS												
Aluminum			MG/KG	11000 J	14300	22900 J	8040	6430 J	11400 J	17500	-	-
Antimony	2	NSY LEL	MG/KG	L 6.01	11.5 J	13.5 J	50.3 J	1.4 J	8.7 J	U 77.0	J 32.2 J	-
Arsenic	9	NSY LEL	MG/KG	8.7 J	9.6	7.2 J	4.5	3.4 J	6.1 J	5.6	9.7	
Barium			MG/KG	109 J	636	242 J	433	27.8 J	92 J	6.66	3980	
Beryllium			MG/KG	0.46 J	69.0	0.93 J	0.41	0.24 J	0.39 J	0.73	0.78	_
Cadmium	9.0	NSY LEL	MG/KG	1.6 J	7.6	0.72 J	0.57	0.24 J	0.61 J	0.26	0.92	_
Calcium			MG/KG	75700 J	38300	13400 J	26400	19200 J	43500 J	72700	30900	_
Chromium	26	NSY LEL	MG/KG	43.5 J	41.3	32.9 J	20.4	10.8 J	18.3 J	27.8	36.2	-
Cobalt			MG/KG	7.6 J	13.6	13.1 J	7.6	6.5 J	11.8 J	10.6	15.6	_
Copper	16	NSY LEL	MG/KG	335 J	573 J	260 J	17500 J	27.4 3	f 911	50 J	363 J	P. I.S.
Iron	20000	NSY LEL	MG/KG	28500 J	46400	34300 J	20400	15300 J	23200 J	31000	31700	
Lead	31	NSY LEL	MG/KG	1720 J	1950	1250 J	4480	175 J	634 J	112	2700	
Magnesium			MG/KG	12300 J	8390	7500 J	4720	3200 J	5700 J	8350	9430	
Manganese	460	NSY LEL	MG/KG	218 J	386 J	174 J	217 J	186 J	343 J	303	359 J	
Mercury	0.15	NSY LEL	MG/KG	0.52 J	0.31	2 J	2.5	0.08 J	0.2 J	80.0	0.23	
Nickel	16	NSY LEL	MG/KG	32.6 J	45.2 J	44.8 J	32.4 J	18.2 J	30 J	40.1 J	50.9 J	(0800)
Potassium			MG/KG	2420 J	2440 J	2660 J	880 J	557 J	1630 J	2450 J	3870 J	
Selenium			MG/KG	4.9 J	1.5 U	1.7 UJ	1.1 U	0.7 UJ	1.8 UJ	1 T	1.4	_
Silver	-	NSY LEL	MG/KG	0.69 UJ	0.48 U	0.53 UJ	0.35	0.22 UJ	0.58 UJ	I 0.32 U	1 0.28 U	-
Sodium			MG/KG	153 J	782	182 J	404	69.1 J	147 J	142	197	
Thallium			MG/KG	U 6.1	1.3 U	1.6 J	0.94 U	0.61 UJ	1.6 UJ	U 88 U		
Vanadium			MG/KG	39.8 J	29.3	33.5 J	10	8.9 J	18.3 J	26.6	34.3	
Zinc	120	NSY LEL	MG/KG	549 J	557	339 J	952	138 J	284 J	103	307	

Table A-5 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SW/SD16-7	SW/SD16-8	SW/SD16-9
			SAMP ID:	16127A	16134A	16128A
			QC CODE:	SA	SA	SA
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI
			TOP:	0	0	0
			BOTTOM:	9	9	9
			MATRIX:	SEDIMENT	SEDIMENT	SEDIMENT
			SAMPLE DATE:	96/81/6	9/18/96	9/18/96
PARAMETER	LEVE	SOURCE	UNIT	VALUE Q		VALUE Q VALUE (
VOLATILE ORGANICS						
2-Butanone			UG/KG	14 [161	U 12 J
Acetone			UG/KG	20	1 91	U 32

SEMIVOLATILE ORGANICS	S					
2,4-Dinitrotoluene			UG/KG	43 J	470 U	520 U
2-Methylnaphthalene			UG/KG	570 U	470 U	520 U
Acenaphthene	5110	NYS BALCT	UG/KG	570 U	470 U	520 U
Acenaphthylene			UG/KG	570 U	470 U	37 J
Anthracene			UG/KG	570 U	470 U	100 J
Benzo(a)anthracene	47.45	NYS HHB	UG/KG	92 J	22 J	370 J
Benzo(a)pyrene	47.45	NYS HHB	UG/KG	120 J	470 U	470 J
Benzo(b)fluoranthene	47.45	NYS HHB	UG/KG	120 J	470 U	069
Benzo(g,h,i)perylene			UG/KG	100 J	470 U	400 J
Benzo(k)fluoranthene	47.45	NYS HHB	UG/KG	120 J	470 U	520
Carbazole			UG/KG	570 U	470 U	54 J
Chrysene	47.45	NYS HHB	UG/KG	120 J	36 J	640
Di-n-butylphthalate			UG/KG	570 U	470 U	160 J
Dibenz(a,h)anthracene			UG/KG	47 J	470 U	150 J
Fluoranthene	37230	NYS BALCT	UG/KG	190 J	41 J	550
Indeno(1,2,3-cd)pyrene	47.45	NYS HHB	UG/KG	f 16	470 U	380 J
N-Nitrosodiphenylamine (1)			UG/KG	570 U	470 U	520 U
Phenanthrene	4380	NYS BALCT	UG/KG	100 J	24 J	300 J
Pyrene			UG/KG	190 J	41 J	099
bis(2-Ethylhexyl)phthalate	7300	7300 NYS BALCT UG/KG	UG/KG	150 J	470 U	51 J

Table A-5 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	7-91GS/MS	SW/SD16-8	6-91GS/MS	6
			SAMP ID:	16127A	16134A	16128A	
			QC CODE:	SA	SA	SA	
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	-
			TOP:	0	0	0	
			BOTTOM:	9	9	9	
			MATRIX:	SEDIMENT	SEDIMENT	SEDIMENT	Т
			SAMPLE DATE:	96/81/6	9/18/96	96/81/6	
PARAMETER	LEVE	SOURCE	TIND	VALUE Q	VALUE	Q VALUE	0
PESTICIDES/PCB							
4,4'-DDD	0.37	NYS HHB	UG/KG	L 001	3.3		8 3
4,4'-DDE	0.37	NYS HHB	UG/KG	140 J	13	2	9
4,4'-DDT	0.37	NYS HHB	UG/KG	L 001	3.	4	6
Aroclor-1254	0.03	NYS HHB	UG/KG	150	35.1	9	1.3
Aroclor-1260	0.03	NYS HHB	UG/KG	51 J	47 [) 6	3 3
Endosulfan I	1.10	NYS BALCT	UG/KG	4.4 J	2.4 [1	7
Endosulfan II	1.10	NYS BALCT	UG/KG	5.7 U	4.7 [J 5.	2 U
Endosulfan sulfate			UG/KG	4.6 J	4.7 [7	3 U
Endrin aldehyde			UG/KG	5.7 U	4.7 [J 5.	2 U
Heptachlor epoxide	0.03	NYS HHB	UG/KG	2.9 U	2.4 [J 2.	2.7 U
alpha-Chlordane			UG/KG	4.2	2.4 [J 12.1	1.1
gamma-Chlordane			UG/KG	3.8	2.4 [J 2	2.9

OTHER ANALYSES				
Nitrate/Nitrite-Nitrogen	MG/KG	0.03	0.2	0.05
Percent Moisture (PEST/PCB)		42	30	36
Percent Moisture (SVOCs)		42	30	36
Percent Moisture (VOCs)		31	37	53
Percent Solids (Metals)		57.7	70	64
Total Organic Carbon	MG/KG	20600	26400	29800
NITROAROMATICS				
2 4-Dinitrotolijene	11G/KG	170 11	170 11	17 0 11

Table A-5 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			TOC ID:	2W/SD16-7	SW/SD16-8	SW/SD16-9	6-910
			SAMP ID:	16127A	16134A	16128A	8A
			QC CODE:	SA	SA	SA	_
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	JNDI
			TOP:	0	0	0	
			BOTTOM:	9	9	9	
			MATRIX:	SEDIMENT	SEDIMENT	SEDIMENT	TENT
			SAMPLE DATE:	9/18/6	9/18/96	96/81/6	96/
ARAMETER	LEVE	SOURCE	UNIT	VALUE	Q VALUE	Q VALUE	UE Q
METALS			S.				
Aluminum			MG/KG	10200	17300		0096
Antimony	2	NSY LEL	MG/KG	3.2 J	2.6 J	ı	3.3
Arsenic	9	NSY LEL	MG/KG	1.9	6.5		4.2
Sarium			MG/KG	62.7	300		131
3eryllium			MG/KG	0.42	19.0		0.48
Cadmium	9.0	NSY LEL	MG/KG	1.9	0.23		1.2
Calcium			MG/KG	25700	0899		58000
Chromium	26	NSY LEL	MG/KG	23.5	25		16.9
Cobalt			MG/KG	7.5	8		8.9
Copper	16	NSY LEL	MG/KG	120 J	L 88 J	J	124 J
Iron	20000	NSY LEL	MG/KG	17700	36400		18100
Lead	31	NSY LEL	MG/KG	511	992		476
Magnesium			MG/KG	0999	5260		15100
Manganese	460	NSY LEL	MG/KG	192 J	1 223 J	J	447 J
Mercury	0.15	NSY LEL	MG/KG	90.0	90.0		0.16
Nickel	16	NSY LEL	MG/KG	27.3 J	J 24.8 J	J	24.7 J
Potassium			MG/KG	1970 J	I 1640 J	J	2010 J
Selenium			MG/KG	1.6 U	U 0.76 U	Ω	0.98 U
Silver		NSY LEL	MG/KG	0.5 U	U 0.24 U	n	0.31 U
Sodium			MG/KG	127	9.89		376
Thallium			MG/KG	1.4 U	U 0.66 U	n	0.85 U
Vanadium			MG/KG	26.5	27.2		20.1
Zino	120	NSY LEL	MG/KG	176	96.3		192

Table A-6 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

				SEAD-16	SEAD-16 Groundwater Analytical Results	alytical Results						
PARAMETER	LOC_D: SAMP D: QC CODE: STUDY D: MATRIX: SAMPLE DATE: LEVEL SOURCE	LOC_D: AMP D: C CODE: UDY D: MATRIX: E DATE: UNIT	MW16-1 MW16-1-1 SA ESI WATER 11/19/E	MW16-1 16101 SA RI ROUND1 WATER 8/27/E O	MW16-1 16152 SA RI ROUND2 WATER 127/96 VALUE	MW16-2 MW16-2-1 SA ESI ESI WATER 11/19/93	MW16-2 MW16-41-1 DU ESI WATER 11/19/93	MW16-2 16102 SA RIROUND1 WATER 8/27/96 VA111F O	MW16-2 16150 SA RIROUND2 WATER 12/6/96	MW16-3-1 SA ESI WATER 11/19/9	MW16-3 16110 SA RIROUND1 WATER 8/30/96	MW16-3 16115 SA RIROUND1 WATER 9/10/6 VATITE
SEMIVOLATILE ORGANICS		TIGA	7	1 2	7	1	1 2	1 %	2		1 %	1 2
4-Chloroaniline	5 NYS CLASS GA STANDARD UG/L	ARD UG/L	U 11	10 U	10 D	D 11		10 U	10 U	11 U	10 U	10 U
Benzo[ghi]perylene		NG/L	11 U	10 UI	10 U	11 U	11 U	10 U	10 U	11 U	1.5	10 U
Dibenz[a,h]anthracene		UG/L	D II	10 CI	10 U	11 U	11 U	10 U	10 U	11 U	0.7 J	10 U
Dietnyl phthalate Indeno[1,2,3-cd]pyrene		UG/L	110	10 CT	10 U	11 U	11 0	10 U 10 U	10 U 10 U	0.5 J 11 U	10 U 0.6 J	10 U 10 U
STITED ANALYSES												
Nitrate/Nitrite Nitrogen		MG/L	0.11	0.02	0.01 U	0.86	0.77	0.67	2	0.23	0.04	0.11
Percent Solids (Metals)				0	0			0	0		0	0
Total Petroleum Hydrocarbons	S	MG/L		0.44 U	0.4 U			0.4 U	0.36 U		0.41 U	1.3
NITROAROMATICS 1,3-Dinitrobenzene	5 NYS CLASS GA STANDARD UGIL	ARD UG/L	0.13 U	0.26 U	0.26 U	0.13 U	0.13 U	1.8 J	0.26 U	0.13 U	0.26 U	0.26 11
2,4-Dinitrotoluene	5 NYS CLASS GA STANDARD UG/L	ARD UG/L	0.13 U	0.26 U	0.26 U	0.13 U	0.13 U	0.26 U	0.26 U	0.07 J	0.26 U	0.26 U
0.11												
Aluminum	200 FPA SECONDARY MCL.	UG/L	63600	1850	143 11	3500	1640	1010	460	1.49000	Att	1470
Antimony	6 EPA MCL	UG/L	52.5 U	2 U	3 U	52.4 U	52.7 U	2 U	3 U	89.6	7.5	12.3
Arsenic	25 NYS CLASS GA STANDARD UGIL	ARD UG/L	15.4	2.7 U	4.4 U	1 U	1.3 J	2.7 U	4.4 U	33.2	2.7 U	3.2
Barium	1000 NYS CLASS GA STANDARD UG/L	ARD UG/L	401	74.2	48.2 U	43 J	48.4 J	48.1	31.4 U	1170	64.4	74
Beryllium	4 EPA MCL	UG/L	3.1 J	0.23	0.2 U	0.3 U	0.3 U	0.22	0.2 U	8.1	0.21	0.15
Cadmium	5 EPA MCL	T/Dn	3.3 U	0.3 U	0.6 U	3.3 U	3.3 U	0.3 U	0.6 U	3.9 J	0.3 U	0.32
Calcrum	TEN	UG/L	239000	157000	116000	114000	117000	193000	164000	477000	00866	91600
Cobalt	ON IN IS CEUSS ON STAIN	UG/L	59.9	2.1	1311	4911	4911	1.5	1.1 0	587 188	1211	3.4
Copper	200 NYS CLASS GA STANDARD UGL	ARD UG/L	64.2	4.9	U 6.1	12.1 J	14.8 J	7.9	2.9 U	2150	19.2	56.8
Iron	300 NYS CLASS GA STANDARD UGL	ARD UG/L	88100	2400 J	296	5310	6400	1720 J	923.3	246000	432.3	T 0061
Lead	15 EPA MCL	NG/L	71.1	1.7 U	1.5 U	27.3	34.5	5.9	8.9	3240	6.1	24.1.J
Magnesium		NG/L	42000	23300	17600	15200	15900	23700	20900	92000	11600	10500
Manganese	50 EPA SECONDARY MCL	NG/L	2110	210	64.2	191	189	129	65.2	6300	130	66.3
Mercury	2 NYS CLASS GA STANDARD UGAL	ARD UGAL	0.07 UJ	0.1 U	0.1 U	0.07 UJ	U 70.0	0.1 U	0.1 U	3.9.3	0.1 U	0.1 U
Nickel	100 EPA MCL	NG/L	135	4.7	2.5 U	10.2 J	11.5 J	11	3.1 U	406	3	6.1
Potassium		UG/L	10200	1670	O 866	4810 J	4520 J	4760	3410 U	24800	2740	2970
Selenium	10 NYS CLASS GA STANDARD UGL	ARD UG/L	2.5 J	2.4 U	4.7 UJ	0.8 U	0.99 J	2.4 U	4.7 UJ	10.3	2.4 U	2.8
Sodium	20000 NYS CLASS GA STANDARD UGIL	ARD UG/L	7710	8750	3870 U	11400	11700	19100	17000	10500	9480	6740
Thallium	2 EPA MCL	UGA	1.8 U	4.2 U	5.9 U	1.8 U	1.8 U	9.2	0.6 U	17.8 U	4.2 U	4.2 UJ
Vanadium	JOU TOU NIVE IT ASS GA STANDABLING	מאסט רופא	86.5	5.5 15.6 D	1.6 U	7.2 J	9.3 J	2.9	1.6 U	257	1.2 U	3.8
71110	CLASS OF STAND	TIED ONE	400	13.0 K	3.8 U	50.4	33.4	3/.4 K	13.5 U	99/0	32.4 K	91.2 R

SEAD-16 AND 17 FEASIBILITY STUDY SENECA ARMY DEPOT

								1 A CULT A	F / 1	A CULTAC
	LOC_ID: SAMPID:	MW16-3 16165	MW16-4 16105	MW16-4 16156	MW16-5 16162	MW16-6 16111	MW16-6 16155	MW 16-7 16104	MW16-7 16158	16159
DADAMETER	QC CODE: STUDY ID: MATRIX: SAMPLE DATE: 1 FVF! SOURCE	SA RIROUND2 WATER 12/10/96	SA RI ROUNDI WATER 8/28/96 VALUE	SA RI ROUND2 WATER 127796 Q VALUE Q	SA RI ROUND2 WATER 12/9/96 VALUE Q	SA RI ROUNDI WATER 9/3/96 VALUE Q	SA RIROUND2 WATER 128/96 VALUE Q	SA RIROUNDI WATER 8/28/96 VALUE	SA RI ROUND2 WATER 12/8/96 Q VALUE (DU RIROUND2 WATER 12/8/96 Q VALUE
SEMIVOLATILE ORGANICS								30	11 30	11.30
3-Nitroaniline			26 U	J 25 U	25 U	25 0	0 57	10 J	10	10
4-Chloroaniline	5 NYS CLASS GA STANDAKU UGIL				101	10 11				
Benzo[ghi]perylene	J/90					101				
Dibenz[a,h]anthracene	1/90 1:37	10 01	10.01			11 01				
Diethyl phthalate Indeno[1,2,3-cd]pyrene	TIBO					10 U				
OTHER ANALYSES		10	900	900	1.4	11 10 0	11 10 0 11	0.83	0.24	0.23
Nitrate/Nitrite Nitrogen	MIGIT	+0.0	0.00	07.0	0	0			0	0
Percent Solids (Metals) Total Petroleum Hydrocarbons	MGL			U 0.42 U	0.91	0.89	0.73	0.41 U	U 0.46 U	J 1.3
om removed the company of the compan										
NITROAROMATICS	S NIVS CT ASS GA STANDARD LIGHT.	0.26 U	0.26 U	U 0.26 U	0.26 U	0.26 U	J 0.26 U			
2.4-Dinitrotoluene	5 NYS CLASS GA STANDARD UG/L				0.26 U	0.26 U	J 0.26 U	0.26 U	U 0.26 U	J 0.26 U
METALS						3				11003
Aluminum	NDARY MCL	3	24	36	14	907	-		11.00	
Antimony	6 EPA MCL UG/L							13.7 U		
Arsenic	25 NYS CLASS GA STANDARD UGL							30	,	,
Barium	SS GA STANDARD	57.4 U	97.4	55.2 U	0.00	80.4	1 0 0 1			
Beryllium	4 EPA MCL UG/L					0.3 U			n	
Cadmium	S EFA MCL	88	130	158	90	44600	84	109	114	117
Calcium	SO NVS CT ASS GA STANDARD LIGHT			U 1 U	10	1.5	10	-	-1	
Cobalt	UGL	1.3					1.3 U			
Conner	200 NYS CLASS GA STANDARD UGIL		3.6	1.1 U						
ron	300 NYS CLASS GA STANDARD UGL	•			2	300				160
	15 EPA MCL UG/L	L 1.5 U	J 1.7 U	U 1.5 U	3 U					9.2
Mamerium		10	17	22900	11800	6370	12800	16900	2	23200
Magnesium	50 FPA SECONDARY MCL UG/L			6.99	51	545	1380	85.7		7
Mercury	ARD			U 0.1 U	7 0.1 U	0.1 U			n	
Nickel	100 EPA MCL UG/L						2.5 U			
Potassium	UGIT		4	1	18	3	2	e.	2	7
Selenium	10 NYS CLASS GA STANDARD UGL			n	000000000000000000000000000000000000000		000000000000000000000000000000000000000		n	
Sodium	20000 NYS CLASS GA STANDARD UGL	7	17	12	67	396	409000	12	5 6	10200
Thallium	2 EPA MCL UG/L					6.2	4.1 U	7		5000
Vanadium	NGT						1.6 U		1.6 U	T. T. T.
Zinc	300 NYS CLASS GA STANDARD UGIL	L 42	4.5 R	R 5.1 U	0 6.3 U	13.21	K 10.5 U	6.7	¥	

	2			
			K.11	
8.				
				3 1

Table A-7 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Surface Water Analytical Results

				LOC_ID:	SW/SD16-1	SW/SD16-10	SW/SD16-2	SW/SD16-3	SW/SD16-4	SW/SD16-4	SW/SD16-5	9-91QS/MS
				SAMP ID:	16143	16129	16135	16133	16119	16125	16142	16126
				QC CODE:	SA	SA	SA	SA	SA	DO	SA	SA
				STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI
				TOP:								
				MATERIA.	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
				SAMPLE DATE:	9/18/96	9/18/96	9/18/96	9/18/96	9/18/96	9/18/96	9/18/96	9/18/96
PARAMETER	LEVEL	SO	SOURCE	UNIT	VALUE			Q VALUE Q	Q VALUE Q	Q VALUE	Q VALUE	Q VALUE Q
SEMIVOLATILE ORGANICS	cs											
Di-n-butylphthalate				UG/L	10 U						U 0.5 J	
Pentachlorophenol		0.4	NYS AWQS CLASS C	NG/L	25 U	0.7 J	25 U	25 U	25 U	J 25 U	U 25 U	J 25 U
bis(2-Ethylhexyl)phthalate		9.0	NYS AWQS CLASS C	UG/L	10 U	3.3	10 U	10 U	10 U	10 U	3.3	10 U
OTHER ANALYSES												
Nitrate/Nitrite-Nitrogen				MG/L	0.34	U 10.0	0.49	0.43	0.26	0.31	0.15	0.02
Percent Solids (Metals)					0	0	0	0	0	0	0	0
Total Organic Carbon				MG/L	5	6.4	3.2	2.3	2.8	2.8	4	12.5
Hd				MG/L	7.39	7.62	7.34	7.57	7.46	7.59	7.36	7.75
MEIALS		001	0 334 10 30114 3714	1,011	0.00	0		0.107		0.707	0 750	
Aluminum		100	NIS AWUS CLASS C	7,00	10.4 I	110 K	34.2 R		123 R	90		15.2 K
Antimony		001	O SON IN SOMY SAIN	7/50	10.4 J	1.00		72	1.60			
Arsenic		061	NYS AWUS CLASS C	J.O.	35.7	2.7 U			1 4 7	1.7		,
Валиш		1 02	O SOV TO SOM V SAIN	7/50	75.5 J	103 3	114 J	1001	155 J	116)	04.4 J	248 J
Cadmium		1.80	NIS AWGS CLASS C	100	0.5.0	13300	0.000	107	1 64.0	31	0	r
Calcium	3.4	247 27	NVC A WOS CT ASS C	UG/L	11 1	/3300			78600			
Cobalt		5	NYS AWOS CLASS C	UG/L	12 U	1.2 U				_		
Copper	2	20.29	NYS AWQS CLASS C	NG/L	13.5	17.9						40.9
Iron		300	NYS AWQS CLASS C	UG/L	32.4 J	210 J	41 J	1550 J	1140 J	272	J 3340 J	58.3 J
Lead		7.16	NYS AWQS CLASS C	UG/L	5.4	11.7	34.3	813	8.96	34.2	8.99	36.6
Magnesium				T/D/I	8080	0089	11400	11200	11400	11100	10100	10500
Manganese				NG/L	18.4	47.3	9.8	22.6	53	42.8	191	11.6
Mercury				UG/L	0.1 U	0.1 U	0.1 U	6.0	0.1 U	I 0.1 U	U 0.1 U	J 0.1 U
Nickel	15	154.49	NYS AWQS CLASS C	UG/L	U 9'I	4.8	1.6 U	3.5	2.7	3.7	3.8	1.6 U
Potassium				UG/L	2380	2460	1200	4590	3890	3790	2510	4510
Selenium		-	NYS AWQS CLASS C	UG/L	2.4 U	2.4 U	2.8 J	2.4 U	2.4 U	J 2.4 U	U 4.3 J	2.4 U
Silver		0.1	NYS AWQS CLASS C	UG/L	1.3 U	1.3 U					U 1.3 U	J 1.3 U
Sodium				NG/L	4720	4830	5540	8280	7730	7620	5670	1320
Vanadium		14	NYS AWQS CLASS C	UG/L	1.2 U	1.2 U			1.5 J			1.2 U
Zinc	14	141.38	NYS AWQS CLASS C	UG/L	28.5	158	7.1.7	253	217	125	104	55

Table A-7 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-16 Surface Water Analytical Results

			LOC_ID:	2W/SD16-7	8-91QS/MS	6-91QS/MS	01	SW16-2	
			SAMP ID:	16127	16134	16128	SW16-1-1	SW16-2-1	
			QC CODE:	SA	SA	SA	SA	SA	
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	ESI	ESI	
			TOP:				0	0	
			BOTTOM:	STIDEACE	CTIDEACE	CIDEACE	O.2	O.2	
			MATRIX:	WATER	WATER	WATER	WATER	WATER	
			SAMPLE DATE:	9/18/96	9/18/96	9/18/96	12/6/93	12/6/93	-
ARAMETER LEVE	LEVEL	SOURCE	UNIT	VALUE (VALUE Q VALUE Q VALUE Q VALUE	Q VALUE	Q VALUE	Q VALUE	9
SEMIVOLATILE ORGANICS									
Oi-n-butvlphthalate			UG/L	10 U			10 U 11	O 10	0
Pentachlorophenol	0.4	NYS AWQS CLASS C	UG/L	1.5	I 25 U	U 4	J 27	U 26	26 U
bis(2-Ethylhexyl)phthalate	9.0	NYS AWOS CLASS C	UG/L	10 U	U 10 U	U U	J 111	U 10	10 U

OTHER ANALYSES						
Nitrate/Nitrite-Nitrogen	MG/L	0.12	0.01 U	0.04	1.27	1.77
Percent Solids (Metals)		0	0	0		
Total Organic Carbon	MG/L	2.8	10.4	9.3		
Hu	MG/L	7.57	7.53	7.8		

METALS								
Alıminum	100	NYS AWOS CLASS C	NG/L	1540 R	77.1 R	190 R	152 J	261
Antimony			UG/L	6.5 J	7.2 J	7.7 3	21.5 U	21.4 U
Arsenic	190	NYS AWOS CLASS C	UG/L	4.5 J	4.3 J	3.6 J	0.8 U	0.8 U
Barium			UG/L	74.4 J	117 J	122 J	f 9.09	84.5 J
Cadmium	1.86	NYS AWQS CLASS C	ng/L	0,72 J	0.3 U	0.5 J	2.1 U	2.1 U
Calcium			UG/L	88400	46100	45900	71700	53400
Chromium	347.27	NYS AWQS CLASS C	UG/L	3.5	1 U	1 0	2.6 U	2.6 U
Cobalt	5	NYS AWQS CLASS C	UG/L	4.1	1.2 U	1.2 U	4.4 U	4.4 U
Copper	20.29	NYS AWQS CLASS C	UG/L	24.9	15.6	41.1	19.3 J	9.79
Iron	300	NYS AWQS CLASS C	UG/L	3650 J	94.7 J	220 J	281 R	551 R
Lead	7.16	NYS AWQS CLASS C	UG/L	67.4	6.5	37.3	8'29	178
Magnesium			UG/L	10000	2990	4300	0656	8170
Manganese			UG/L	252	2.4	18.4	8.7 J	33.9
Mercury			UG/L	0.1 U	0.1 U	0.1 U	0.1 J	0.19 J
Nickel	154.49	NYS AWQS CLASS C	UG/L	5.5	1.6 U	4.1	4 U	5.2 J
Potassium			UG/L	2500	3150	2090	2560 J	3120 J
Selenium	-	NYS AWQS CLASS C	NG/L	2.4 U	2.4 U	2.7 3	1.1 3	0.7 U
Silver	0.1	NYS AWQS CLASS C	UG/L	1.3 U	13 U	13 U	4.2 U	5.2 J
Sodium			UG/L	5380	1150	3040	9220	8850
Vanadium	14	NYS AWQS CLASS C	NG/L	4.9 J	1.2 U	1.3 J	3.7 J	4.5 J
Zinc	141.38	NYS AWQS CLASS C	NG/L	121	28.8	66.7	34.7	380



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Taute A-8
SENEDA ARMY DEPOT
SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Surface Soil Analytical Results

			LOC_ID:	SS17-1		3817-10	SS17-11		17-12	, see at	SS17-13	SS17	-14	SS17-15		SS17-16	SS17-	17
			SAMP ID:	SS17-1-1	S	\$17-10-1	SS17-11-1		7-12-1	S	S17-13-1	SS17-	14-1	SS17-15-1	(435)	SS17-16-1	SS17-1	7-1
			QC CODE:	SA		SA	SA		SA		SA	SA	-	SA		SA	SA	
			STUDY ID:	ESI		ESI	ESI		ESI		ESI	ES	1	ESI		ESI	ESI	
			TOP:	0		0	0		0		0	0		0		0	0	
			BOTTOM:	0.2	1	0.2	0.2		0.2	,	0.2	0	0.2	0.2		0.2	0.2	5
				SURFACE	S	JRFACE	SURFACE	55)	FACE	S	URFACE	SURF	ACE	SURFACE		SURFACE	SURFA	CE
			MATRIX:	SOIL		SOIL	SOIL		OIL		SOIL	SO	П	SOIL		SOIL	SOII	
			SAMPLE DATE:	10/21/93		11/9/93	11/9/93		21/93		10/20/93	10/2	1/93	10/20/93		10/21/93	10/21/	93
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	VALUE Q	VALUE	0	TUE	0	VALUE (\ NAL	UE Q	VALUE	0	VALUE	VALL	Æ
VOLATILE ORGANICS																		
Acetone	200 N	200 NYSDEC TAGM UG/KG	M UG/KG	12 [1	11 U		n	12 [7	7 J		11 U		J UR	13 U		72 U
Benzene	N 09	60 NYSDEC TAGM UG/KG	M UG/KG	12 U	1	11 0	13 U	n	12 U	7	U 11	-	11 U		II UR			14 U
Methylene Chloride	100 N	100 NYSDEC TAGM UG/KG	M UG/KG	12 [1	11 U		n	12 1	7	4 J		11 U	0.500	I UR	13 U		14 U
Toluene	1500 N	1500 NYSDEC TAGM UG/KG	M UG/KG	12 [1	11 U		Ω	12 1	1	1.3		11 U	5.574	I UR			14 U

2,4-Dinitrotoluene	UG/KG	420 U	61 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	420 U	350 U	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
2-Methylnaphthalene 36	36400 NYSDEC TAGM UG/KG	420 U	350 U	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
3,3'-Dichlorobenzidine	UG/KG	420 U	350 U	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
3-Nitroaniline	500 NYSDEC TAGM UG/KG	1000 U	850 U	1000 U	940 U	N 098	850 UJ	850 UR	1100 U	1100 U
4-Nitroaniline	UG/KG	1000 U	850 U	1000 U	940 U	N 098	850 UJ	850 UR	1100 U	1100 U
Anthracene 50	50000 NYSDEC TAGM UG/KG	23 J	350 U	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	72 J	38 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	58 J	32 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
thene	1100 NYSDEC TAGM UG/KG	70 J	50 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
	50000 NYSDEC TAGM UG/KG	63 J	27 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
	1100 NYSDEC TAGM UG/KG	49 J	38 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
	50000 NYSDEC TAGM UG/KG	420 U	46 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
Carbazole	UG/KG	420 U	350 U	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
Chrysene	400 NYSDEC TAGM UG/KG	75 J	78 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
Iphthalate	8100 NYSDEC TAGM UG/KG	51 J	48 J	f 99	210 J	21 J	350 UJ	350 UR	340 J	480
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	40 J	350 U	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
Fluoranthene 50	50000 NYSDEC TAGM UG/KG	190 J	150 J	420 U	390 U	19 J	350 UJ	350 UR	31 J	23 J
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	62 J	25 J	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
N-Nitrosodiphenylamine (1)	UG/KG	420 U	350 U	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
Naphthalene	13000 NYSDEC TAGM UG/KG	420 U	350 U	420 U	390 U	350 U	350 UJ	350 UR	450 U	430 U
Pentachlorophenol	1000 NYSDEC TAGM UG/KG	1000 U	850 U	1000 U	940 U	N 098	850 UJ	850 UR	1100 U	1100 U
Phenanthrene 5(50000 NYSDEC TAGM UG/KG	120 J	72 J	420 U	390 U	19 J	350 UJ	350 UR	450 U	430 U
Pyrene 50	50000 NYSDEC TAGM UG/KG	170 J	110 J	26 J	390 U	17.1	350 UJ	350 UR	28 J	430 U
bis(2-Chloroisopropyl) ether	UG/KG									
bis(2-Ethylhexyl)phthalate 50	50000 NYSDEC TAGM UG/KG	530	810 U	1300	390 U	460 J	50 J	350 UR	450 U	430 U

Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Surface Soil Analytical Results

									2					21-1100		01-1100	3	
			SAMP ID:	SS17-1-1	S	\$17-10-1	SSI	7-11-1	SSI	7-12-1	SS17-13-	-	SS17-14-1	SS17-15-1	S	1-91-1189	SSI	7-17-1
			QC CODE:	SA		SA		SA	J)	SA	SA		SA	SA		SA		SA
			STUDY ID:	ESI		ESI		ISE	ш	ISI	ESI		ESI	ESI		ESI		ESI
			TOP:	0		0		0		0	0		0	0		0		0
			BOTTOM:	0.2		0.2		0.7	0	1.2	0.2		0.2	0.2		0.2		0.2
				SURFACE	S	JRFACE	SUR	FACE	SUR	FACE	SURFAC	田	SURFACE	SURFACE	S	URFACE	SUF	RFACE
			MATRIX:	SOIL		SOIL	S	OIL	Š	TIC	SOIL		SOIL	SOIL		SOIL	S	SOIL
			SAMPLE DATE:	10/21/93		11/9/93	11	(9/93	10/	21/93	10/20/9.	6	10/21/93	10/20/93		10/21/93	10	/21/93
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	VALUE (AV S	VALUE Q	VA	TUE Q	VALUE	0	VALUE	\ VALUE	0	VALUE (\ \ \	VALUE

PESTICIDES/PCB										
4,4'-DDD	2900 NYSDEC TAGM UG/KG	4.7 J	3.5 U	4.2 U	3.9 U	3.5 UJ	3.5 U	3.5 U	4.5 U	4.3 U
4,4'-DDE	2100 NYSDEC TAGM UG/KG	5.2	37	4.2 U	2.9 J	11.3	2.7 J	3.5 U	4.5 U	4.3 U
4,4'-DDT	2100 NYSDEC TAGM UG/KG	4.1 U	10	4.2 U	3.9 U	4.9 J	3.5 U	3.5 U	4.5 U	4.3 U
Aldrin	41 NYSDEC TAGM UG/KG	2.1 U	1.8 U	2.2 U	2 U	1.8 UJ	1.8 U	1.8 U	2.3 U	2.2 U
Aroclor-1260	10000 NYSDEC TAGM UG/KG	41 U	35 U	42 U	39 U	35 UJ	35 U	35 U	45 U	43 U
Dieldrin	44 NYSDEC TAGM UG/KG	4.1 U	3.5 U	62	3.9 U	3.5 UJ	3.5 U	3.5 U	4.5 U	4.3 U
Endosulfan I	900 NYSDEC TAGM UG/KG	2.1 U	1.8 U	2.2 U	2 U	0.76 J	1.8 U	1.8 U	2.3 U	2.2 U
Endrin	100 NYSDEC TAGM UG/KG	4.1 U	3.5 U	4.2 U	3.9 U	3.5 UJ	3.5 U	3.5 U	4.5 U	4.3 U
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	2.1 U	1.8 U	2.2 U	2 U	1.8 UJ	1.8 U	1.8 U	2.3 U	2.2 U

OTHER ANALYSES										
Nitrate/Nitrite-Nitrogen	MG/KG	0.21	0.1	2.4	90.0	0.81	1.1	0.84	0.21	0.14
Percent Moisture (PEST/PCB)										
Percent Moisture (SVOCs)										
Percent Moisture (VOCs)										
Percent Solids (Metals)										
Total Organic Carbon	MG/KG									

NITROAROMATICS										
4-Dinitrotoluene	UG/KG	130 U	330 J	130 U	130 U	130	130 U	130 U	130 U	130 U



Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Surface Soil Analytical Results

		LOC_ID:	SS17-1	SS17-10	SS17-11	SS17-12	SS17-13	SS17-14	SS17-15	SS17-16	SS17-17
		SAMP ID:	SS17-1-1	SS17-10-1	SS17-11-1	SS17-12-1	SS17-13-1	SS17-14-1	SS17-15-1	SS17-16-1	SS17-17-1
		QC CODE:	SA	SA	SA	SA	SA	SA	SA	SA	SA
		STUDY ID:	ESI	ESI	ESI	ESI	ESI	ESI	ESI	ESI	ESI
		TOP:	0	0	0	0	0	0	0	0	0
		BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
			SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLE DATE:	100	11/9/93	11/9/93	10/21/93	10/20/93	10/21/93	10/20/93	10/21/93	10/21/93
PARAMETER	LEVEL SOURCE	UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q
METALS	1										
Aluminum	14592.8 NYSDEC TAGM MG/KG	M MG/KG	11800	f 0666	14200	13100	10700	4660	12600	17300	14100
Antimony	3.59 NYSDEC TAGM MG/KG	M MG/KG	12.9 UR	52 J	12.4 U	10.8 UR	39.2	11.4 JR	D 8.6	12.4 UR	11.6 UR
Arsenic	7.5 NYSDEC TAGM MG/KG	M MG/KG	9		4.5 J	6.5	6.7	10.6	6.1	6.5	5.7
Barium	300 NYSDEC TAGM MG/KG	M MG/KG	102 R	357 J	189	203 R	343	199 R	122	210 R	132 R
Beryllium	0.73 NYSDEC TAGM MG/KG	M MG/KG	0.5 J	0.48 J	0.73 J	0.59 J	0.5 J	0.34 J	0.54 J	0.82 J	0.74 J
Cadmium	1 NYSDEC TAGM MG/KG	M MG/KG	2.3	21.7 R	1.2 R	4.5	8.3	10.8	0.93 J	2.3	7
Calcium	101904 NYSDEC TAGM MG/KG	M MG/KG	99300	113000 J	4670	88400	104000	209000	37800	4760	3400
Chromium	22.13 NYSDEC TAGM MG/KG	M MG/KG	16.6	21.3 J	19.7	20	23.8	8.6	23.1	23	19.7
Cobalt	30 NYSDEC TAGM MG/KG	M MG/KG	6.1 J	9,9 J	9.3 J	12.3	8 J	5.6 J	12	7.7 J	21.9
Copper	25 NYSDEC TAGM MG/KG	M MG/KG	18	546 J	£ 2.09	202	404	499	94.5	182	47.8
Cyanide	0.3 NYSDEC TAGM MG/KG	M MG/KG	0.74 U	0.51 UJ	0.6 U	0.56 U	0.62 U	0.53 U	0.62 U	0.64 U	0.65 U
Iron	26626.7 NYSDEC TAGM MG/KG	M MG/KG	16400	21600 J	23100	23600	19500	11100	27500	24200	23400
Lead	21.86 NYSDEC TAGM MG/KG	M MG/KG	594	6340 R	329	1210	2940	1310	472	595	373
Magnesium	12221.8 NYSDEC TAGM MG/KG	M MG/KG	7430	9830 J	3640	0099	0688	8330	8880	4170	3520
Manganese	669.38 NYSDEC TAGM MG/KG	M MG/KG	430	392 J	589	565	314 J	221	324 J	613	880
Mercury	0.1 NYSDEC TAGM MG/KG	M MG/KG	0.07 J	0.03 UJ	0.07 J	0.07 J	0.03 J	0.1 J	0.05 J	0.36 J	0.07 J
Nickel	33.62 NYSDEC TAGM MG/KG	M MG/KG	19.8	34.6 J	21.3	33.9	31.9	28.5	43.5	25.2	23.5
Potassium	1761.48 NYSDEC TAGM MG/KG	M MG/KG	1500	1350 J	1210	1260	1610	1370	1810	1810	1070 J
Selenium	2 NYSDEC TAGM MG/KG	M MG/KG	0.26 J	1.6 J	0.64 J	0.23 UJ	0.47 J	0.34 J	0.2 J	0.25 UJ	0.25 UJ
Silver	0.4 NYSDEC TAGM MG/KG	M MG/KG	1.6 UJ	4.6 J	1.6 UJ	1.4 UJ	5.2	3.8 J	1.2 U	1.6 UJ	1.5 UJ
Sodium	103.74 NYSDEC TAGM MG/KG	M MG/KG	147 J	L 791	49.8 J	121 J	249 J	L 671	L 491	56.6 J	71.3 J
Thallium	0.28 NYSDEC TAGM MG/KG	M MG/KG	0.24 U	0.22 UJ	0.22 UJ	0.25 U	0.21 U	1.3 U	0.21 U	0.27 U	0.28 U
Vanadium	150 NYSDEC TAGM MG/KG	M MG/KG	21	15.3 J	25.9	20	17.7	10.2 J	18.3	29.8	25.5
Zinc	82.5 NYSDEC TAGM MG/KG	M MG/KG	200	620 J	110 J	574	315	480	155	150	140

HERBICIDES										
TA	UG/KG	16000	5300 U	6300 U	S900 U	5400 U	5300 U	5300 U	U 0089	32000

Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Surface Soil Analytical Results

		LOC_ID:	ä,	SS17-18	Ś	817-18	SS17-19	SS17	-5	SS17-20	SS17-21		SS17-22	SS17-23	SS17-24
		SAM	SAMP ID:	SS17-18-1	SS	17-24-1	SS17-19-1	SS17-	2-1	SS17-20-1	SS17-21-1		SS17-22-1	SS17-23-1	16072
		00 C	QC CODE:	SA		DO	SA	SA		SA	SA		SA	SA	SA
		STOI	STUDY ID:	ESI		ESI	ESI	ESI	923	ESI	ESI		ESI	ESI	RI ROUNDI
		TOP:	220	0		0	0	0		0	0		0	0	0
		BOT	BOTTOM:	0.2		0.2	0.2	0.2		0.2	0.2		0.2	0.2	0.2
				SURFACE	SU	RFACE	SURFACE	SURFA	CE	SURFACE	SURFACE	(11)	SURFACE	SURFACE	SURFACE
		MAT	MATRIX:	SOIL	16	SOIL	SOIL	SOL	د	SOIL	SOIL		SOIL	SOIL	SOIL
		SAM	SAMPLE DATE:	10/22/93	10	1/22/93	10/21/93	10/21/	93	10/21/93	10/21/93		10/21/93	10/21/93	8/22/96
PARAMETER	LEVEL SOURCE		UNIT	VALUE	0	ALUE Q	VALUE	VALL	正 0	VALUE	VALUE	0	VALUE	VALUE	VALUE O
VOLATILE ORGANICS												1	1		7
Acetone	200 NYSDEC	200 NYSDEC TAGM UG/KG	93	13.1	1	15 J			13 U	12 U		4 U	14 U		
Benzene	60 NYSDEC	60 NYSDEC TAGM UG/KG	93	13 [7	13 UJ	U 91		13 U	12 U		14 U	14 U	14 U	12 11
Methylene Chloride	100 NYSDEC	100 NYSDEC TAGM UG/KG	55	13 U	1	13 UJ			13 U	12 U		4 U	14 U		
Toluene	1500 NYSDEC TAGM UG/KG	TAGM UG/R	93	13 U	1	13 UJ			13 U	12 U		4 U	14 U		

SEMIVOLATILE ORGANICS										
2,4-Dinitrotoluene	UG/KG	24 J	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 U
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 U
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	
3,3'-Dichlorobenzidine	UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 UJ
3-Nitroaniline	500 NYSDEC TAGM UG/KG	1100 U	1000 U	5500 U	1100 U	1000 U	1100 U	1000 U	1000 U	940 UJ
4-Nitroaniline	UG/KG	1100 U	1000 U	5500 U	1100 U	1000 U	1100 U	1000 U	1000 U	940 UJ
Anthracene	50000 NYSDEC TAGM UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	31 J	430 U	2300 U	23 J	420 U	430 U	21 J	430 U	390 U
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	31 J	430 U	2300 U	24 J	420 U	430 U	21 J	430 U	390 U
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	46 J	32 J	2300 U	28 J	420 U	430 U	28 J	430 U	390 U
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	42 J	430 U	2300 U	31 J	420 U	430 U	430 U	430 U	390 U
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	37 J	24 J	2300 U	450 U	420 U	430 U	21 J	430 U	390 U
Butylbenzylphthalate	50000 NYSDEC TAGM UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 U
Carbazole	UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 UJ
Chrysene	400 NYSDEC TAGM UG/KG	55 J	38 J	2300 U	29 J	420 U	430 U	28 J	430 U	23 J
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	200	430 U	1200 J	76 J	510	760	430 U	430 U	390 U
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	88 J	52 J	2300 U	47 J	420 U	430 U	49 J	430 U	27 J
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	40 J	430 U	2300 U	30 J	420 U	430 U	430 U	430 U	390 U
N-Nitrosodiphenylamine (1)	UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 U
Naphthalene	13000 NYSDEC TAGM UG/KG	430 U	430 U	2300 U	450 U	420 U	430 U	430 U	430 U	390 U
Pentachlorophenol	1000 NYSDEC TAGM UG/KG	1100 U	1000 U	5500 U	1100 U	1000 U	1100 U	1000 U	1000 1	940 111
Phenanthrene	50000 NYSDEC TAGM UG/KG	48 J	34 J	2300 U	450 U	420 U	430 U	20 J	430 U	18.1
Pyrene	50000 NYSDEC TAGM UG/KG	73 J	38 J	2300 U	47 J	420 U	430 U	40 J	430 U	36 J
bis(2-Chloroisopropyl) ether	UG/KG									390 11
bis(2-Ethylhexyl)phthalate	50000 NYSDEC TAGM UG/KG	1200	1300	2300 U	330 J	420 U	700 1	430 11	430 11	300 11

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SENEDA ARMY DEPOT
SEAD-16 AND 17 FEASIBILITY STUDY

		LOC_ID:	SS17-18	SS17-18	SS17-19	SS17-2	SS17-20	SS17-21	SS17-22	SS17-23	SS17-24
		SAMP ID:	SS17-18-1	SS17-24-1	SS17-19-1	SS17-2-1	SS17-20-1	SS17-21-1	SS17-22-1	SS17-23-1	16072
		QC CODE:	SA	DO	SA	SA	SA	SA	SA	SA	SA
		STUDY ID:	ESI	ESI	ESI	ESI	ESI	ESI	ESI	ESI	RI ROUNDI
		TOP:	0	0	0	0	0	0	0	0	0
		BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
			SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLE DATE:		10/22/93	10/21/93	10/21/93	10/21/93	10/21/93	10/21/93	10/21/93	8/22/96
PARAMETER	LEVEL SOURCE	E UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE	VALUE Q
PESTICIDES/PCB											
4,4'-DDD	2900 NYSDEC TAGM UG/KG	AGM UG/KG	4.3 U								
4,4'-DDE	2100 NYSDEC TAGM UG/KG	AGM UG/KG	17								
4,4'-DDT	2100 NYSDEC TAGM UG/KG	AGM UG/KG	7								
Aldrin	41 NYSDEC TAGM UG/KG	AGM UG/KG	2.2 U								
Aroclor-1260	10000 NYSDEC TAGM UG/KG	AGM UG/KG	43 U	43 U	45 U	44 U	21 J	28 J	43 U	43 U	39 U
Dieldrin	44 NYSDEC TAGM UG/KG	AGM UG/KG	4.3 U								
Endosulfan I	900 NYSDEC TAGM UG/KG	AGM UG/KG	2.2 U								
Endrin	100 NYSDEC TAGM UG/KG	AGM UG/KG	4.3 U								
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	AGM UG/KG	1.1 J								

Nitrate/Nitrite-Nitrogen	MG/KG	0.13	80.0	0.2	0.67	0.22	0.24	0.09	0.07	0.15
Percent Moisture (PEST/PCB)										16
Percent Moisture (SVOCs)										16
Percent Moisture (VOCs)										18
Percent Solids (Metals)										84.1
Total Organic Carbon	MG/KG									
NITROAROMATICS	=									
2,4-Dinitrotoluene	UG/KG	130 UR	72 J	130 U	120 U					

OTHER ANALYSES

Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

		LOC_ID:	SS17-18	SS17-18	SS17-19	SS17-2	SS17-20	SS17-21	SS17-22	SS17-23	SS17-24
		SAMP ID:	SS17-18-1	SS17-24-1	SS17-19-1	SS17-2-1	SS17-20-1	SS17-21-1	SS17-22-1	SS17-23-1	16072
		QC CODE:	SA	DO	SA	SA	SA	SA	SA	SA	SA
		STUDY ID:	ESI	ESI	ESI	ESI	ESI	ESI	ESI	ESI	RI ROUNDI
		TOP:	0	0	0	0	0	0	0	0	0
		BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
			SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLE DATE:	10/22/93	10/22/93	10/21/93	10/21/93	10/21/93	10/21/93	10/21/93	10/21/93	8/22/96
PARAMETER	LEVEL SOURCE	UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q
METALS											
Aluminum	14592.8 NYSDEC TAGM MG/KG	M MG/KG	14400	18400	15500	14900	13900	14400	18100	15700	14400 J
Antimony	3.59 NYSDEC TAGM MG/KG	M MG/KG	15.3 R	17.4 J	9 UR	12.9 UR	8.7 UR	11 UR	_	I3.1 UJ	3.3 J
Arsenic	7.5 NYSDEC TAGM MG/KG	M MG/KG	8.4	9.1	6.3	5.4	6.5	8.9	5.9	5.3	5.4
Barium	300 NYSDEC TAGM MG/KG	M MG/KG	452 R	447	149 R	122 R	96.2 R	96.5 R	127	92.6	140
Beryllium	0.73 NYSDEC TAGM MG/KG	M MG/KG	0.71	L 78.0	0.83 J	0.58 J	0.71 J	0.74 J	0.8 J	0.72 J	95.0
Cadmium	1 NYSDEC TAGM MG/KG	M MG/KG	14.3	143	2.9	1.6	0.54 U	O 69'0	1.5	0.82 U	2.8
Calcium	101904 NYSDEC TAGM MG/KG	M MG/KG	39800	27600	4210	2830	6230	3910	0069	2510	2300
Chromium	22.13 NYSDEC TAGM MG/KG	M MG/KG	23.9	27.2	22.9	19	21.4	23.2	23.8	20.3	20.1
Cobalt	30 NYSDEC TAGM MG/KG	M MG/KG	11.9	12.5	10.2	6.4 J	11.1	12.4	9.9 J	9.4 J	Π
Copper	25 NYSDEC TAGM MG/KG	M MG/KG	409	378 J	81.7	54.4	26.9	25.9	52 J	22.6 J	65
Cyanide	0.3 NYSDEC TAGM MG/KG	M MG/KG	0.63 U	0.11 U	U 99.0	U 62.0	0.61 U	0.65 U	0.11 U	0.1 U	0.46 U
Iron	26626.7 NYSDEC TAGM MG/KG	M MG/KG	25300	28000	25500	20800	28700	28800	24700	22700	25300
Lead	21.86 NYSDEC TAGM MG/KG	M MG/KG	2780	2310	402	37.1	69.2	44.9	226	Ш	496
Magnesium	12221.8 NYSDEC TAGM MG/KG	M MG/KG	7590	0169	4260	3110	4770	4930	4880	3720	3340
Manganese	669.38 NYSDEC TAGM MG/KG	M MG/KG	525	119	741	319	602	857	662	865	652 J
Mercury	0.1 NYSDEC TAGM MG/KG	M MG/KG	0.09 J	0.07	0.07 J	1.1	0.08 J	0.06 J	0.06 J	0.04 J	90.0
Nickel	33.62 NYSDEC TAGM MG/KG	M MG/KG	39.5	40.4	30.2	18.3	31	35.6	27	22.6	21.2
Potassium	1761.48 NYSDEC TAGM MG/KG	M MG/KG	1570	2260	1610	1080	1270	1410	1960	1430	1230
Selenium	2 NYSDEC TAGM MG/KG	M MG/KG	0.19 J	0.45 J	0.23 UJ	0.27 UJ	0.18 UJ	0.2 UJ	I 0.24 UJ	J 0.26 UJ	1 J
Silver	0.4 NYSDEC TAGM MG/KG	M MG/KG	4.7 J	3.2	1.1 UJ	1.3 UJ	1.1 UJ	1.4 UJ	J 1.6 U	U 7.1	0.58
Sodium	103.74 NYSDEC TAGM MG/KG	M MG/KG	109 J	129 J	59.5 J	33.7 J	40.4 J	36.3 J	87 J	46 J	61.2 U
Thallium	0.28 NYSDEC TAGM MG/KG	M MG/KG	0.19 U	0.27 U	0.25 U	0.3 U	0.2 U	0.22 U	0.26 U	0.29 U	1.5
Vanadium	150 NYSDEC TAGM MG/KG	M MG/KG	23.6	30	26.3	26.6	24	24.1	30.1	26.4	26.7
Zinc	82 5 NVSDEC TAGM MG/KG	DAY MACAN	1630	1430	151	136	716	0.2.0	100	75.5	1 111

HENDICIDES									
	UG/KG	U 0099	U 0099	U 0069	U 0076	0059 n	O 0099	6500 U	N 0099



Tauré A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Surface Soil Analytical Results

			LOC_ID:	SS17-25	S	S17-26	SS17-27		SS17-28	SS	17-29	01	S17-3	SS17-30		SS17-31	
			SAMP ID:	16073		69091	16063		16064	-	5909	S	317-3-1	16070		16071	
			QC CODE:	SA		SA	SA		SA		SA		SA	SA		SA	
			STUDY ID:	RI ROUNDI	RIF	ROUNDI	RI ROUNDI	-	U ROUNDI	RIR	OUNDI		ESI	RI ROUNDI	щ	I ROUNDI	
			TOP:	0		0	0		0		0		0	0		0	
			BOTTOM:	0.2		0.2	0.2		0.2		0.2		0.2	0.2		0.2	
				SURFACE	SU	RFACE	SURFACE		SURFACE	SUF	FACE	SU	RFACE	SURFACE		SURFACE	
			MATRIX:	SOIL		SOIL	SOIL		SOIL	S	OIL		SOIL	SOIL		SOIL	
			SAMPLE DATE:	8/22/96	8	8/22/96	8/21/96		8/21/96	8	51/96	2	10/21/93	8/22/96		8/22/96	
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	ALUE Q	VALUE	0	VALUE	^ <	VLUE (2	ALUE Q	VALUE	0	VALUE	0
VOLATILE ORGANICS																	
Acetone	200 N	200 NYSDEC TAGM UG/KG	1 UG/KG	13.1	D	12 U		D	12 L		10 U		13 U		n	8	ſ
Benzene	N 09	60 NYSDEC TAGM UG/KG	I UG/KG	13 1	13 U	12 U		12 UJ	12 U		2 J		13 U		12 U	12 U	n
Methylene Chloride	100 N	100 NYSDEC TAGM UG/KG	I UG/KG	13 1	n	12 U		Б	12 C		10 U	n	13 U		n	12	n
Toluene	1500 N	1500 NYSDEC TAGM UG/KG	I UG/KG	13.1	D	12 U		n	12 L		8 J		13 U		n	12	m

SEMIVOLATILE ORGANICS									
2,4-Dinitrotoluene	UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	380 U	
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	380 U	380 U
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	130 J	430 U	380 U	380 U
3,3'-Dichlorobenzidine	UG/KG	410 J	390 U	400 U	390 U	340 U	430 U	380 UJ	380 UJ
3-Nitroaniline	500 NYSDEC TAGM UG/KG	f 066	U 096	N 096	950 U	830 U	1000 U	920 UJ	930 UJ
4-Nitroaniline	UG/KG	f 066	N 096	Ω 096	950 U	830 U	1000 U	920 UJ	930 UJ
Anthracene	50000 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	380 U	380 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	19 J	380 U
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	410 U	25 J	400 U	390 U	340 U	430 U	18 J	380 U
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	49 J	20 J
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	410 U	82 J	400 U	390 U	340 U	430 U	380 U	380 U
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	380 U	18 J
Butylbenzylphthalate	50000 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	380 U	380 U
Carbazole	UG/KG	410 J	390 UJ	400 U	390 U	340 U	430 U	380 UJ	380 UJ
Chrysene	400 NYSDEC TAGM UG/KG	19 J	21 J	400 U	390 U	340 U	430 U	22 J	21 J
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	45 J	380 U	380 U
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	410 U	390 U	59 J	55 J	340 U	430 U	380 U	380 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	23 J	28 J	400 U	390 U	340 U	430 U	28 J	26 J
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	380 U	380 U
N-Nitrosodiphenylamine (1)	UG/KG	410 U	390 U	400 U	390 U	340 U	430 U	380 U	380 U
Naphthalene	13000 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	37 J	430 U	380 U	380 U
Pentachlorophenol	1000 NYSDEC TAGM UG/KG	990 J	1700 UJ	D 096	950 U	830 U	1000 U	43 J	930 UJ
Phenanthrene	50000 NYSDEC TAGM UG/KG	410 U	20 J	400 U	390 U	340 U	430 U	380 U	380 U
Pyrene	50000 NYSDEC TAGM UG/KG	29 J	50 J	400 U	390 U	340 U	430 U	34 J	32 J
bis(2-Chloroisopropyl) ether	UG/KG	410 J	390 U	400 U	390 U	340 U		380 U	380 U
bis(2-Ethylhexyl)phthalate	50000 NYSDEC TAGM UG/KG	410 U	390 U	400 U	390 U	340 U	290 J	380 U	380 11

Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

		LOC ID:	SS17-25	SS17-26	SS17-27	SS17-28	SS17-29	SS17-3	SS17-30	SS17-31	
		SAMP ID:	16073	16069	16063	16064	16065	SS17-3-1	16070	16071	
		QC CODE:	SA	SA	SA	SA	SA	SA	SA	SA	
		STUDY ID:	RI ROUNDI	ESI	RI ROUNDI	RI ROUNDI					
		TOP:	0	0	0	0	0	0	0	0	
		BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
			SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		SAMPLE DATE:	8/22/96	8/22/96	8/21/96	8/21/96	8/21/96	10/21/93	8/22/96	8/22/96	
PARAMETER	LEVEL SOURCE	TINO	VALUE	VALUE	VALUE Q	VALUE Q	VALUE	VALUE	VALUE (VALUE	0
PESTICIDES/PCB											Г
4,4'-DDD	2900 NYSDEC TAGM UG/KG	3M UG/KG	4.1 U								n
4,4'-DDE	2100 NYSDEC TAGM UG/KG	3M UG/KG	4.1 U								n
4,4'-DDT	2100 NYSDEC TAGM UG/KG	3M UG/KG	4.1 U								D
Aldrin	41 NYSDEC TAGM UG/KG	3M UG/KG	2.1 U	2 U	2 U			2.2 U	1 2 U	. 2 U	n
Aroclor-1260	10000 NYSDEC TAGM UG/KG	3M UG/KG	41 U								n
Dieldrin	44 NYSDEC TAGM UG/KG	3M UG/KG	12 J								n
Endosulfan I	900 NYSDEC TAGM UG/KG	3M UG/KG	2.1 U								n
Endrin	100 NYSDEC TAGM UG/KG	3M UG/KG	4.1 U								n
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	3M UG/KG	2.1 U			2 U	1.8 U				n
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen		MG/KG	0.07	0.1	90.0	0.12	0.53	0.13	0.07	0.11	
Percent Moisture (PEST/PCB)			19	17	17	16	4		14	15	_
Percent Moisture (SVOCs)			19	17	17	16	4		14	15	_
Percent Moisture (VOCs)			25	17	17	16	3		15	17	
Percent Solids (Metals)			80.9	83.4	82.9	84	96.1		85.7	84.7	
Total Organic Carbon		MG/KG		40900							

Percent Moisture (PEST/PCB)		19	17	17	16	4		14	15
Percent Moisture (SVOCs)		19	17	17	91	4		14	15
Percent Moisture (VOCs)		25	17	17	16	3		15	17
Percent Solids (Metals)		80.9	83.4	82.9	84	96.1		85.7	84.7
Total Organic Carbon	MG/KG		40900						263
NITROAROMATICS									
2,4-Dinitrotoluene	UG/KG	120 U	130 U	120 U	120 U				



Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

		LOC ID:	SS17-25	SS17-26	SS17-27	SS17-28	SS17-29	SS17-3	SS17-30	15-/155
		SAMP ID:	16073	16069	16063	16064	16065	SS17-3-1	16070	16071
		OC CODE:	SA	SA	SA	SA	SA	SA	SA	SA
		STUDY ID:	RI ROUNDI	ESI	RI ROUNDI	RI ROUND				
		TOP:	0	0	0	0	0	0	0	0
		BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
			SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLE DATE:	8/22/96	8/22/96	8/21/96	8/21/96	8/21/96	10/21/93	8/22/96	8/22/96
PARAMETER	LEVEL SOURCE	UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE	VALUE	Q VALUE	Q VALUE	Q VALUE
METALS										
Aluminum	14592.8 NYSDEC TAGM MG/KG	M MG/KG	16700 J	f 00091	14900 J	14100 J	12100 J	15200	14400 J	13200 J
Antimony	3.59 NYSDEC TAGM MG/KG	M MG/KG	3.9 J	5 3	12.7 J	2.7 J	2 J	13.6 UR	JR 1.4 J	3.4 J
Arsenic	7.5 NYSDEC TAGM MG/KG	M MG/KG	6.2	6.5	6.1	5	4	5	4	4.1
Barium	300 NYSDEC TAGM MG/KG	M MG/KG	192 J	164 J	387 J	141 J	153 J	102 R	1 7.79	123 J
Beryllium	0.73 NYSDEC TAGM MG/KG	M MG/KG	0.64	0.51	19.0	0.58	0.52	0.42 J	0.48	0.43
Cadmium	1 NYSDEC TAGM MG/KG	M MG/KG	3,5	3.6	15	9.6	0.93	2.2	0.53	1.6
Calcium	101904 NYSDEC TAGM MG/KG	M MG/KG	3940	2500	34900	7310	42500	2180	2180	2260
Chromium	22.13 NYSDEC TAGM MG/KG	M MG/KG	22.3	22.2	22.9	21.7	23.3	16.8	18.1	16.7
Cobalt	30 NYSDEC TAGM MG/KG	M MG/KG	11.3	11.5	11.6	10.2	13.5	5.7 J	8.4	7.4
Copper	25 NYSDEC TAGM MG/KG	M MG/KG	58.2	9.08	480	141	71.2		36.7	
Cyanide	0.3 NYSDEC TAGM MG/KG	M MG/KG	0.61 U	0.57 U	0.58 U	0.56 U				
Iron	26626.7 NYSDEC TAGM MG/KG	M MG/KG	25500	26800	23300 J	24200 J	**	19300	21100	18100
Lead	21.86 NYSDEC TAGM MG/KG	M MG/KG	448	269	2740	524	254	375	172	450
Magnesium	12221.8 NYSDEC TAGM MG/KG	M MG/KG	3500	3260	6210	4380	6390	2540	2950	2850
Manganese	669.38 NYSDEC TAGM MG/KG	M MG/KG	f 966	1 050 J	573	579	404	277	430 J	304 J
Mercury	0.1 NYSDEC TAGM MG/KG	M MG/KG	0.07	0.11	0.12	90.0	90.0	0.07	0.09	90.0
Nickel	33.62 NYSDEC TAGM MG/KG	M MG/KG	23.4	22.3	30.6	32.6	47.8	14.1		9.91
Potassium	1761.48 NYSDEC TAGM MG/KG	M MG/KG	1540	1390	1520	1370	1660	1060 J	975	983
Selenium	2 NYSDEC TAGM MG/KG	M MG/KG	1.2 J	1.7 J	1.1	0.79	0.65 U	0.37 J	0.99 J	0.98 J
Silver	0.4 NYSDEC TAGM MG/KG	M MG/KG	0.29 U	0.55	2.9	17	0.24 U	1.7 UJ		J 0.29 U
Sodium	103.74 NYSDEC TAGM MG/KG	M MG/KG	0 LO9	N 09	198	119	131	33.5 J	62.5 U	J 60.2 U
Thallium	0.28 NYSDEC TAGM MG/KG	M MG/KG	1.1	1.5	L 86.0	L 6.0	0.8 J	0.26 U	U 86.0	J 0.94 U
Vanadium	150 NYSDEC TAGM MG/KG	M MG/KG	29.3	29.7	23.4	21.2	16.7	29.2	26	23.2
Zino	82 5 NVSDEC TAGM MG/KG	M MG/KG	184 I	1111	100	07/	70 5	100	0.1 T	120 1

MCPA	0 6500 U

Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Surface Soil Analytical Results

			LOC_ID:	SS17-34	SSI	7-35	SS17-36		3817-37	SS17-	38	SS17-39		SS17-4	SS17-5
			SAMP ID:	16079	160	178	16077		16080	1607	9	16075		SS17-4-1	SS17-5-1
			QC CODE:	SA	S	SA	SA		SA	SA		SA		SA	SA
			STUDY ID:	RI ROUNDI	RIRO	UNDI	RI ROUNDI	R	ROUNDI	RIROU	IQN	RI ROUND	_	ESI	ESI
			TOP:	0	3		0		0	0		0		0	0
			BOTTOM:	0.2	0	2	0.2		0.2	0.2		0.2		0.2	0.2
				SURFACE	SURI	ACE	SURFACE	S	JRFACE	SURFA	CE	SURFACE	4.0	SURFACE	SURFACE
			MATRIX:	SOIL	SC	工	SOIL		SOIL	SOIL		SOIL		SOIL	SOIL
			SAMPLE DATE:	8/22/96	8/22	96/	8/22/96		8/22/96	8/22/9	90	8/22/96		10/21/93	10/21/93
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	2 VAI	UE O	VALUE	0	VALUE	VALL	JE O	VALUE	0	VALUE O	VALUE
VOLATILE ORGANICS															
Acetone	200 N	200 NYSDEC TAGM UG/KG	M UG/KG	11 0		12 U		n	11 U		12 U	1	3 U	12 U	14 C
Benzene	N 09	60 NYSDEC TAGM UG/KG	M UG/KG	11 U		12 U		12 U	11 UJ	1	12 U		3 U	12 U	
Methylene Chloride	100 N	100 NYSDEC TAGM UG/KG	M UG/KG	11 0		12 U		n	11 0		12 U		13 U	12 U	14 U
Toluene	1500 N	1500 NYSDEC TAGM UG/KG	M UG/KG	11 C		12 UJ		Ω	11 0	,	12 11		13.11	17 11	

SEMIVOLATILE ORGANICS									
2,4-Dinitrotoluene	UG/KG	360 U	410 U	390 U	85 J	400 U	410 U	1400	430 U
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	360 U	410 U	390 U	350 U	400 U	410 U	70 J	430 U
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	360 U	410 U	390 U	350 U	400 U	410 U	410 U	430 U
3,3'-Dichlorobenzidine	UG/KG	360 UJ	410 UJ	390 UJ	350 UJ	400 UJ	410 UJ	410 U	430 U
3-Nitroaniline	500 NYSDEC TAGM UG/KG	880 UJ	tU 066	940 UJ	860 UJ	U 076	1000 UJ	U 099	1000 U
4-Nitroaniline	UG/KG	880 UJ	U 066	940 UJ	860 UJ	U 076	1000 UJ	U 099	1000 U
Anthracene	50000 NYSDEC TAGM UG/KG	360 U	410 U	390 U	350 U	400 U	410 U	410 U	430 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	360 U	410 U	390 U	37 J	400 U	410 U	22 J	430 U
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	360 U	25 J	390 U	34 J	400 U	19 J	410 U	430 U
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	360 U	410 U	390 U	65 J	400 U	410 U	28 J	430 U
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	360 U	410 U	390 U	44 J	400 U	410 U	28 J	22 J
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	360 U	410 U	390 U	35 J	400 U	410 U	410 U	430 U
Butylbenzylphthalate	50000 NYSDEC TAGM UG/KG	360 U	410 U	390 U	350 U	400 U	410 U	410 U	430 U
Carbazole	UG/KG	360 UJ	410 UJ	390 UJ	350 UJ	400 UJ	410 UJ	410 U	430 U
Chrysene	400 NYSDEC TAGM UG/KG	1 6 I	20 J	390 U	63 J	18 J	21 J	32 J	430 U
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	360 U	410 U	390 U	550	400 U	410 U	I 68	87 J
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	360 U	410 U	390 U	350 U	400 U	410 U	410 U	430 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	26 J	24 J	390 U	74 J	25 J	30 J	54 J	33 J
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	360 U	410 U	390 U	33 J	400 U	410 U	410 U	430 U
N-Nitrosodiphenylamine (1)	UG/KG	360 U	410 U	390 U	71 J	400 U	410 U	27 J	430 U
Naphthalene	13000 NYSDEC TAGM UG/KG	360 U	410 U	390 U	350 U	400 U	410 U	410 U	430 U
Pentachlorophenol	1000 NYSDEC TAGM UG/KG	880 UJ	U 066	940 UJ	860 UJ	970 UJ	1000 UJ	U 099	1000 U
Phenanthrene	50000 NYSDEC TAGM UG/KG	360 U	410 U	390 U	56 J	19 J	20 J	33 J	430 U
Pyrene	50000 NYSDEC TAGM UG/KG	29 J	30 J	390 U	82 J	31 J	36 J	44 J	33 J
bis(2-Chloroisopropyl) ether	UG/KG	360 U	410 U	390 U	350 U	400 U	410 U		
bis(2-Ethylhexyl)phthalate	50000 NYSDEC TAGM UG/KG	360 U	410 U	390 U	350 U	400 U	410 11	300 1	600

h:\eng\seneca\s1617fs\section2\17TABA.XLS

Page 1

130 U

130 U

120 U

120 U

120 U

120 U

120 U

120 U

UG/KG

NITROAROMATICS

2,4-Dinitrotoluene

Table A-8
SENEDA ARMY DEPOT
SEAD-16 AND 17 FEASIBILITY STUDY

SAMPID SSI7-34 SSI7-34 SSI7-35 SSI7-37 SSI7-											
STATE STAT			LOC_ID:	SS17-34	SS17-35	SS17-36	SS17-37	SS17-38	SS17-39	SS17-4	SS17-5
Color Colo			SAMP ID:	16079	16078	16077	16080	16076	16075	SS17-4-1	SS17-5-1
STUDY ID: RI ROUNDI RI ROU			QC CODE:	SA	SA	SA	SA	SA	SA	SA	SA
Table Part			STUDY ID:	RI ROUNDI	ESI	ESI					
MATRIX: SOLL			TOP:	0	0	0	0	0	0	0	0
National Part			BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
MATRIX SOIL				SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
SAMPLE DATE: 812296 81296 8			MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METER LEVEL SOURCE UNIT VALUE Q VALUE Q <th< td=""><td></td><td></td><td>SAMPLE DATE:</td><td>8/22/96</td><td>8/22/96</td><td>8/22/96</td><td>8/22/96</td><td>8/22/96</td><td>8/22/96</td><td>10/21/93</td><td>10/21/93</td></th<>			SAMPLE DATE:	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	10/21/93	10/21/93
FESTICIDES/PCB 2900 NYSDEC TAGM UG/KG 3.7 U 4.1 U 3.8 U 2.6 J 4 U 4.2 U 4.1 U DD 2100 NYSDEC TAGM UG/KG 3.7 U 4.1 U 3.8 U 2.7 T 4 U 4.2 U 4.1 U 2.2 T DT 2100 NYSDEC TAGM UG/KG 3.7 U 4.1 U 3.8 U 1.8 U 2.1 U 4.2 U 4.1 U 2.1 U 4.1 U 4.2	PARAMETER	SOURCE	UNIT	VALUE					VALUE	VALUE	VALUE Q
DD 2900 NYSDEC TAGM UGKG 3.7 U 4.1 U 3.8 U 2.6 J 4 U 4.2 U 4.1 U 2.2 D DE 2100 NYSDEC TAGM UGKG 3.7 U 4.1 U 3.8 U 14 J 4.2 U 4.2 U 2.2 D DT 2100 NYSDEC TAGM UGKG 1.9 U 2.1 U 2.0 U 1.8 U 2.1 U	PESTICIDES/PCB										
DE 2100 NYSDEC TAGM UG/KG 3.7 U 4.1 U 5 2.7 4 U 4.2 U 2.6 J 2.0 NYSDEC TAGM UG/KG 3.7 U 4.1 U 3.8 U 14 J 4 U 4.2 U 2.6 J 2.0 U 2.1 U 2	4,4'-DDD	2900 NYSDEC TAG	M UG/KG	3.7 U	4.1 U		2.6 J	4 U		4.1 U	4.3 U
DT DT DT DT DT DT DT DT	4,4'-DDE	2100 NYSDEC TAG	M UG/KG	3.7 U	4.1 U		27	4 U		22	4.3 U
Handle H	4,4'-DDT	2100 NYSDEC TAG	M UG/KG	3.7 U	4.1 U		14 J	4 U		2.6 J	4.3 U
100 NYSDEC TAGM UG/KG 37 U 41 U 38 U 28 J 40 U 42 U 41 U 41 U 12 J 3.8 U 22 4 U 4.2 U 4.1 U 4.1 U 4.1 U 2.1 U 4.1 U 2.1 U 4.1 U 2.1 U 2.1 U 2.1 U 2.1 U 4.1 U 2.1 U 4.1 U 2.1 U 4.1 U 2.1 U 2.1 U 2.1 U 2.1 U 4.1 U 2.1 U 4.1 U 2.1 U 2.1 U 4.1 U 2.1 U 2.	Aldrin	41 NYSDEC TAG	M UG/KG	U 6.1	2.1 U		1.8 U	2.1 U		2.1 U	2.2 U
44 NYSDEC TAGM UG/KG 3.7 U 12 J 3.8 U 22 4 U 4.2 U 4.1 U 900 NYSDEC TAGM UG/KG 1.9 U 2.1 U 2 U 2.4 J 2.1 U 2.1	Aroclor-1260	10000 NYSDEC TAG	M UG/KG	37 U	41 U		28 J	40 U		41 U	43 U
900 NYSDEC TAGM UG/KG 1.9 U 2.1 U 2.0 U 2.4 J 2.1 U 4.1 U 4.1 U 3.8 U 1.8 J 4 U 4.2 U 4.1 U <td>Dieldrin</td> <td>44 NYSDEC TAG</td> <td>IM UG/KG</td> <td>3.7 U</td> <td>12 J</td> <td></td> <td>22</td> <td>4 U</td> <td></td> <td>4.1 U</td> <td>4.3 U</td>	Dieldrin	44 NYSDEC TAG	IM UG/KG	3.7 U	12 J		22	4 U		4.1 U	4.3 U
LYSES NYSDEC TAGM UG/KG 1.9 U 2.1	Endosulfan I	900 NYSDEC TAG	M UG/KG	U 6.1	2.1 U		2.4 J	2.1 U		2.1 U	2.2 U
LYSES LYSES MG/KG 0.08 0.22 0.26 0.44 0.28 0.34 0.51 EST/PCB) 10 20 14 7 18 21 21 210 2.1 U 2.	Endrin	100 NYSDEC TAG	IM UG/KG	3.7 U	4.1 U		1.8 J	4 U		4.1 U	4.3 U
S MG/KG 0.08 0.22 0.26 0.44 0.28 0.34 0.51 CB) 10 20 14 7 18 21 10 20 15 7 18 21 11 20 15 9 19 24 89.7 80.3 85.5 92.9 81.9 79.2	Heptachlor epoxide	20 NYSDEC TAG	M UG/KG	1.9 U	2.1 U		1.8 U	2.1 U		2.1 U	2.2 U
MG/KG 0.08 0.22 0.26 0.44 0.28 0.34 0.51 CB) 10 20 14 7 18 21 10 20 15 7 18 21 13 20 15 9 19 24 89.7 80.3 85.5 92.9 81.9 79.2 MG/KG	ORDINA MAINTO										
CB) MG/KG 0.08 0.22 0.26 0.44 0.28 0.34 0.51 10 20 14 7 18 21 21 10 20 15 7 18 21 13 20 15 9 19 24 89.7 80.3 85.5 92.9 81.9 79.2 MG/KG	OTHER ANALISES			100000		0.000					
CB) 10 20 14 7 18 10 20 15 7 18 13 20 15 9 19 89.7 80.3 85.5 92.9 81.9	Nitrate/Nitrite-Nitrogen		MG/KG	80.0	0.22	0.26	0.44	0.28	0.34	0.51	0.17
10 20 15 7 18 13 20 15 9 19 89.7 80.3 85.5 92.9 81.9	Percent Moisture (PEST/PCB)			10	20	14	7	18	21		
Cs) 13 20 15 9 19 19 89.7 80.3 85.5 92.9 81.9 MG/KG	Percent Moisture (SVOCs)			10	20	15	7	18	21		
32700 89.7 80.3 85.5 92.9 81.9 MG/KG	Percent Moisture (VOCs)			13	20	15	6	19	24		
D3/DW	Percent Solids (Metals)			89.7	80.3	85.5	92.9	81.9	79.2		
	Total Organic Carbon		MG/KG				32700				

Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

		LOC_ID:	SS17-34	SS17-35	SS17-36	S	SS17-37	SS17-38	SSI	SS17-39	SS17-4	SS17-5
		SAMP ID:	16079	16078	16077		16080	16076	16	16075	SS17-4-1	SS17-5-1
		QC CODE:	SA	SA	SA		SA	SA	S	SA	SA	SA
		STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RIF	RI ROUNDI	RI ROUNDI	RIRC	RI ROUNDI	ESI	ESI
		TOP:	0	0	0		0	0		0	0	0
		BOTTOM:	0.2	0.2	0.2		0.2	0.2	0	0.2	0.2	0.2
			SURFACE	SURFACE	SURFACE	SO	SURFACE	SURFACE	SUR	SURFACE	SURFACE	SURFACE
		MATRIX:		SOIL	SOIL		SOIL	SOIL	S	SOIL	SOIL	SOIL
		SAMPLE DATE:		8/22/96			8/22/96	8/22/96	8/2	8/22/96	10/21/93	10/21/93
PARAMETER	LEVEL SOURCE	UNIT	VALUE	Q VALUE	Q VALUE	0	VALUE Q	VALUE Q		VALUE Q	VALUE Q	\ VALUE
METALS												
Aluminum	14592.8 NYSDEC TAGM MG/KG	3M MG/KG	6720 J	11700	14900 J	1	10200 J	11700 J		14400 J	10800	17300
Antimony	3.59 NYSDEC TAGM MG/KG	3M MG/KG	1.5 J	2.6	1 4 1	f	40.1 J	1.4 J		1.6 J	12.5 UR	
Arsenic	7.5 NYSDEC TAGM MG/KG	MG/KG	4.2	4.2	5.5		7.7	4.2		4.4	9.9	7.4
Barium	300 NYSDEC TAGM MG/KG	3M MG/KG	90.4 J	156 J	J 237 J	ı	524 J	103 J		156 J	192 R	
Beryllium	0.73 NYSDEC TAGM MG/KG	3M MG/KG	0.25	0.45	0.62		0.36	0.48		0.83	0.52 J	0.81 J
Cadmium	1 NYSDEC TAGM MG/KG	3M MG/KG	2.1	3.3	3.4		25.5	0.59		0.5	67	3.7
Calcium	101904 NYSDEC TAGM MG/KG	3M MG/KG	166000	18900	5880		117000	2780		5280	117000	2740
Chromium	22.13 NYSDEC TAGM MG/KG	3M MG/KG	6.7	16.7	21.3		19.7	16.5		20.1	18.3	23.6
Cobalt	30 NYSDEC TAGM MG/KG	3M MG/KG	7.5	7.6	10.7		6.7	7.9		7.4	10.4 J	9.6
Copper	25 NYSDEC TAGM MG/KG	3M MG/KG	39.3	62.4	142		837	7.62		46.2	249	73
Cyanide	0.3 NYSDEC TAGM MG/KG	3M MG/KG	1.5	0.78 J	J 0.48 U	n	0.52 U	0.56 U		0.57 U	U 89.0	0.78 U
Iron	26626.7 NYSDEC TAGM MG/KG	3M MG/KG	11800	18400	24700		18700	19200		22500	19400	25000
Lead	21.86 NYSDEC TAGM MG/KG	3M MG/KG	265	534	815		6270	163		183	1680	577
Magnesium	12221.8 NYSDEC TAGM MG/KG	3M MG/KG	0998	3380	4020		7880	3060		3820	0069	3670
Manganese	669.38 NYSDEC TAGM MG/KG	3M MG/KG	531 J	517 J	J 608 J	1	371 J	475 J		256 J	431	737
Mercury	0.1 NYSDEC TAGM MG/KG	3M MG/KG	0.05	0.07	0.09		0.05	0.07		60.0	0.07 J	L 6.0
Nickel	33.62 NYSDEC TAGM MG/KG	3M MG/KG	16.2	19.2	26.3		35.9	17.6		23.5	28	24.9
Potassium	1761.48 NYSDEC TAGM MG/KG	3M MG/KG	1090	1390	1610		1750	1060		1410	1380	1520
Selenium	2 NYSDEC TAGM MG/KG	3M MG/KG	0.64 J	1	J 0.68 J	1	0.98 J	0.82 J		1.2 J	0.36 J	0.23 UJ
Silver	0.4 NYSDEC TAGM MG/KG	3M MG/KG	0.49	0.71	T		6	0.31 U		0.45	1.6 UJ	J 1.3 UJ
Sodium	103.74 NYSDEC TAGM MG/KG	3M MG/KG	53.8 U	J 64.1 U	U 58.5 U	n	248	64.7 U		64.4 U	144 J	53.1 J
Thallium	0.28 NYSDEC TAGM MG/KG	3M MG/KG	0.84 U	1 1	U 0.92 U	n i	0.8 U	1 0		1 U	0.25 U	0.25 U
Vanadium	150 NYSDEC TAGM MG/KG	3M MG/KG	14	21.4	27.1		16.8	21.2		25.2	17.5	29.7
Zinc	82.5 NYSDEC TAGM MG/KG	3M MG/KG	167 J	207 J	J 488 J	T.	1470 J	84.1.1		84.8 J	324	137

	200 U 3400	
	79	
	UG/KG	
BICIDES		

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Table A-8
SENEDA ARMY DEPOT
SEAD-16 AND 17 FEASIBILITY STUDY

			LOC_ID:	SS17-6		SS17-7		SS17-8		SS17-9	
			SAMP ID:	1-9-2188	307070	SS17-7-1		SS17-8-1		SS17-9-1	
			QC CODE:	SA		SA		SA		SA	
			STUDY ID:	ESI		ESI		ESI		ESI	
			TOP:	0		0		0		0	
			BOTTOM:	0.2 SURFACE	0,	0.2 SURFACE		0.2 SURFACE		0.2 SURFACE	
			MATRIX:	SOIL		SOIL		SOIL		SOIL	
			SAMPLE DATE:	10/21/93		10/21/93		10/21/93		10/20/93	
PARAMETER	LEVEL	SOURCE	TIND	VALUE Q	0	VALUE Q	0	VALUE Q	0	VALUE	0
VOLATILE ORGANICS											
Acetone	200 1	200 NYSDEC TAGM UG/K	A UG/KG	10 U	n	12	n	12	n	10	m
Benzene	09	0 NYSDEC TAGM UG/KG	A UG/KG	10	O 0	12	n	12	n	10	n
Methylene Chloride	1001	00 NYSDEC TAGM UG/K(A UG/KG	10	U 01	12	n	12	n	10	m
Toluene	1500]	500 NYSDEC TAGM UG/KG	A UG/KG	10 U	n	12	ח	12	n	4	1

SEMIVOLATILE ORGANICS					
2,4-Dinitrotoluene	UG/KG	340 U	410 U	410 U	340 U
2,6-Dinitrotoluene	1000 NYSDEC TAGM UG/KG	340 U	410 U	410 U	340 U
2-Methylnaphthalene	36400 NYSDEC TAGM UG/KG	340 U	410 U	410 U	340 U
3,3'-Dichlorobenzidine	UG/KG	340 U	410 U	410 U	340 U
3-Nitroaniline	500 NYSDEC TAGM UG/KG	830 U	N 066	1000 U	830 U
4-Nitroaniline	UG/KG	830 U	N 066	1000 U	830 U
Anthracene	50000 NYSDEC TAGM UG/KG	340 U	410 U	410 U	340 U
Benzo(a)anthracene	224 NYSDEC TAGM UG/KG	19 J	410 U	30 J	16 J
Benzo(a)pyrene	61 NYSDEC TAGM UG/KG	340 U	410 U	24 J	340 U
Benzo(b)fluoranthene	1100 NYSDEC TAGM UG/KG	26 J	410 U	27 J	17 J
Benzo(g,h,i)perylene	50000 NYSDEC TAGM UG/KG	340 U	410 U	410 U	340 U
Benzo(k)fluoranthene	1100 NYSDEC TAGM UG/KG	18 J	410 U	23 J	17 J
Butylbenzylphthalate	50000 NYSDEC TAGM UG/KG	37 J	410 U	410 U	340 U
Carbazole	UG/KG	340 U	410 U	410 U	340 U
Chrysene	400 NYSDEC TAGM UG/KG	31 J	410 U	36 J	28 J
Di-n-butylphthalate	8100 NYSDEC TAGM UG/KG	f 09	97 J	35 J	340 U
Dibenz(a,h)anthracene	14 NYSDEC TAGM UG/KG	340 U	410 U	410 U	340 U
Fluoranthene	50000 NYSDEC TAGM UG/KG	48 J	21 J	71 J	41 J
Indeno(1,2,3-cd)pyrene	3200 NYSDEC TAGM UG/KG	340 U	410 U	410 U	340 U
N-Nitrosodiphenylamine (1)	UG/KG	340 U	410 U	410 U	340 U
Naphthalene	13000 NYSDEC TAGM UG/KG	340 U	410 U	410 U	340 U
Pentachlorophenol	1000 NYSDEC TAGM UG/KG	830 U	D 066	1000 U	830 U
Phenanthrene	50000 NYSDEC TAGM UG/KG	36 J	410 U	46 J	31 J
Pyrene	50000 NYSDEC TAGM UG/KG	43 J	410 U	63 J	37 J
bis(2-Chloroisopropyl) ether	UG/KG				
bis(2-Ethylhexyl)phthalate	50000 NYSDEC TAGM UG/KG	340 U	650	410 U	340 U

Table A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

									0
SS17-9	SS17-9-1	SA	ESI	0	0.2	SURFACE	SOIL	10/20/93	VALUE
						0)			0
SS17-8	SS17-8-1	SA	ESI	0	0.2	SURFACE	SOIL	10/21/93	VALUE
									0
SS17-7	SS17-7-1	SA	ESI	0	0.2	SURFACE	SOIL	10/21/93	VALUE
									0
SS17-6	SS17-6-1	SA	ESI	0	0.2	SURFACE	SOIL	10/21/93	VALUE
LOC_ID:	SAMP ID:	QC CODE:	STUDY ID:	TOP:	BOTTOM:		MATRIX:	SAMPLE DATE:	UNIT
									SOURCE
									LEVEL
									AMETER

PESTICIDES/PCB					
4,4'-DDD	2900 NYSDEC TAGM UG/KG	3.4 U	4 U	4.1 U	3.4 U
4,4'-DDE	2100 NYSDEC TAGM UG/KG	=	3.2 J	3.4 J	8.8
4,4'-DDT	2100 NYSDEC TAGM UG/KG	1.9 J	4 U	4.1 U	3.4 U
Aldrin	41 NYSDEC TAGM UG/KG	1.8 U	2.1 U	2.1 U	1.8 U
Aroclor-1260	10000 NYSDEC TAGM UG/KG	34 U	40 U	41 U	34 U
Dieldrin	44 NYSDEC TAGM UG/KG	3.4 U	4 U	4.1 U	3.4 U
Endosulfan I	900 NYSDEC TAGM UG/KG	1.8 U	2.1 U	2.1 U	1.8 U
Endrin	100 NYSDEC TAGM UG/KG	3.4 U	4 U	4.1 U	3.4 U
Heptachlor epoxide	20 NYSDEC TAGM UG/KG	1.8 U	2.1 U	2.1 U	1.8 U

OTHER ANALYSES					
Nitrate/Nitrite-Nitrogen	MG/KG	3.8	0.15	80.0	3.5
Percent Moisture (PEST/PCB)					
Percent Moisture (SVOCs)					
Percent Moisture (VOCs)					
Percent Solids (Metals)					
Total Organic Carbon	MG/KG				

	0 U 130 U 1.	
	170 13	
	UG/KG	
NITROAROMATICS	2,4-Dinitrotoluene	

Tauré A-8 SENEDA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

			LOC ID:	SS17-6		SS17-7	SS17-8	00	SS17-9	
			SAMP ID:	SS17-6-1	0,	SS17-7-1	SS17-8-1	7	SS17-9-1	
			QC CODE:	SA		SA	SA		SA	
			STUDY ID:	ESI		ESI	ESI		ESI	
			TOP:	0		0	0		0	
			BOTTOM:	0.2		0.2	0.2		0.2	
				SURFACE	S	SURFACE	SURFACE	Œ	SURFACE	
			MATRIX:	SOIL		SOIL	SOIL		SOIL	
			SAMPLE DATE:	10/21/93		10/21/93	10/21/93	93	10/20/93	
PARAMETER	LEVEL	SOURCE	UNIT	VALUE	0	VALUE Q	VALUE	E Q	VALUE	0
METALS										
Aluminum	14592.8 N	14592.8 NYSDEC TAGM MG/KG	I MG/KG	10900		16600	14.	14300	3790	
Antimony	3.59 N	3.59 NYSDEC TAGM MG/KG	I MG/KG	12.9 R	~	8.2 JR		7.4 JR	10.7	
Arsenic	7.5 N	7.5 NYSDEC TAGM MG/KG	I MG/KG	16.1		8.2		8.5	4.8	
Barium	300 N	300 NYSDEC TAGM MG/KG	I MG/KG	352 R	~	447 R		337 R	78.7	
Beryllium	0.73 N	0.73 NYSDEC TAGM MG/KG	I MG/KG	0.5 J	_	0.76 J	0	69.0	0.18 J	-
Cadmium	Z -	I NYSDEC TAGM MG/KG	I MG/KG	6.6		7.3		5.1	6.3	
Calcium	101904 N	101904 NYSDEC TAGM MG/KG	I MG/KG	89300		3780	110000	000	177000	
Chromium	22.13 N	22.13 NYSDEC TAGM MG/KG	I MG/KG	22.5		23.4	2	23.9	10	
Cobalt	30 N	30 NYSDEC TAGM MG/KG	I MG/KG	11.3		14.7	_	13.6	4.7 J	1
Copper	25 N	25 NYSDEC TAGM MG/KG	I MG/KG	362		423		654	136	
Cyanide	0.3 N	0.3 NYSDEC TAGM MG/KG	I MG/KG	0.46 U	ם	0.61 U	0	0.59 U	0.59 U	D
Iron	26626.7 N	26626.7 NYSDEC TAGM MG/KG	I MG/KG	24300		26400	27	27600	8020	
Lead	21.86 N	21.86 NYSDEC TAGM MG/KG	I MG/KG	3150		2310	2	2190	1340	
Magnesium	12221.8 N	2221.8 NYSDEC TAGM MG/KG	I MG/KG	8840		4520	00	8380	17300	
Manganese	669.38 N	669.38 NYSDEC TAGM MG/KG	I MG/KG	399		431		290	270 J	-
Mercury	0.1 N	0.1 NYSDEC TAGM MG/KG	I MG/KG	0.06 J		0.1 J	0	0.09 J	0.04 J	-
Nickel	33.62 N	33.62 NYSDEC TAGM MG/KG	I MG/KG	37.7		29.1	7	43.7	16.4	
Potassium	1761.48 N	1761.48 NYSDEC TAGM MG/KG	I MG/KG	1420		1370	-	1520	1110	
Selenium	2 N	2 NYSDEC TAGM MG/KG	I MG/KG	0.68 J	_	0.25 UJ		0.16 J	0.21 J	-
Silver	0.4 N	0.4 NYSDEC TAGM MG/KG	I MG/KG	2.8 J	_	1 UJ		4 J	5.5	
Sodium	103.74 N	103.74 NYSDEC TAGM MG/KG	I MG/KG	I 891	1	66.9 J		144 J	247 3	-
Thallium	0.28 N	0.28 NYSDEC TAGM MG/KG	I MG/KG	2 U	n	0.27 U	0	0.22 J	0.17 U	D
Vanadium	150 N	150 NYSDEC TAGM MG/KG	I MG/KG	16.3		28.8	21	22.2	8.9	
Zinc	82.5 N	82.5 NYSDEC TAGM MG/KG	I MG/KG	497		437		613	120	

HERBICIDES					
MCPA	UG/KG	5200 U	12000	6200 U	5200 U



Table A-9 SENECA ARMY DEPOT FEASIBILITY STUDY

SEAD-17 Subsurface Soil Analytical Results

			LOC_ID:	SB17-1	SB17-1	SB17-1		SB17-2	SB17-2	SB17-3	SB17-3	SB17-4	SB17-4
			SAMP ID:	SB17-1-1	SB17-1-2	SB17-1-3		SB17-2-10	SB17-2-2	SB17-3-1	SB17-3-2	SB17-4-1	SB17-4-2
			QC CODE:	SA	SA	SA	SA	DO	SA	SA	SA	SA	SA
			STUDY ID:	ESI	ESI	ESI		ESI	ESI	ESI	ESI	ESI	ESI
			TOP:	0	7	4		2	7	0	7	0	71
			BOTTOM:	2	4	9	2	4	4	2	4	2	4
			MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			SAMPLE DATE:	12/1/93	12/1/93	12/1/93	10/27/93	10/27/93	10/27/93	11/30/93	11/30/93	11/30/93	11/30/93
PARAMETER	LEVEL	SOURCE	UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE	Q VALUE Q	VALUE O	VALUE O		-
SEMIVOLATILE ORGANICS	23											1	1
bis(2-Ethylhexyl)phthalate	50000 1	50000 NYSDEC TAGM UG/KG	1 UG/KG	42 J	380 U	21 J	390 U	480	490	93 J	72 J	59 J	27 J
PESTICIDES/PCB													
Aroclor-1254	100001	10000 NYSDEC TAGM UG/KG	1 UG/KG	42 U	19	36 U	39 U	38 U	J 38 U	40 U	39 U	39 U	36 11
OTHER ANALYSES													
Nitrate/Nitrite-Nitrogen			MG/KG	0.15	0.33	0.24	0.51	U 10.0	1 0.05	0.22	61.0	0.41	0.22
													1

METALS											
Aluminum	14592.8 NYSDEC TAGM MG/KG	13700	18100	8700	15900	14100	15600	19300	13200	15100	11600
Arsenic	7.5 NYSDEC TAGM MG/KG	4.3	5.2	3.4	5.2	6.3	6.9	4.1	5.4	4.9	5.7
Barium	300 NYSDEC TAGM MG/KG	107	114	59.4	158	71.4	68.5	104	73.7	89.2	51.6
Beryllium	0.73 NYSDEC TAGM MG/KG	0.7 J	0.9 J	0.42 J	0.62 J	0.58 J	0.56 J	0.99	0.63 J	0.72	0.56 J
Cadmium	1 NYSDEC TAGM MG/KG	0.73 U	0.74 U	0.56 U	2.8	0.6 U	0.74 U	0.43 U	0.74 U	0.43 U	0.38 U
Calcium	101904 NYSDEC TAGM MG/KG	2870	20900	72800	48200	115000	44200	2620	4920	3640	18100
Chromium	22.13 NYSDEC TAGM MG/KG	17.6	25.1	13.9	27.1	20.3	23.3	27.9	20.1	21.6	18.4
Cobalt	30 NYSDEC TAGM MG/KG	9.9 J	13.3	8.8	10.8 J	9.6	9.4 J	21.7	9 J	9.5	Ξ
Copper	25 NYSDEC TAGM MG/KG	46.4	26.9	20	85.1	21.5	18.5	25.9	26.9	24	22.7
Iron	26626.7 NYSDEC TAGM MG/KG	25100	29900	18800	38700	24900	26700	36100	25800	27700	25600
Lead	21.86 NYSDEC TAGM MG/KG	266	11.4 J	7.5 J	989	11.2	13	24.6 J	21.2 J	12 J	11.7 J
Magnesium	12221.8 NYSDEC TAGM MG/KG	3330	8490	18100	6630	8370	8380	5820	4600	5170	7890
Manganese	669.38 NYSDEC TAGM MG/KG	547	487	391	673	1160	409	1080	338	274	403
Mercury	0.1 NYSDEC TAGM MG/KG	0.05 J	0.06 J	0.03 UJ	0.04 U	0.04 J	0.04 J	0.06 J	0.04 J	0.04 U	0.03 J
Nickel	33.62 NYSDEC TAGM MG/KG	19.1	42	25.2	34.7	27.4	30.8	37.2	31.5	28.6	30.8
Potassium	1761.48 NYSDEC TAGM MG/KG	628 J	1560	1090	1630	1750	1720	1540	1350	1220	096
Sodium	103.74 NYSDEC TAGM MG/KG	46.2 J	74.6 J	137 J	145 J	239 J	L 771	70.8 J	80.2 J	65.6 J	75.9 J
Vanadium	150 NYSDEC TAGM MG/KG	23.1	27	13.9	27.3	21.8	23.9	30.7	21.1	26.1	18.6
Zinc	82.5 NYSDEC TAGM MG/KG	93.4	80.2	57.1	172	76.7	63	2.69	69	64.2	85.1

*		
	4	

Table A-10 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Downwind Surface Soil Analytical Results

2 J	3 J		12 U	12 U	12 U	12 U	12 U	11 UI	M UG/KG	1500 NYSDEC TAGM UG/KG	1500 1	Toluene
						1	9	1			1 1 1 1	
11 U	2.5	11 U	12 U	12 U	12 U	12 U	12 U	11 UI	M UG/KG	60 NYSDEC TAGM UG/KG	1 09	Benzene
												VOLATILE ORGANICS
VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	0	VALUE Q	VALUE Q	UNIT	SOURCE	LEVEL	PARAMETER
8/20/96	8/22/96	8/20/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	8/22/96	SAMPLE DATE:			
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		SOIL	SOIL	MATRIX:			
SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE		SURFACE	SURFACE				
0.2	0.2	0.2	0.2	0.2	0.2		0.2	0.2	BOTTOM:			
0	0	0	0	0	0		0	0	TOP:			
RI ROUNDI	U ROUNDI	RI ROUNDI R	RI ROUNDI	RI ROUNDI	J ROUNDI	24	RI ROUNDI F	RI ROUNDI	STUDY ID:			
SA	SA	SA	SA	SA	DO	SA	SA	SA	QC CODE:			
16055	16084	16056	16088	16085	16090		16087	16083	SAMP ID:			
3500-S	3500-N	3000-S	3000-N	2000-S	2000-N		1000-S	1000-N	LOC_ID:			

ORGANICS 60 NYSDECTAGM UGKG 11 UJ 12 U 12	PARAMETER	LEVEL S	SOURCE	LIND	VALUE Q	VALUE	Q VALUE (Q VALUE Q	VALUE	0	VALUE Q	VALUE	VALUE	VALUE Q
1500 NYSDEC TAGM UGKG	VOLATILE ORGANICS												ı	
1500 NYSDEC TAGM UGKG	Benzene	ISAN 09	DEC TAGN	f UG/KG	11 01					12 U	12 U	11 U	2 J	11 U
DRGANICS	Toluene	1500 NYSI	DEC TAGN	1 UG/KG	11 UJ					12 U	12 U	11 U	3 J	2 J
Second National Secundary Second National Section National Secundary Section National Secundary Section National Section National Section National Section National Section														
DGKG 370 U 380 U 390 U 390 U 410 U 380 U 380 U 380 U 390 U 390 U 390 U 380 U	SEMIVOLATILE ORGANICS	,												
36400 NYSDEC TAGM UGKG 370 U 380 U 390 U 390 U 410 U 380 U 100 NYSDEC TAGM UGKG 370 U 380 U 390 U 390 U 410 U 380 U 41000 NYSDEC TAGM UGKG 370 U 380 U 390 U 410 U 380 U 50000 NYSDEC TAGM UGKG 370 U 380 U 390 U 410 U 380 U 50000 NYSDEC TAGM UGKG 371 U 380 U 390 U 410 U 380 U 50000 NYSDEC TAGM UGKG 421 U10 J 52 J 52 J 52 J 53 J 1100 NYSDEC TAGM UGKG 421 U10 J 65 J 62 J 52 J 73 J 1100 NYSDEC TAGM UGKG 47 J 94 J 65 J 61 J 38 J 1100 NYSDEC TAGM UGKG 370 U 380 U 390 U 410 U 380 U 580 U 390 U 410 U 380 U 580 U 390 U 390 U 410 U 380 U 580 U 390 U 390 U 410 U 380 U 580 U 390 U 390 U 410 U 380 U 580 U 390 U 390 U 410 U 380 U 580 U 390 U 390 U 410 U 380 U 580 U 380 U 390 U 410 U 380 U 580 U 380 U 390 U 410 U 380 U 580 U 380 U 390 U 410 U 380 U 580 U 380 U 380 U 410 U 380 U 580 U 380 U 380 U 410 U 380 U 580 U 380 U 380 U 410 U 380 U 580 U 380 U 380 U 410 U 380 U 580 U 380 U 380 U 410 U 380 U 580 U 380 U 380 U 410 U 380 U 580 U 380 U 380 U 380 U 410 U 380 U 580 U 380 U 380 U 380 U 410 U 380 U 580 U 380 U 380 U 380 U 380 U 380 U 580 U 380 U 380 U 380 U 380 U 580 U 380 U 380 U 380 U 380 U 380 U 580 U 380 U 380 U 380 U 380 U 380 U 580 U 380 U 380 U 380 U 380 U 380 U 580 U 380 U 380 U 380 U 380 U 380 U 580 U 380 U 380 U 380 U 380 U 380 U 580 U 380 U 3	2,4-Dinitrotoluene			UG/KG	370 U		390			110 U	380 U	380 U	880	400
100 NYSDEC TAGM UG/KG 370 U 18 J 390 U 390 U 410 U 380 U 380 U 4100 NYSDEC TAGM UG/KG 370 U 18 J 390 U 390 U 410 U 380 U 380 U 4100 NYSDEC TAGM UG/KG 39 J 85 J 57 J 52 J 410 U 380 U 380 U 380 U 4100 NYSDEC TAGM UG/KG 39 J 110 J 68 J 57 J 52 J 19 J 54 J 54 J 52 J 410 U 58 J 58	2-Methylnaphthalene	36400 NYSI	DEC TAGN	1 UG/KG	370 U		390		13	110 U	380 U	380 U	340 U	28 J
\$0000 NYSDECTAGM UG/KG 370 U 18 J 390 U 390 U 410 U 380 U 41000 NYSDECTAGM UG/KG 370 U 380 U 390 U 390 U 410 U 380 U 50000 NYSDECTAGM UG/KG 39 J 85 J 57 J 52 J 19 J 54 J 61 NYSDECTAGM UG/KG 39 J 110 J 69 J 62 J 22 J 73 J 524 NYSDECTAGM UG/KG 35 J 110 J 69 J 62 J 22 J 73 J 1100 NYSDECTAGM UG/KG 35 J 130 J 65 J 55 J 51 J 73 J 1100 NYSDECTAGM UG/KG 370 U 380 U 390 U 410 U 380 U 400 NYSDECTAGM UG/KG 370 U 380 U 390 U 410 U 380 U 50000 NYSDECTAGM UG/KG 370 U 380 U 390 U 410 U 380 U 6200 NYSDECTAGM UG/KG 370 U 380 U 390 U 410 U 380 U 6200 NYSDECTAGM UG/KG 370 U 380 U 390 U 410 U 380 U 620	2-Methylphenol	100 NYSI	DEC TAGM	1 UG/KG	370 U		390			[20 J	380 U	380 U	340 U	10
41000 NYSDEC TAGM UG/KG 370 U 380 U 380 U 390 U 380 U 380 U 380 U 390 U 390 U 390 U 380 U 380 U 390 U 390 U 390 U 390 U 380 U 380 U 390 U 390 U 390 U 380 U	Acenaphthene	50000 NYSI	DEC TAGN	I UG/KG	370 U	18 J				110 U	380 U	380 U	340 U	33 J
50000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 224 NYSDEC TAGM UG/KG 39 J 85 J 57 J 52 J 19 J 54 J 61 NYSDEC TAGM UG/KG 42 J 1100 J 68 J 54 J 410 U 58 J 50000 NYSDEC TAGM UG/KG 47 J 94 J 65 J 55 J 410 U 58 J 1100 NYSDEC TAGM UG/KG 47 J 94 J 65 J 55 J 410 U 58 J 1100 NYSDEC TAGM UG/KG 370 UJ 380 U 390 U 410 UJ 380 U 400 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 5000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 5000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 6 3200 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 6 3200 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U <t< td=""><td>Acenaphthylene</td><td>41000 NYSI</td><td>DEC TAGN</td><td>1 UG/KG</td><td>370 U</td><td>380 L</td><td></td><td></td><td></td><td>110 U</td><td>380 U</td><td>380 U</td><td>1 96</td><td></td></t<>	Acenaphthylene	41000 NYSI	DEC TAGN	1 UG/KG	370 U	380 L				110 U	380 U	380 U	1 96	
224 NYSDEC TAGM UG/KG 39 J 61 NYSDEC TAGM UG/KG 39 J 1100 NYSDEC TAGM UG/KG 35 J 1100 NYSDEC TAGM UG/KG 35 J 1100 NYSDEC TAGM UG/KG 370 UJ 380	Anthracene	50000 NYSI	DEC TAGN	1 UG/KG	370 U	380 L				410 U	380 U	380 U	110 J	130 J
61 NYSDEC TAGM UG/KG 42 J 120 J 68 J 54 J 410 U 58 J 55000 NYSDEC TAGM UG/KG 42 J 120 J 68 J 55 J 51 J 73 J 50000 NYSDEC TAGM UG/KG 47 J 94 J 65 J 61 J 38 J 73 J 78	Benzo(a)anthracene	224 NYSI	DEC TAGN	1 UG/KG	39 J	85 J		52 J		19 J	54 J	380 U	720	480
1100 NYSDEC TAGM UG/KG 35 J 130 J 65 J 55 J 51 J 78 J 50000 NYSDEC TAGM UG/KG 47 J 94 J 65 J 65 J 51 J 78 J 1100 NYSDEC TAGM UG/KG 47 J 94 J 65 J 61 J 38 J 73 J 1100 NYSDEC TAGM UG/KG 55 J 110 J 70 J 62 J 25 J 69 J 8100 NYSDEC TAGM UG/KG 56 J 380 U 390 U 410 U 380 U 570 U 380 U 390 U 410 U 380 U 58000 NYSDEC TAGM UG/KG 570 U 380 U 390 U 410 U 380 U 58000 NYSDEC TAGM UG/KG 570 U 380 U 390 U 410 U 380 U 58000 NYSDEC TAGM UG/KG 570 U 380 U 390 U 410 U 380 U 580 U 390 U 410 U 380 U	Benzo(a)pyrene	61 NYSI	DEC TAGN	f UG/KG	39 J	110 3				22 J	73.3	380 U	940	
serylene 56000 NYSDEC TAGM UG/KG 35 J 130 J 65 J 65 J 51 J 78 J ranthene 1100 NYSDEC TAGM UG/KG 47 J 94 J 65 J 61 J 38 J 73 J thalate 1100 NYSDEC TAGM UG/KG 55 J 110 J 70 J 62 J 25 J 69 J thalate 8100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U n 6200 NYSDEC TAGM UG/KG 370 U 380 U 410 U 380 U n 6200 NYSDEC TAGM UG/KG 70 J 160 J 110 J 93 J 410 U 380 U scollopyrene 3200 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U henylamine (1) 13000 NYSDEC TAGM UG/KG 32 J 110 J 55 J 50 J 20 J 70 J henylamine (1) 13000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U scollopyrene 3600 NYSDEC TAGM UG/KG 370 U 380 U 410 U 380 U	Benzo(b)fluoranthene	1100 NYSI	DEC TAGM	1 UG/KG	42 J	120 J			4	110 U	58 J	380 U	2200 J	
ranthene 1100 NYSDEC TAGM UG/KG 47 J 94 J 65 J 61 J 38 J 73 J 73 J 80 U 100 NYSDEC TAGM UG/KG 55 J 110 J 70 J 62 J 25 J 69 J 80 U 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 390 U 410 U 380 U 10 J 380 U 10 J 300 U 200 NYSDEC TAGM UG/KG 370 U 380 U 390 U 390 U 410 U 380 U 10 J 100 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 J 100 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 10 J 100 U 100	Benzo(g,h,i)perylene	50000 NYSI	DEC TAGN	f UG/KG	35 J	130 J		55 J		51 J	78 J	380 U	710	540
UG/KG 370 UJ 380 U 390 U 410 UJ 380 U thalate 8100 NYSDEC TAGM UG/KG 55 J 110 J 70 J 62 J 25 J 69 J nthracene 14 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 1 6200 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 1 50000 NYSDEC TAGM UG/KG 70 J 160 J 110 J 93 J 36 J 100 J 5cd)pyrene 3200 NYSDEC TAGM UG/KG 370 U 380 U 410 U 380 U henylamine (1) 13000 NYSDEC TAGM UG/KG 370 U 380 U 410 U 380 U scoon NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U scoon NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U scoon NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U scoon NYSDEC TAGM UG/KG 370 U 380 U 410 U 42 J	Benzo(k)fluoranthene	1100 NYSI	DEC TAGM	f UG/KG	47 J					38 J	73 J	380 U	340 U	
the the third state 400 NYSDEC TAGM UG/KG 55 J 110 J 70 J 62 J 25 J 69 J the thrace 8100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 390 U 410 U 380 U 1	Carbazole			UG/KG	370 UJ					t10 UJ	380 U	380 U	85 J	40 J
then then then stoon NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 380 U 390 U 410 U 380 U 390 U 410 U 380 U 390 U 390 U 410 U 380 U 380 U 390 U 390 U 410 U 380 U 380 U 390 U 410 U 380 U 380 U 390 U 390 U 410 U 380 U 380 U 390 U 410 U 380 U 380 U 410 U 380 U 380 U 410 U 380 U 390 U 410 U 380 U 390 U 410 U 380 U 380 U 390 U 390 U 410 U 380 U 390 U 410 U 380 U 390 U 410 U 380 U 390 U 390 U 390 U 410 U 380 U 390 U 390 U 390 U 410 U 380 U 390 U 390 U 390 U 390 U 390 U 410 U 380 U 390	Chrysene	400 NYSI	DEC TAGM	I UG/KG	55 J	110 J		62 J		25 J	f 69	380 U	029	
14 NYSDEC TAGM UG/KG 370 U 380 U 390 U 390 U 390 U 380 U	Di-n-butylphthalate	8100 NYSI	DEC TAGM	1 UG/KG	370 U	380 L				110 U	380 U	380 U	340 U	I 90 J
10 6200 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 380 U 50000 NYSDEC TAGM UG/KG 70 J 160 J 110 J 93 J 36 J 100 J 100 J 50000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 410 U 380 U 410 U 380 U 100 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 42 J 50000 NYSDEC TAGM UG/KG 34 J 90 J 36 J 35 J 410 U 42 J	Dibenz(a,h)anthracene	14 NYSI	DEC TAGN	1 UG/KG	370 U	54 3				110 U	39 J	18 J	470	7
50000 NYSDEC TAGM UG/KG 70 J 160 J 110 J 93 J 36 J 100 J 50000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U henylamine (1) UG/KG 370 U 380 U 410 U 380 U 13000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 50000 NYSDEC TAGM UG/KG 34 J 90 J 36 J 35 J 410 U 42 J	Dibenzofuran	6200 NYSI	DEC TAGM	1 UG/KG	370 U	380 L				110 U	380 U	380 U	340 U	36 J
50000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U cd)pyrene 3200 NYSDEC TAGM UG/KG 32 J 110 J 55 J 50 J 20 J 70 J henylamine (1) 13000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U soooo NYSDEC TAGM UG/KG 34 J 90 J 36 J 35 J 410 U 42 J	Fluoranthene	50000 NYSI	DEC TAGM	1 UG/KG	70 J	160 J				36 J	100 J	380 U	1000	780
cd)pyrene 3200 NYSDEC TAGM UG/KG 32 J 110 J 55 J 50 J 20 J 70 J 10 henylamine (1) UG/KG 370 U 380 U 390 U 410 U 380 U 380 U 13000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 50000 NYSDEC TAGM UG/KG 34 J 90 J 36 J 35 J 410 U 42 J	Fluorene	50000 NYSI	DEC TAGM	I UG/KG	370 U	380 L				110 U	380 U	380 U	340 U	
henylamine (1) UG/KG 370 U 380 U 390 U 410 U 380 U 380 U 13000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 50000 NYSDEC TAGM UG/KG 34 J 90 J 36 J 35 J 410 U 42 J	Indeno(1,2,3-cd)pyrene	3200 NYSI	DEC TAGN	1 UG/KG	32 J	110 J				20 J	70 J	380 U	790	520
13000 NYSDEC TAGM UG/KG 370 U 380 U 390 U 410 U 380 U 50000 NYSDEC TAGM UG/KG 34 J 90 J 36 J 35 J 410 U 42 J	N-Nitrosodiphenylamine (1)			UG/KG	370 U	380 L			4	110 U	380 U	380 U	95 J	47 J
S0000 NYSDEC TAGM UG/KG 34 J 90 J 36 J 35 J 410 U 42 J	Naphthalene	13000 NYSI	DEC TAGM	f UG/KG	370 U	380 L			4	110 U	380 U	380 U	16 J	29 J
	Phenanthrene	50000 NYSI	DEC TAGM	1 UG/KG	34 J	1 06	36 J	35 J	4	410 U	42 J	380 U	320 J	360
160 J 92 J 81 J 38 J 90 J	Pyrene	50000 NYSI	DEC TAGM	f UG/KG	16 J	160 J	92 J	81 J		38 J	f 06	380 U	1200	620

Table A-10 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Downwind Surface Soil Analytical Results

	LOC ID:	N-0001	1000-S	Z000-N	Z000-N		3000-N	3000-S	3500-N	3500-S
	SAMP ID:	16083	16087	16089	16090	16085	16088	16056	16084	16055
	QC CODE:	SA	SA	SA	DO		SA	SA	SA	SA
	STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI		RI ROUNDI				
	TOP:	0	0	0			0	0	0	0
	BOTTOM:	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
		SURFACE	SURFACE	SURFACE		SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
	MATRIX:	SOIL	SOIL	SOIL		SOIL	SOIL	SOIL	SOIL	SOIL
	SAMPLE DATE:		8/22/96	8/22/96		8/22/96	8/22/96	8/20/96	8/22/96	8/20/96
PARAMETER	LEVEL SOURCE UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE	Q VALUE Q	VALUE Q
PESTICIDES/PCB										
4,4'-DDE	2100 NYSDEC TAGM UG/KG	5.2 J	1.9 J	3.9 U	3.9 U	4.1 U	3.8 U	3.7 U	8.9	140 J
4,4'-DDT	2100 NYSDEC TAGM UG/KG	6 3	3.8 U	3.9 U	3.9 U	4.1 U	3.8 U	3.7 U		35 U
Dieldrin	44 NYSDEC TAGM UG/KG	3.7 U	3.8 U	3.9 U	3.9 U	4.1 U	8.4 J	3.5 U	J 3.4 U	U 71
Endosulfan I	900 NYSDEC TAGM UG/KG	1.6 J	2 U	2 U	2 U	2.1 U	2 U	1.9 U		430 J
Endosulfan sulfate	1000 NYSDEC TAGM UG/KG	3.7 U	3.8 U	3.9 U	3.9 U	4.1 U	3.8 U	3.7 U		20 J
Endrin	100 NYSDEC TAGM UG/KG	3.7 U		3.9 U	3.9 U	4.1 U	3.8 U	3.7 U		43
Endrin ketone	UG/KG	3.7 U	3.8 U	3.9 U	3.9 U	4.1 U	3.8 U	3.7 U	1 4.8	71
alpha-Chlordane	UG/KG	1.1 J	2 U	2 U	2 U	2.1 U	2 U	1.9 U		11 R
beta-BHC	200 NYSDEC TAGM UG/KG	U 6.1	2 U	2 U	2 U	2.1 U	2 U		1.8 U	20 J
delta-BHC	300 NYSDEC TAGM UG/KG	2.2		2 U	2 U	2.1 U	2 U	U 6.1		18 U
OTHER ANALYSES										
Nitrate/Nitrite-Nitrogen	MG/KG	0.34	0.27	6.1	9	0.27	0.64	90.0	0.34	0.44
Percent Moisture (PEST/PCB)		=	14	91	16	19	14	12	3	9
Percent Moisture (SVOCs)		=	14	91	16	19	14	12	m	9
Percent Moisture (VOCs)		=	14	17	17	20	18	11	6	80
Percent Solids (Metals)		88.7	86.1	83.5	83.6	81.4	85.7	87.9	97.2	93.7

Nitrate/Nitrite-Nitrogen	MG/KG	0.34	0.27	6.1	9	0.27	0.64	90.0	0.34	0.44
Percent Moisture (PEST/PCB)		11	14	16	16	19	14	12	ю	9
Percent Moisture (SVOCs)		=	14	16	16	19	14	12	m	9
Percent Moisture (VOCs)		П	14	17	17	20	18	Ξ	m	8
Percent Solids (Metals)		88.7	86.1	83.5	83.6	81.4	85.7	87.9	97.2	93.7
NITROAROMATICS	ONOT NOTE OFFICE	11 001	111 001	111 001	111 001	11 001	111 001	11 001	11 001	1 000
2,6-Dinitrotoluene	1000 NISDEC IAGM UGING	0 071	120 03	120 03	120 03	120 0	120 03	170 0	120 0	5 006

Table A-10 SENECA ARMY DEPOT SEAD-16 AND 17 FEASIBILITY STUDY

SEAD-17 Downwind Surface Soil Analytical Results

									_		_	_	_	-	_	_		_	_	_	_		_	_	_	_	_	_	_	-	_	_
3500-S	16055	SA	RI ROUNDI	0	0.2	SURFACE	SOIL	8/20/96	VALUE		8620 J	0.74 J	4.5	86.4 J	0.32	0.32	107000	14	8.9	29.6	15800 J	36	6310	558	50.0	18.1	1410	1.2	689	1	19.8	806
3500-N	16084	SA	102	0	0.2	SURFACE	SOIL	8/22/96	VALUE Q		4120 J	0.56	3.8	27.2 J	91.0	0.23	229000	9.3	4.7	14.9	0926	36.7	8430	286 J	0.04 U	15.8	848	0.5 J	383	0.74 U	15.5	53.2 J
3000-S	16056	SA	IQ.	0	0.2	CE		8/20/96	VALUE Q		11800 J	0.37 UJ	5.6	69.1 J	0.51	0.18	10800	6.61	12.3	28.9	24900	16.7	5330	550	0.05	34.6	1320	0.74	49.5 U	1.2	19	6.26
3000-N	16088	SA	IQ.	0		CE		8/22/96	VALUE Q		12700 J	0.7 J	5.1 J	98.7 J	0.43	0.1	18200	18.4	10.3	20.4	23600	19.3	6820	029	95'0	27.2	1420	1.2	57.9 U	0.91 U	20.1	68.2
2000-S	16085	SA	101	0		SURFACE		8/22/96	VALUE Q		14100 J	0.36	5.1	129 J	0.57	0.21	3600	19.5	10.7	6.61	24000	29	3840	704 J	90'0	25.9	1730	1.4 J	49.4	0.83	22.3	78.7 J
2000-N	16090	DO	101	0		SURFACE		8/22/96	VALUE Q		11500 J	0.45 U	4.5 J	109 J	0.44	0.21	3420	14.8	7.1	17.7	19100	19.5	3200	287	60.0	16.4	1060	1.5	D 6.65	0.94 U	19.5	55.8
2000-N	16089	SA	4D1	0		SURFACE S		8/22/96	VALUE Q		11700 J	0.39 U	4.6 J	113 J	0.41	0.21	3410	14.8	7.2	17.9	19100	19.7	3230	663	0.07	16.6	1030	13	51.7 U	0.81 U	19.4	55.8
S-0001	16087	SA	101	0	0.2	CE		8/22/96	VALUE Q		11600 J	0.8 J	4.5 J	90.3 J	0.48	0.34	14500	18.5	9.2	21.2	22500	28	5330	452	90.0	26.4	1100	1.4	59.2 U	0.93 U	19	92.5
1000-N	16083	SA	RI ROUNDI R	0	0.2	CE		8/22/96	VALUE Q		13900 J	0.7	4.9	81.8 J	0.54	0.07	0596	24.4	15.7	39	29300	52	6120	399 J	90.0	50.8	1460	1.3 J	83.1	0.88 U	20.5	109 J
LOC_ID:	SAMP ID:	QC CODE:	STUDY ID: R	TOP:	BOTTOM:		MATRIX:	SAMPLE DATE:	TIND		MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
									SOURCE		14592.8 NYSDEC TAGM MG/KG	3.59 NYSDEC TAGM MG/KG	7.5 NYSDEC TAGM MG/KG	300 NYSDEC TAGM MG/KG	0.73 NYSDEC TAGM MG/KG	1 NYSDEC TAGM MG/KG	101904 NYSDEC TAGM MG/KG	22.13 NYSDEC TAGM MG/KG	30 NYSDEC TAGM MG/KG	25 NYSDEC TAGM MG/KG	26626.7 NYSDEC TAGM MG/KG	21.86 NYSDEC TAGM MG/KG	12221.8 NYSDEC TAGM MG/KG	669.38 NYSDEC TAGM MG/KG	0.1 NYSDEC TAGM MG/KG	33.62 NYSDEC TAGM MG/KG	1761.48 NYSDEC TAGM MG/KG	2 NYSDEC TAGM MG/KG	103.74 NYSDEC TAGM MG/KG	0.28 NYSDEC TAGM MG/KG	150 NYSDEC TAGM MG/KG	82.5 NYSDEC TAGM MG/KG
									LEVEL		14592.8 N	3.59 N	7.5 N	300 N	0.73 N	41	101904 N	22.13 N	30 N	25 N	26626.7 N	21.86 N	12221.8 N	669.38 N	0.1 N	33.62 N	1761.48 N	2 1	103.74 N	0.28 N	150 N	82.5 N
									PARAMETER	TS	mnı	yuv		-	mn	m.	F	ium		800			sium	nese	y.		mn	E	1	ш	mn	
									PARA	METALS	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Sodium	Thallium	Vanadium	Zinc

Table A-11 SENECA ARMY DEPOT FEASIBILITY STUDY

SEAD-17 Sediment Analytical Results

			LOC_ID:	SW/SD17-1	SW/SD17-10	SW/SD17-2	SW/SD17-3	SW/SD17-4	SW/SD17-5	SW/SD17-6	SW/SD17-7
			SAMP ID:	16120A	16123A	16130A	16131A	16136A	16137A	16121A	16132A
			QC CODE:	SA	SA	SA	SA	SA	SA	SA	SA
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI
			TOP:	0	0	0	0	0	0	0	0
			BOTTOM:		9	9	9	9	9	9	9
			MATRIX:	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
			SAMPLE DATE:	96/11/6	9/11/6	9/18/96	9/18/6	9/18/96	96/81/6	9/18/96	9/18/6
PARAMETER	LEVE	SOURCE	UNIT	VALUE	VALUE Q	VALUE	VALUE	VALUE O	107		
VOLATILE ORGANICS											ı
Acetone			UG/KG	15	13 U	14 U	15 U	20 U	20 U	26	13 U
Toluene			UG/KG	14 U	13 U	14 U					13 U
SEMIVOLATILE ORGANICS	CS										
2,4-Dimethylphenol			UG/KG	32 J	430 U	530 U	480 U	U 019	570 U	D 095	200 U
2,4-Dinitrotoluene			UG/KG	460 U	430 U	530 U	480 U	U 019	570 U	D 095	200 U
Benzo(a)anthracene	15.99	NYS HHB	UG/KG	460 U	430 U	530 U	480 U	019 O	S70 U	D 095	200 U
Benzo(a)pyrene	15.99	NYS HHB	UG/KG	460 U	430 U	530 U	480 U	U 019	570 U	260 U	200 U
Benzo(b)fluoranthene	15.99	NYS HHB	UG/KG	460 U	430 U	530 U	480 U		570 U	D 095	200 U
Benzo(g,h,i)perylene			UG/KG	460 U	430 U	530 U	480 U	U 019	570 U	D 095	200 U
Benzo(k)fluoranthene	15.99	NYS HHB	UG/KG	460 U	430 U	530 U	480 U	019 O	570 U	D 095	200 U
Chrysene	15.99	NYS HHB	UG/KG	460 U	430 U	530 U	480 U	019 O			200 U
Fluoranthene	12546	NSY BALCT	UG/KG	460 U	36 J	530 U	480 U	019 O	570 U	D 095	200 U
Indeno(1,2,3-cd)pyrene	15.99	NYS HHB	UG/KG	460 U	430 U	530 U	480 U	019 O	570 U	O 095	200 U
Phenanthrene	1476	NSY BALCT	UG/KG	460 U	430 U	530 U	480 U	610 U	570 U	D 095	200 U
Pyrene			UG/KG	460 U	26 J	530 U	480 U	019 O	570 U	D 095	200 U
bis(2-Ethylhexyl)phthalate	2460	NSY BALCT	UG/KG	54 J	430 U	530 U	480 U	36 J	570 U	260 U	200 U
PESTICIDES/PCR											
4.4'-DDD	0.123	NYS HHB	UG/KG	4611	4311	4611	4911	7.8	101	11 95	11.5
4.4'-DDE	0.123		UG/KG	4.6 U	2.8.3	4611	49 11		13	2 9	11.5
4 4' DT	0 173	NIVE LILIB	110/4/2	11 7 1	42.11	11 9 4					0 ;
1,4-001	0.123	NISHHB	UG/NG	0 0.4	U £,4	0.4.6 U	4.9 U	9.1 O		3 J	2.0
Dieldrin	1.23			4.6 U	2	4.6 U	4.9 U	6.1 U		5.6 U	S U
Endosulfan I	0.369			2.4 U	2.2 U	2.4 U	2.5 U			2.9 U	2.6 U
Endosulfan II	0.369	NSY BALCT	UG/KG	4.6 U	4.3 U	4.6 U	4.9 U	3.8 J	5.7 U	3.7 J	5 U

Table A-11 SENECA ARMY DEPOT FEASIBILITY STUDY

SEAD-17 Sediment Analytical Results

			LOC ID:	SW/SD17-1	SW/SD17-10	SW/SD17-2	SW/SD17-3	SW/SD17-4	SW/SD17-5	SW/SD17-6	SW/S	SW/SD17-7
			SAMP ID:	16120A	16123A	16130A	16131A	16136A	16137A	16121A	161	16132A
			OC CODE:	SA	SA	SA	SA	SA	SA	SA	S	SA
			STUDY ID:	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RIRC	RI ROUNDI
			TOP:	0	0	0	0	0	0	0		0
			BOTTOM:	9	9	9	9	9	9	9		9
			MATRIX:	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDI	SEDIMENT
			SAMPLE DATE:	9/11/6	96/11/6	9/18/6	96/81/6	9/18/96	9/18/96	9/18/6	9/1	96/81/6
PARAMETER	LEVE	SOURCE	UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE	Q VALUE	Q VALUE (Q VALUE	Q VA	VALUE Q
OTHER ANALYSES				d								
Nitrate/Nitrite-Nitrogen			MG/KG	0.04	0.05	90.0	0.07	0.24	0.02	0.1		90.0
Percent Moisture (PEST/PCB)				29	23	28	32	46	42	41		34
Percent Moisture (SVOCs)				29	23	38	32	46	42	41		34
Percent Moisture (VOCs)				26	23	28	26	49	51	30		25
Percent Solids (Metals)				70.8	76.8	72	67.8	53.9	58.2	58.7		99
Total Organic Carbon			MG/KG	141 U	10700	2650	10000	12800	2900	36100		5910
METALS								Y				
Aluminum			MG/KG	18900	12100	19600	11400	16600	14800	15900		15200
Antimony	2	NYSLEL	MG/KG	0.61 UJ	J 0.84 UJ	J 1.6 J	5.5 J	2	I 0.88 UJ	JJ 1.2 UJ	m	0.85 UJ
Arsenic	9	NYSLEL	MG/KG	6.2	3.3	7.3	4.5	4.1	4.8	4.2		9
Barium			MG/KG	128	51.1	162	121	106	103	73.2		124
Beryllium			MG/KG	0.99	0.26	98'0	0.57	0.67	0.62	0.5		0.75
Cadmium	9.0	NYS LEL	MG/KG	0.32	0.28	17	4.8	2.4	2.1	1.1		89.0
Calcium			MG/KG	4100	1950	3790	25000	0989	3070	2780		4420
Chromium	26	NYS LEL	MG/KG	25.8	13.7	25.4	16.3	23.5	19.8	23.8		22.3
Cobalt			MG/KG	11.5	5.8	10.7	8.4	6.6	10	11		-
Copper	16	NYS LEL	MG/KG	38.6 J	27.1 J	42 J	, 1.86	I 75.3 J	J 46.6	1 36.4	3	26 J
Iron	20000	NYSLEL	MG/KG	30800	17400	27800	20700	24500	24200	27800		27800
Lead	31	NYSLEL	MG/KG	68.3	72.9	991	1050	258	136	106		77.5
Magnesium			MG/KG	4970	2250	5140	6490	5780	4210	5570		5080
Manganese	460	NYSLEL	MG/KG	£ 995	362 J	348 J	415 J	275	347	488 J	ı	317 J
Mercury	0.15	NYSLEL	MG/KG	0.04	0.03 U	0.04 U	J 0.03 U	U 0.16	0.04 U	U 0.06 U	n	0.04 U
Nickel	16	NYSLEL	MG/KG	29.8 J	10.8 J	30 J	I 23.7 J	1 30.6	J 24.7 J	I 30.6 J	ı	31.6 J
Potassium			MG/KG	1310 J	1250 J	2480 J	1450 J	1 2630 J	J 1660 J	I 1980 J	-	1810 J
Selenium			MG/KG	0.8 U	J 1.1 U	0.84 U	J 1.3 U	U 1.4 U	U 1.9	1.6 U	n	1.1 U
Sodium			MG/KG	79.4	76.3 U	1 429	338	109	98.6	112 U	n	452
Thallium			MG/KG	1.3	0.95 U	0.73 U		U 1.3 U	U I	1.4 U	n	0.97 U
Vanadium			MG/KG	32.1	24.8	33	18.8	26.4	25	21.3		22.7
Zinc	120	NYSTEL	MG/KG	78.4	57.6	85.5	278	158	9.96	9.76		98.6

Table A-11 SENECA ARMY DEPOT FEASIBILITY STUDY

SEAD-17 Sediment Analytical Results

			LOC_ID:	SW/SD17-8		8W/SD17-9	
			SAMP ID:	16124A		16122A	
			QC CODE:	SA		SA	
			STUDY ID:	RI ROUNDI	-	A ROUNDI	
			TOP:	0		0	
			BOTTOM:	9		9	
			MATRIX:	SEDIMENT	2.7.	SEDIMENT	
			SAMPLE DATE:	96/11/6		96/11/6	
PARAMETER	LEVE	SOURCE	TIND	VALUE	0	VALUE	0
VOLATILE ORGANICS							
Acetone			UG/KG	10	Г	14	D
Toluene			UG/KG	14 1	n	14 [n

SEMIVOLATILE ORGANICS	S				
2,4-Dimethylphenol			UG/KG	200 U	460 U
2,4-Dinitrotoluene			UG/KG	450 J	460 U
Benzo(a)anthracene	15.99	NYS HHB	UG/KG	25 J	460 U
Benzo(a)pyrene	15.99	NYS HHB	UG/KG	30 J	460 U
Benzo(b)fluoranthene	15.99	NYS HHB	UG/KG	43 J	460 U
Benzo(g,h,i)perylene			UG/KG	31 J	460 U
Benzo(k)fluoranthene	15.99	NYS HHB	UG/KG	33 J	460 U
Chrysene	15.99	NYS HHB	UG/KG	48 J	460 U
Fluoranthene	12546	NSY BALCT	UG/KG	70 J	460 U
indeno(1,2,3-cd)pyrene	15.99	NYS HHB	UG/KG	24 J	460 U
Phenanthrene	1476	NSY BALCT	UG/KG	35 J	460 U
Pyrene			UG/KG	47 J	460 U
bis(2-Ethylhexyl)phthalate	2460	2460 NSY BALCT UG/KG	UG/KG	77 J	460 U

PESTICIDES/PCB					
4,4'-DDD	0.123	NYS HHB	UG/KG	13 J	4.6 U
4,4'-DDE	0.123	NYS HHB	UG/KG	62 J	2.9 J
4,4'-DDT	0.123	NYS HHB	UG/KG	12 J	4.6 U
Dieldrin	1.23	NYS HHB	UG/KG	s un	4.6 U
Endosulfan I	0.369	NSY BALCT	UG/KG	1.6.J	2.4 U
Endosulfan II	0.369	NSY BALCT	UG/KG	5 UJ	4.6 U

Table A-11 SENECA ARMY DEPOT FEASIBILITY STUDY

SEAD-17 Sediment Analytical Results

			LOC_ID:	SW/SD17-8	0,	6-71GS/WS	
			SAMP ID:	16124A		16122A	
			QC CODE:	SA		SA	
			STUDY ID:	RI ROUNDI	R	RI ROUNDI	
			TOP:	0		0	
			BOTTOM:	9		9	
			MATRIX:	SEDIMENT	0,1	SEDIMENT	
			SAMPLE DATE:	9/11/6		96/11/6	
PARAMETER	LEVE	SOURCE	TIND	VALUE	0	VALUE	0
OTHER ANALYSES							
Nitrate/Nitrite-Nitrogen			MG/KG	0.09		0.04	
Percent Moisture (PEST/PCB)				34		29	
Percent Moisture (SVOCs)				34		29	
Percent Moisture (VOCs)				29		29	
Percent Solids (Metals)				65.8		70.9	
Total Organic Carbon			MG/KG	17800		4090	

METALS					
Aluminum			MG/KG	17100	22100
Antimony	2	NYSLEL	MG/KG	4.7 J	0.73 UJ
Arsenic	9	NYSLEL	MG/KG	5	7.5
Barium			MG/KG	157	92.4
Beryllium			MG/KG	0.44	92.0
Cadmium	9.0	NYSLEL	MG/KG	7.7	0.25
Calcium			MG/KG	6150	2190
Chromium	26	NYSLEL	MG/KG	23.3	7.72
Cobalt			MG/KG	12	17.8
Copper	16	NYSLEL	MG/KG	309 J	34.1 3
Iron	20000	NYSLEL	MG/KG	29400	35000
Lead	31	NYSLEL	MG/KG	849	90.5
Magnesium			MG/KG	4580	4830
Manganese	460	NYSLEL	MG/KG	f 89L	S65 J
Mercury	0.15	NYSLEL	MG/KG	0.07	0.04
Nickel	16	NYSLEL	MG/KG	28,8 J	31.4 J
Potassium			MG/KG	2470 J	1950 J
Selenium			MG/KG	1.6	96'0
Sodium			MG/KG	137	69
Thallium			MG/KG	1.2 U	0.83 U
Vanadium			MG/KG	29.8	33.8
Zinc	120	NYSLEL	MG/KG	242	108

Table A-12 SENECA ARMY DEPOT FEASIBILITY STUDY

SEAD-17 Groundwater Analytical Results

PARAMETER	LEVEL SOURCE	LOC_ID: SAMP ID: QC CODE: STUDY ID: TOP: BOTTOM: MATRIX: SAMPLE DATE: UNIT	MW17-1-1 SA ESI 3.4 7.4 Groundwater 1/25/94 VALUE Q	MW17-1 16108 SA RI ROUND1 3.4 7.4 Groundwater 8/29/96 Q VALUE Q	MW17-1 16109 DU RI ROUND1 3.4 7.4 Groundwater 8/29/96 Q VALUE Q	MW17-1 SA RI ROUND2 731.1 727.1 Groundwater 12/11/96 Q VALUE Q	MW17-2-1 MW17-2-1 SA ESI 3.3 5.3 Groundwater 11/18/93	MW17-2 16163 SA RI ROUND2 728.3 726.3 Groundwater 12/9/96 VALUE Q	MW17-3-1 SA ESI 3.1 5.1 Groundwater 1/26/94 VALUE Q
SEMIVOLATILE ORGANICS Benzofalpyrene	O.2 EPA MCL	TOO	11 U	0.7 J	10 U	10 U	U II	10 U	10 01
Benzolghilperylene		UG/L	11 U	2 J	1 J	10 U			10 U
Dibenz[a,h]anthracene		UG/L	11 U	11	0.9 J	10 U			10 U
Indeno[1,2,3-cd]pyrene		UG/L	11 U	2 J	1 J	10 U	11 U	10 U	10 U
OTHER ANALYSES Nitrate/Nitrite Nitrogen		MG/L	0.26	0.24	0.23	0.2	0.13	0.04	0.09
Percent Solids (Metals)				0	0	0		0	
NITROAROMATICS			1 100 1100 1100	NET COLUMN TO SERVICE				The state of the s	The state of the s
Tetryl	5 NYS CLASS GA STANDARD UG/L	RD UG/L	0.13 U	0.26 U	0.26 U	0.26 U	0.08 J	0.26 U	0.13 U
METALS									
Aluminum	200 EPA SECONDARY MCL	UG/L	10800	90.4	54.6	386	Ι-	85.3 U	-
Arsenic	25 NYS CLASS GA STANDARD		5.8 J	2.7 U	2.7 U	4.4 U		4.4 U	1.4 U
Barium	1000 NYS CLASS GA STANDARD		147 J	82	87	90.4 U		66.1 U	24.4 J
Beryllium	4 EPA MCL	UG/L	0.52 J	0.26	0.21	0.2 U			0.4 U
Cadmium	S EPA MCL	UG/L	2.1 U	0.3 U	0.31	0.6 U			2.1 U
Calcium	SO NES CT ASS GA STANDABL	UG/L	173	108000	110000	104000	12 9	118000	110000
Cobalt	SO NIS CLASS GA SIANDA		11.4 J	1.2 U	1.4	2 U	7 1	13 U	4.4 U
Copper	200 NYS CLASS GA STANDARD		18 J	3.1	4.3	1.1 U	11.7 J	2.6 U	3.1 U
Iron	300 NYS CLASS GA STANDARD		18300	119	90.6	572 3	12200	214	1870
Lead	15 EPA MCL	NG/L	8.7	1.7 U	1.7 U	1.5 U		1.9 U	0.52 J
Magnesium		UG/L	40200	22600	23000	22900	24	14600	17800
Manganese	50 EPA SECONDARY MCL		473	21.3	20	9.7 U			
Mercury	2 NYS CLASS GA STANDARD		0.05 J	0.1 U	0.1 U	0.1 U		n	0.04 U
Nickel	100 EPA MCL	UG/L	24.4 J	1.8	2.2	2.5 U			4 U
Potassium		UG/L	4740 J	472	574	843 U		S	
Selenium	10 NYS CLASS GA STANDARD		2 J	2.4 U	2.4 U	4.7 UJ	_		_
Silver	50 NYS CLASS GA STANDARD		4.2 U	1.3 U	2.3	1.5 U			
Sodium	20000 NYS CLASS GA STANDARD		8270	9290	9620	8190	7	18	46100
Thallium	2 EPA MCL	UG/L	1.2 U	4,4	7.1	4.1 U			
Vanadium		DG/L	19.9 J	1.2 U	1.4	1.6 U	1	1.6 U	
Zinc	300 NYS CLASS GA STANDARD UGA	KD UG/L	100	2.5 K	3.2 K	14.4 U	33	63.9	16.4 J

Table A-12 SENECA ARMY DEPOT FEASIBILITY STUDY

SEAD-17 Groundwater Analytical Results

PARAMETER	LEVEL SOURCE	LOC_ID: SAMP ID: QC CODE: STUDY ID: TOP: BOTTOM: MATRIX: SAMPLE DATE: UNIT	MW17-3 16166 SA RIROUND2 727.1 725.1 Groundwater 12/10/96 VALUE Q	MW17-4 MW17-4-1 SA ESI 3.1 5.1 Groundwater 1/25/94	MW17-4 16169 SA RI ROUND2 729.4 727.4 Groundwater 12/11/96 Q VALUE Q	NW17-5 16106 SA RI ROUND1 3.4 7.9 Groundwater 8/29/96	NW17-5 16170 SA RIROUND2 728.1 723.6 Groundwater 12/11/96 Q VALUE	0 19
SEMIVOLATILE ORGANICS		1000	0.000	800				
Benzo[a]pyrene	0.2 EPA MCL	UG/L	10 U	11 U		10 U		10 U
Benzolghilperylene		T/DO	10 U	11 U	10 U	10 U		10 U
Dibenz[a,h]anthracene		UG/L	10 U	11 U	10 U			10 U
Indeno[1,2,3-cd]pyrene		UG/L	10 U	11 U	10 U	10 U		10 U
OTHER ANALYSES						77.		
Nitrate/Nitrite Nitrogen		MG/L	0.05	0.05	0.02	0.04	0.02	7
Percent Solids (Metals)			0		0	0		0
NITROAROMATICS								
Tetryl	5 NYS CLASS GA STANDARD UG/L	ARD UG/L	0.26 U	0.13 U	0.26 U	0.26 U		0.26 U
METALS								Г
Aluminum	200 EPA SECONDARY MCL	UG/L	36.1 U	174	41.9 U	39.9	5	29 U
Arsenic	25 NYS CLASS GA STANDARD UG/L	ARD UG/L	4.4 U	0.87 J	8			4.4 U
Barium	1000 NYS CLASS GA STANDARD		27.4 U	33.4 J	\$3		62.	62.6 U
Beryllium	4 EPA MCL	UG/L	0.2 U	0.4 U				0.2 U
Cadmium	5 EPA MCL	UGIT	0.6 U	2.1 U			- 5	0.6 U
Calcium		UG/L	108000	113000	92000	1080	811	0
Chromium	50 NYS CLASS GA STANDARD		10	2.6 U				1 U
Cobalt		UG/L	1.3 U	4.4 U				1.3 U
Copper	200 NYS CLASS GA STANDARD	ARD UG/L	1.1 U	3.1 U			1.	1.3 U
Iron	300 NYS CLASS GA STANDAKD		33.1 U		96.4 U			134
Lead	13 EPA MCL	UGIL	15200	17900	14200	1.700	12	0 00
Magnesium	SO EBA SECONDABY MCT	TIGIT	17 7 0	17,000	335	42.5	2001	200
Manganese	2 NVS CT ASS GA STANDARD		0.7.0		88			11 1
Michal	100 FDA MCT		1130					75.17
Dotaccium	100 ELAIMOE	וופע	11 777	\$5	,		107	10701
Salanium	10 NVS CT ASS GA STANDARD		47111	740			•	4.7 TIT
Silver	50 NYS CT ASS GA STANDARD LIGHT	ARD UGA.	11511					1151
Sodium	20000 NYS CLASS GA STANDARD	ARD UG/L	30100	17	22	=		0
Thallium	2 EPA MCL	UG/L	4.4 U					0 9.8
Vanadium		UG/L	1.6 U	3.7 U				1.6 U
Zinc	300 NYS CLASS GA STANDARD UG/I	ARD UG/L	7.7 U	13 J	8.3 U	6.2 R		4.4 U

Table A-13 SENECA ARMY DEPOT FEASIBILITY STUDY

SEAD-17 Surface Water Analytical Results

U 01	10 U	2 J	10 U	10 U	10 U	UG/L	0.6 NYS AWQS CLASS C		SEMIVOLATILE ORGANICS bis(2-Ethylhexyl)phthalate
VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	UNIT	SOURCE	LEVEL	PARAMETER
9/18/96	96/81/6	96/81/6	96/81/6	96/11/6	9/11/6	SAMPLE DATE:			
WATER	WATER	WATER	WATER	WATER	WATER	MATRIX:			
SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE				
						BOTTOM:			
						TOP:			
RI ROUNDI	-		RI ROUNDI	RI ROUNDI	RI ROUNDI	STUDY ID:			
SA			SA	SA	SA	QC CODE:			
16137	16136	16131	16130	16123	16120	SAMP ID:			
SW/SD17-5			SW/SD17-2	SW/SD17-10	SW/SD17-1	LOC_ID:			

0

0

0

0

0

0

OTHER ANALYSES
Percent Solids (Metals)

Total Organic Carbon			MG/L	7.3	11.6	8.4	3.9	6.1	8.9
hН			MG/L	7.87	7.44	7.81	7.81	7.43	7.52
METALS					e				
Antimony			UG/L	5.4 J	2 U	4.1 J	12.6 J	2 U	2 U
Arsenic	190	NYS AWQS CLASS C	UG/L	2.7 U	3.9 J	2.7 U	4.6 J	2.9 J	2.7 U
Barium			UG/L	42.6 J	30.4 J	43.6 J	91.8 J	41.7 J	40.5 J
Cadmium	1.86	NYS AWQS CLASS C	UG/L	0.32 J	0.3 U	0.47 J	0.63 J	0.44 J	0.3 U
Calcium			UG/L	46400	50100	48300	68200	73500	72900
Chromium	347.27	NYS AWQS CLASS C	UG/L	1.1	1 U	1 U	1 U	1 U	1 n
Copper	20.29	NYS AWQS CLASS C	UG/L	18.4	17.4	12.6	9.5	6.9	8.9
Iron	300	NYS AWQS CLASS C	UG/L	322 J	81.1 J	174 J	I 69 I	134 J	141 J
Lead	7.16	NYS AWQS CLASS C	UG/L	14.9	1.8	7.6	3.3	1.9	U.7.U
Magnesium			UG/L	3810	3430	6390	8730	9280	0916
Manganese			UG/L	9.9	2.7	16	8.8	13.3	19.6
Nickel	154.49	NYS AWQS CLASS C	UG/L	1.6 U	1.6 U	1.7	1.6 U	1.6 U	1.6 U
Potassium			UG/L	3270	3830	2470	4380	1980	2020
Selenium	1	NYS AWQS CLASS C	UG/L	2.4 U	2.4 U	3.4 J	3.5 J	2.5 J	2.9 J
Sodium			UG/L	3090	2990	2880	5830	9460	9260
Vanadium	14	NYS AWQS CLASS C	NG/L	1.8 J	1.2 U				
Zinc	141.38	NYS AWQS CLASS C	NG/L	20.9	50.5	40.8	29.1	3.6	3.3

SENECA ARMY DEPOT FEASIBILITY STUDY Table A-13

SEAD-17 Surface Water Analytical Results

10 U	10 U	1 J	10 U	UG/L	0.6 NYS AWQS CLASS C UG/L	bis(2-Ethylhexyl)phthalate
						SEMIVOLATILE ORGANICS
VALUE Q	VALUE Q	VALUE Q	VALUE Q	UNIT	LEVEL SOURCE	PARAMETER
9/11/6	9/11/6	9/18/96	9/18/96	SAMPLE DATE:		
WATER	WATER	WATER	WATER	MATRIX:		
SURFACE	SURFACE	SURFACE	SURFACE			
				BOTTOM:		
				TOP:		
RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	STUDY ID:		
SA	SA	SA	SA	QC CODE:		
16122	16124	16132	16121	SAMP ID:		
6-71GS/WS	SW/SD17-8	2W/SD17-7	9-71GS/WS	LOC_ID:		

OTHER ANALYSES					
Percent Solids (Metals)		0	0	0	0
Total Organic Carbon	MG/L	3.8	5.9	11.1	10.1
Ho	MG/L	7.62	7.53	7.89	7.54

METALS							
Antimony			UG/L	2 U	23.6 J	2 U	2 U
Arsenic	190	NYS AWQS CLASS C	UG/L	2.7 U	3.8 J	4 J	3.2 J
Barium			UG/L	38.8 J	100 J	16 J	24.7 J
Cadmium	1.86	NYS AWQS CLASS C	UG/L	0.3 U	1.3 J	0.3 U	0.3 U
Calcium			UG/L	71800	38800	29300	37100
Chromium	347.27	NYS AWQS CLASS C	NG/L	1 U	1 U	1 U	1 U
Copper	20.29	NYS AWQS CLASS C	NG/L	6.7	32.7	10.5	8.9
Iron	300	NYS AWQS CLASS C	NG/L	112 J	222 J	59.4 J	48.5 J
Lead	7.16	NYS AWQS CLASS C	UG/L	1.7 U	37.1	1.7 U	1.7 U
Magnesium			UG/L	0668	3730	2610	2910
Manganese			UG/L	4.7	9.1	1.4	2.1
Nickel	154.49	NYS AWQS CLASS C	UG/L	1.6 U	1.6 U	1.6 U	1.6 U
Potassium			UG/L	1990	3700	2630	3800
Selenium	-	NYS AWQS CLASS C	UG/L	2.4 U	3.4 J	2.4 U	2.4 U
Sodium			NG/L	8950	6410	1600	1620
Vanadium	14	NYS AWQS CLASS C	UG/L	1.2 U	1.2 U	1.2 U	1.2 U
Zinc	141.38	NYS AWQS CLASS C	NG/L	2.8	61.7	8.9	21.8



APPENDIX B RISK ASSESSMENT ANALYSES

U A DATES

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SUMMARY

TABLES

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SEAD-16

11/03/97

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS
REASONABLE MAXIMUM EXPOSURE (RME)
BASE CASE
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 6-8	Table 6-43	6.90E-02	6.94E-11
	Ingestion of Onsite Soils	Table 6-16	Table 6-45	1.45E-02	1.30E-06
	Dermal Contact to Onsite Soils	Table 6-22	Table 6-47	8.78E-04	6.50E-08
TOTAL RECEPTOR RISK (Nc & Car)				8.44E-02	1.36E-06
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Indoor Air	Table 6-14	Table 6-49	5.72E-01	0.00E+00
	Ingestion of Indoor Dust	Table 6-28	Table 6-51	8.68E+00	3.17E-05
	Dermal Contact to Indoor Dust	Table 6-30	Table 6-53	2.65E+00	8.04E-06
	Ingestion of On-Site Soils	Table 6-13	Table 6-44	1.45E-02	1.30E-06
	Dermal Contact to On-Site Soils	Table 6-14	Table 6-46	8.78E-04	6.50E-08
TOTAL RECEPTOR RISK (Nc & Car)				1.19E+01	3.98E-05
EUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 6-10	Table 6-55	8.62E-01	3.47E-11
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	Table 6-18	Table 6-57	8.71E-01	3.12E-06
	Dermal Contact to Onsite Soils	Table 6-24	Table 6-59	1.10E-02	3.25E-08
TOTAL RECEPTOR RISK (Nc & Car)	*			1.74E+00	3.15E-06
FUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	Table 6-12	Table 6-61	4.83E-02	9.72E-12
1000	Ingestion of Onsite Soils	Table 6-20	Table 6-63	2.03E-01	2.50E-06
	Dermal Contact to Onsite Soils	Table 6-26	Table 6-65	2.44E-03	3.61E-08
	Ingestion of Onsite Surface Water while Wading	Table 6-32	Table 6-67	2.89E-02	6.81E-08
	Dermal Contact to Surface Water while Wading	Table 6-34	Table 6-69	1.79E-03	4.58E-07
	Ingestion of Onsite Sediment	Table 6-36	Table 6-71	3.67E-01	8.98E-07
	Dermal Contact to Sediment while Wading	Table 6-38	Table 6-73	1.46E-02	3.27E-08
TOTAL RECEPTOR RISK (Nc & Car)				6.66E-01	4.00E-06

TABLE 6-41

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 6-8	Table 6-43	6.90E-02	. 2.70E-10
	Ingestion of Onsite Soils	Table 6-16	Table 6-45	1.74E-02	1.86E-06
	Dermal Contact to Onsite Soils	Table 6-22	Table 6-47	1.58E-02	4.94E-07
TOTAL RECEPTOR RISK (Nc & Car)		Charles and		1.02E-01	2.36E-06
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Indoor Air	Table 6-14	Table 6-49	5.72E-01	0.00E+00
	Ingestion of Indoor Dust	Table 6-28	Table 6-51	1.65E+01	2.89E-05
	Dermal Contact to Indoor Dust	Table 6-30	Table 6-53	2.58E+00	5.79E-06
TOTAL RECEPTOR RISK (Nc & Car)	And the second of the second	The same of		1.96E+01	3.47E-05
EUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 6-10	Table 6-55	8.62E-01	1.35E-10
A CONTRACTOR OF THE PARTY OF TH	Ingestion of Onsite Soils	Table 6-18	Table 6-57	1.22E+00	5.06E-06
	Dermal Contact to Onsite Soils	Table 6-24	Table 6-59	6.09E-02	4.52E-08
TOTAL RECEPTOR RISK (Nc & Car)				2.15E+00	5.10E-06
FUTURE TRESSPASSER (Child)	· Inhalation of Dust in Ambient Air	Table 6-12	Table 6-61	4.83E-02	3.77E-11
	Ingestion of Onsite Soils	Table 6-20	Table 6-63	2.35E-01	3.28E-06
	Dermal Contact to Onsite Soils	Table 6-26	Table 6-65	4.38E-02	2.74E-07
	Ingestion of Onsite Surface Water while Wading	Table 6-32	Table 6-67	3.33E-02	1.03E-07
	Dermal Contact to Surface Water while Wading	Table 6-34	Table 6-69	1.80E-03	4.58E-07
	Ingestion of Onsite Sediment	Table 6-36	Table 6-71	3.28E-01	9.95E-07
	Dermal Contact to Sediment while Wading	Table 6-38	Table 6-73	1.25E-02	2.94E-08
TOTAL RECEPTOR RISK (Nc & Car)				7.02E-01	\$ 14F-06

TABLE 6-41

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS REASONABLE MAXIMUM EXPOSURE (RME) CASE 1 SEAD-16 Remedial Investigation Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 6-8	Table 6-43	6.90E-02	2.29E-11
	Ingestion of Onsite Soils	Table 6-16	Table 6-45	2.06E-04	3.42E-06
	Dermal Contact to Onsite Soils	Table 6-22	Table 6-47	0.00E+00	1.51E-08
TOTAL RECEPTOR RISK (Nc & Car)				6.92E-02	3.43E-06
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Indoor Air	Table 6-14	Table 6-49	5.72E-01	0.00E+00
	Ingestion of Indoor Dust	Table 6-28	Table 6-51	8.68E+00	3.17E-05
	Dermal Contact to Indoor Dust	Table 6-30	Table 6-53	2.65E+00	8.04E-06
	Ingestion of On-Site Soils	Table 6-13	Table 6-44	2.06E-04	3.42E-06
	Dermal Contact to On-Site Soils	Table 6-14	Table 6-46	0.00E+00	1.51E-08
TOTAL RECEPTOR RISK (Nc & Car)	The second secon			1.19E+01	3.98E-05
FUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 6-10	Table 6-55	8.62E-01	1.14E-11
CONSTRUCTION WORNERS	Ingestion of Onsite Soils	Table 6-18	Table 6-57	2.42E-01	8.21E-06
	Dermal Contact to Onsite Soils	Table 6-24	Table 6-59	0.00E+00	7.55E-09
TOTAL RECEPTOR RISK (Nc & Car)	,			1.10E+00	8.21E-06
FUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	Table 6-12	Table 6-61	4.83E-02	3.20E-12
	Ingestion of Onsite Soils	Table 6-20	Table 6-63	2.49E-03	7.60E-06
	Dermal Contact to Onsite Soils	Table 6-26	Table 6-65	0.00E+00	8.38E-09
	Ingestion of Onsite Surface Water while Wading	Table 6-32	Table 6-67	2.89E-02	6.81E-08
	Dermal Contact to Surface Water while Wading	Table 6-34	Table 6-69	1.79E-03	4.58E-07
	Ingestion of Onsite Sediment	Table 6-36	Table 6-71	3.67E-01	8.98E-07
	Dermal Contact to Sediment while Wading	Table 6-38	Table 6-73	1.46E-02	3.27E-08
TOTAL RECEPTOR RISK (Nc & Car)				4.63E-01	9.06E-06

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 2
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 6-8	Table 6-43	6.90E-02	2.29E-11
	Ingestion of Onsite Soils	Table 6-16	Table 6-45	2.06E-04	3.42E-06
	Dermal Contact to Onsite Soils	Table 6-22	Table 6-47	0.00E+00	1.51E-08
TOTAL RECEPTOR RISK (Nc & Car)				6.92E-02	3.43E-06
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Indoor Air	Table 6-14	Table 6-49	5.72E-01	0.00E+00
	Ingestion of Indoor Dust	Table 6-28	Table 6-51	8.68E+00	3.17E-05
	Dermal Contact to Indoor Dust	Table 6-30	Table 6-53	2.65E+00	8.04E-06
	Ingestion of On-Site Soils	Table 6-13	Table 6-44	2.06E-04	3.42E-06
	Dermal Contact to On-Site Soils	Table 6-14	Table 6-46	0.00E+00	1.51E-08
TOTAL RECEPTOR RISK (Nc & Car)		The second second		1.19E+01	3.98E-05
FUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 6-10	Table 6-55	8.62E-01	1.14E-11
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	Table 6-18	Table 6-57	2.42E-01	8.21E-06
	Dermal Contact to Onsite Soils	Table 6-24	Table 6-59	0.00E+00	7.55E-09
TOTAL RECEPTOR RISK (Nc & Car)	See and designation of the second		Office and	1.10E+00	8.21E-06
FUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	Table 6-12	Table 6-61	4.83E-02	3.20E-12
	Ingestion of Onsite Soils	Table 6-20	Table 6-63	2.49E-03	7.60E-06
	Dermal Contact to Onsite Soils	Table 6-26	Table 6-65	0.00E+00	8.38E-09
	Ingestion of Onsite Surface Water while Wading	Table 6-32	Table 6-67	2.89E-02	6.81E-08
	Dermal Contact to Surface Water while Wading	Table 6-34	Table 6-69	1.79E-03	4.58E-07
TOTAL RECEPTOR RISK (Nc & Car)				8.15E-02	8.13E-06

Page 1 of 1

TABLE 6-41

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

		EXPOSURE	RISK	HAZARD	CANCER
RECEPTOR	EXPOSURE ROUTE	ASSESSMENT Table Number	CHARACTERIZATION Table Number	INDEX	RISK
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 6-8	Table 6-43	6.90E-02	1.79E-11
	Ingestion of Onsite Soils	Table 6-16	Table 6-45	1.58E-04	3.70E-06
	Dermal Contact to Onsite Soils	Table 6-22	Table 6-47	0.00E+00	1.51E-08
TOTAL RECEPTOR RISK (Ne & Car)				6.91E-02	3.71E-06
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Indoor Air	Table 6-14	Table 6-49	5.72E-01	0.00E+00
	Ingestion of Indoor Dust	Table 6-28	Table 6-51	8.68E+00	3.17E-05
	Dermal Contact to Indoor Dust	Table 6-30	Table 6-53	2.65E+00	8.04E-06
	Ingestion of On-Site Soils	Table 6-13	Table 6-44	1.58E-04	3.70E-06
	Dermal Contact to On-Site Soils	Table 6-14	Table 6-46	0.00E+00	1.51E-08
TOTAL RECEPTOR RISK (Nc & Car)				1.19E+01	3.98E-05
FUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 6-10	Table 6-55	8.62E-01	8.93E-12
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	Table 6-18	Table 6-57	1.32E-01	8.88E-06
	Dermal Contact to Onsite Soils	Table 6-24	Table 6-59	0.00E+00	7.55E-09
TOTAL RECEPTOR RISK (Nc & Car)				9.94E-01	8,88E-06
EUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	Table 6-12	Table 6-61	4.83E-02	2.50E-12
	Ingestion of Onsite Soils	Table 6-20	Table 6-63	1.84E-03	8.28E-06
	Dermal Contact to Onsite Soils	Table 6-26	Table 6-65	0.00E+00	8.39E-09
	Ingestion of Onsite Surface Water while Wading	Table 6-32	Table 6-67	2.89E-02	6.81E-08
	Dermal Contact to Surface Water while Wading	Table 6-34	Table 6-69	1.79E-03	4.58E-07
TOTAL RECEPTOR RISK (Nc & Car)				8.08E-02	8.81E-06

SEAD-16 AND 17 FEASIBILITY STUDY SENECA ARMY DEPOT

SEAD-16 SOIL AREAS FOR REMEDIATION

SAMPLING LOCATIONS REMEDIATED OR EXCAVATED ²	SS16-2 through 5, SS16-8, SS16 11, SS16-14, SS16-16, SS16-19 through 24, SS16-26 through 28, SS16-35, SB16-1	SS16-2 through 5, SS16-8, SS16 11, SS16-14, SS16-16, SS16-19 through 24, SS16-26 through 28, SS16-35, SB16-1, SD/SW16-1 through 10	SS16-2 through 5, SS16-8, SS16 11, SS16-14, SS16-16, SS16-19 through 24, SS16-26 through 28, SS16-35, SB16-1, SD/SW16-1 through 10, SB16-2, SB16-5
VOLUME (yd³)	<u>675</u> 675	478	1,262
DEPTH (in)	ω	Ø	24
AREA (ft²)	36,452	25,828	1,964
DESCRIPTION OF AREA TO BE REMEDIATED ¹	East and Southeast Areas Outside S 311 Cumulative Soil Volume	Sediment in Drainage Ditches on Southeast Corner of S-311 Cumulative Soil Volume	Subsurface soil on Southeast and Northeast Side of Bldg S-311 Cumulative Soil Volume
CLEAN UP GOAL	Pb <500 mg/kg	Pb <31 mg/kg	Pb <500 mg/kg
BASIS	a) Protection of Current and Future On-site Workersb) Protection of Surface Water	a) Protection of Terrestrial and Aquatic Ecologyb) Protection of Surface Water	a) Protection of Current and Future On-site Workersb) Protection of Ground Water
CASE REMEDIAL ACTION OBJECTIVES		a) Prevent ingestion/direct contact with sediment having excess heavy metals b) Prevent sediment migration in surface water	 a) Prevent ingestion/direct contact with subsurface soil having excess heavy metals b) Minimize potential for leaching to groundwater
CASE	~	6	m

1) For Case 3, area to be remediated/excavated includes an additional 24 inches in depth within the areas considered by Case 1 (see Figure 2-1).

2) Bold items in Sampling Location Column are additional locations to be remediated/excavated when the case is considered.

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SEAD-17

TABLE 7-41

Calculation Of Total Noncarcinogenic and Carcinogenic Risks
Resonable Maximum Exposure (RME)
BASECASE
SEAD 17 - Remedial Investigation
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 7-8	Table 7-43	7.08E-04	3.18E-08
	Ingestion of Onsite Soils	Table 7-16	Table 7-45	5.48E-03	4.47E-07
	Dermal Contact to Onsite Soils	Table 7-24	Table 7-47	1.21E-02	1.64E-08
TOTAL RECEPTOR RISK (Nc & Car)				1.83E-02	4.95E-07
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	Table 7-10	Table7-49	8.86E-03	3.98E-07
	Ingestion of Onsite Soils	Table 7-18	Table 7-51	2.19E-02	1.79E-06
	Dermal Contact to Onsite Soils	Table 7-26	Table 7-53	4.84E-02	6.55E-08
TOTAL RECEPTOR RISK (Nc & Car)				7.92E-02	2.25E-06
FUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 7-12	Table 7-55	8.86E-03	1.59E-08
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	Table 7-20	Table 7-57	5.16E-01	1.08E-06
	Dermal Contact to Onsite Soils	Table 7-28	Table 7-59	4.30E-03	1.17E-08
TOTAL RECEPTOR RISK (Nc & Car)				5.29E-01	1.11E-06
FUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	Table 7-14	Table 7-61	4.96E-04	4.45E-09
	Ingestion of Onsite Soils	Table 7-22	Table 7-63	7.67E-02	1.25E-06
	Dermal Contact to Onsite Soils	Table 7-30	Table 7-65	3.36E-02	9.09E-09
	Ingestion of Onsite Surface Water while Wading	Table 7-32	Table 7-67	1.04E-02	7.33E-08
	Dermal Contact to Surface Water while Wading	Table 7-34	Table 7-69	8.91E-06	2.34E-09
	Ingestion of Onsite Sediment	Table 7-36	Table 7-71	9.57E-02	5.61E-07
	Dermal Contact to Sediment while Wading	Table 7-38	Table 7-73	4.76E-03	0.00E+00
TOTAL RECEPTOR RISK (Nc & Car)				2.22E-01	1.90E-06

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TABLE 7-41

Calculation Of Total Noncarcinogenic and Carcinogenic Risks
Resonable Maximum Exposure (RME)

CASE 1

SEAD 17 - Remedial Investigation
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 7-8	Table 7-43	5.22E-04	2.05E-08
	Ingestion of Onsite Soils	Table 7-16	Table 7-45	3.74E-03	4.49E-07
	Dermal Contact to Onsite Soils	Table 7-24	Table 7-47	3.12E-03	2.04E-08
TOTAL RECEPTOR RISK (Nc & Car)				7.38E-03	4.89E-07
EUTURE INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	Table 7-10	Table7-49	6.53E-03	2.56E-07
The state of the s	Ingestion of Onsite Soils	Table 7-18	Table 7-51	1.50E-02	1.79E-06
	Dermal Contact to Onsite Soils	Table 7-26	Table 7-53	1.25E-02	8.15E-08
TOTAL RECEPTOR RISK (Nc & Car)			2012	3.40E-02	2.13E-06
EUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 7-12	Table 7-55	6.53E-03	1.02E-08
CONSTRUCTION WORNERS	Ingestion of Onsite Soils	Table 7-20	Table 7-57	2.75E-01	1.08E-06
	Dermal Contact to Onsite Soils	Table 7-28	Table 7-59	0.00E+00	1.02E-08
TOTAL RECEPTOR RISK (Nc & Car)				2.82E-01	1.10E-06
EUTURE TRESSPASSER (Child)	· Inhalation of Dust in Ambient Air	Table 7-14	Table 7-61	3.66E-04	2.87E-09
	Ingestion of Onsite Soils	Table 7-22	Table 7-63	5.24E-02	1.26E-06
	Dermal Contact to Onsite Soils	Table 7-30	Table 7-65	8.65E-03	1.13E-08
	Ingestion of Onsite Surface Water while Wading	Table 7-32	Table 7-67	1.04E-02	7.33E-08
	Dermal Contact to Surface Water while Wading	Table 7-34	Table 7-69	8.91E-06	2.34E-09
	Ingestion of Onsite Sediment	Table 7-36	Table 7-71	9.57E-02	5.61E-07
	Dermal Contact to Sediment while Wading	Table 7-38	Table 7-73	4.76E-03	0.00E+00
TOTAL RECEPTOR RISK (Nc & Car)				1.72E-01	1.91E-06

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TABLE 7-41

Calculation Of Total Noncarcinogenic and Carcinogenic Risks
Resonable Maximum Exposure (RME)
CASE 2
SEAD 17 - Remedial Investigation
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD INDEX	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 7-8	Table 7-43	5.22E-04	2.05E-08
	Ingestion of Onsite Soils	Table 7-16	Table 7-45	3.74E-03	4.49E-07
	Dermal Contact to Onsite Soils	Table 7-24	Table 7-47	3.12E-03	2.04E-08
TOTAL RECEPTOR RISK (Nc & Car)				7.38E-03	4.89E-07
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	Table 7-10	Table7-49	6.53E-03	2.56E-07
	Ingestion of Onsite Soils	Table 7-18	Table 7-51	1.50E-02	1.79E-06
	Dermal Contact to Onsite Soils	Table 7-26	Table 7-53	1.25E-02	8.15E-08
TOTAL RECEPTOR RISK (Nc & Car)				3.40E-02	2.13E-06
EUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 7-12	Table 7-55	6.53E-03	1.02E-08
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	Table 7-20	Table 7-57	2.75E-01	1.08E-06
	Dermal Contact to Onsite Soils	Table 7-28	Table 7-59	0.00E+00	1.02E-08
TOTAL RECEPTOR RISK (Nc & Car)				2.82E-01	1.10E-06
EUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	Table 7-14	Table 7-61	3.66E-04	2.87E-09
	Ingestion of Onsite Soils	Table 7-22	Table 7-63	5.24E-02	1.26E-06
	Dermal Contact to Onsite Soils	Table 7-30	Table 7-65	8.65E-03	1.13E-08
	Ingestion of Onsite Surface Water while Wading	Table 7-32	Table 7-67	1.04E-02	7.33E-08
	Dermal Contact to Surface Water while Wading	Table 7-34	Table 7-69	8.91E-06	2.34E-09
TOTAL RECEPTOR RISK (Nc & Car)				7.19E-02	1.35E-06

TABLE 7-41

Calculation Of Total Noncarcinogenic and Carcinogenic Risks

	Calculation O.1 101ai Noncartinogenic and Carcinogenic Assassa Resonable Maximum Exposure (RME) CASE 3 SEAD 17 - Remedial Investigation Seneca Army Depot Activity	and Cartinogene wish source (RME) vestigation Activity			
RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 7-8	Table 7-43	5.24E-04	2.04E-08
The second second second	Ingestion of Onsite Soils	Table 7-16	Table 7-45	3.88E-03	4.54E-07
	Dermal Contact to Onsite Soils	Table 7-24	Table 7-47	3.09E-03	2.08E-08
TOTAL RECEPTOR RISK (Nc & Car)		The state of the s		7,49E-03	4.95E-07
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	Table 7-10	Table7-49	6.55E-03	2.55E-07
A STATE OF S	Ingestion of Onsite Soils	Table 7-18	Table 7-51	1.55E-02	1.82E-06
	Dermal Contact to Onsite Soils	Table 7-26	Table 7-53	1.24E-02	8.31E-08
TOTAL RECEPTOR RISK (Nc & Car)		4		3.44E-02	2.15E-06
FUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 7-12	Table 7-55	6.55E-03	1.02E-08
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	Table 7-20	Table 7-57	2.80E-01	1.09E-06
	Dermal Contact to Onsite Soils	Table 7-28	Table 7-59	0.00E+00	1.04E-08
TOTAL RECEPTOR RISK (Nc & Car)				2.87E-01	1.11E-06
FUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	Table 7-14	Table 7-61	3.67E-04	2.85E-09
	Ingestion of Onsite Soils	Table 7-22	Table 7-63	5.43E-02	1.27E-06
	Dermal Contact to Onsite Soils	Table 7-30	Table 7-65	8.58E-03	1.15E-08
	Ingestion of Onsite Surface Water while Wading	Table 7-32	Table 7-67	1.04E-02	7.33E-08
	Dermal Contact to Surface Water while Wading	Table 7-34	Table 7-69	8.91E-06	2.34E-09
TOTAL RECEPTOR RISK (Nc & Car)				7.37E-02	1.36E-06

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TABLE 7-41

Calculation Of Total Noncarcinogenic and Carcinogenic Risks Resonable Maximum Exposure (RME)

SEAD 17 - Remedial Investigation Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	EXPOSURE ASSESSMENT Table Number	RISK CHARACTERIZATION Table Number	HAZARD INDEX	CANCER
CURRENT SITE WORKER	Inhalation of Dust in Ambient Air	Table 7-8	Table 7-43	8.23E-04	3.52E-08
	Ingestion of Onsite Soils	Table 7-16	Table 7-45	1.15E-02	S.41E-07
	Dermal Contact to Onsite Soils	Table 7-24	Table 7-47	1.65E-02	2.21E-08
TOTAL RECEPTOR RISK (Nc & Car)				2.88E-02	5.98E-07
FUTURE INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	Table 7-10	Table7-49	1.03E-02	4.40E-07
	Ingestion of Onsite Soils	Table 7-18	Table 7-51	4.62E-02	2.16E-06
	Dermal Contact to Onsite Solis	Table 7-26	Table 7-53	6.59E-02	8.84E-08
TOTAL RECEPTOR RISK (Nc & Car)				1.22E-01	2.69E-06
FUTURE ON-SITE	Inhalation of Dust in Ambient Air	Table 7-12	Table 7-55	1.03E-02	1.76E-08
CONSTRUCTION WORKERS	Ingestion of Onsite Soils	Table 7-20	Table 7-57	6.91E-01	1.30E-06
	Dermal Contact to Onsite Soils	Table 7-28	Table 7-59	1.37E-01	1.73E-08
TOTAL RECEPTOR RISK (Nc & Car)				8.39E-01	1.34E-06
FUTURE TRESSPASSER (Child)	Inhalation of Dust in Ambient Air	Table 7-14	Table 7-61	5.76E-04	4.93E-09
	Ingestion of Onsite Soils	Table 7-22	Table 7-63	1.62E-01	1.51E-06
	Dermal Contact to Onsite Soils	Table 7-30	Table 7-65	4.57E-02	1.23E-08
	Ingestion of Onsite Surface Water while Wading	Table 7-32	Table 7-67	1.07E-02	7.33E-08
	Dermal Contact to Surface Water while Wading	Table 7-34	Table 7-69	8.96E-06	2.34E-09
	Ingestion of Onsite Sediment	Table 7-36	Table 7-71	1.05E-01	5.91E-07
	Dermal Contact to Sediment while Wading	Table 7-38	Table 7-73	9.51E-03	0.00E+00
TOTAL RECEPTOR RISK (Nc & Car)				3.33E-01	2.20E-06

CALLES SOLIS SERIOR SINCE Parameter Units Analyses 6.94 6.96 5.04 5.81 0.95 1.75 7.75				Valid R	Rejected No. of	No. of						Lognormal	Lognormal 95th UCL of	
Acceptione UGKG 55 0 3 55% 6434 4515 10.76 12.87 73.88 Burszene UGKG 55 0 1 1.8% 5.34 1.00 FALEE FALEE 6.135 NIC Ze-Dinitrotlonen UGKG 55 0 5 1.9% 24.99 2.80.11 1.0000 FALEE FALEE 6.135 NIC Ze-Dinitrotlonen UGKG 55 0 1 1.8% 24.99 2.80.11 4.000 FALEE FALEE 6.135 NIC Ze-Dinitrotlonen UGKG 55 0 1 1.8% 21.701 1.21.95 1.000 FALEE FALEE 6.145 NIC Ze-Dinitrotlonen UGKG 55 0 1 1.8% 21.701 1.21.95 1.000 FALEE FALEE 6.145 NIC Ze-Dinitrotlonen UGKG 55 0 1 1.8% 21.701 1.21.99 1.000 FALEE FALEE 6.143 2.000 FALEE 6.145 6.1	Class	Parameter	1000		QLs	Hits	Freq. (%) 1	Mean	Std. Dev.	Max. Hit	Normal?	3		PC
Beavenee UGKG 55 0 2 36% 5941 0.539 2000 FALSE FALSE 6.153 Tolknen UGKG 55 1 1.8% 6.023 1.153 8.000 FALSE FALSE FALSE 6.158 Tolknen UGKG 55 0 1.95,819 2.897 1.000 FALSE FALSE 6.158 NIC 2-Chainteoleure UGKG 55 0 6 1.95,819 2.897 1.000 FALSE FALSE 2.9105 NIC 2-Chainteoleure UGKG 55 0 1.95,819 2.897 1.000 FALSE FALSE 2.9105 NIC 2-Chainteoleuridure UGKG 55 0 1.95,819 1.898 2.8106 1.898 2.9106 1.898 2.8106 1.898 2.8106 1.898 2.8106 1.898 2.8106 1.898 2.8107 1.808 2.8118 2.8118 2.8118 2.8118 2.8118 2.8118 2.8118 2.8118 2.8118 2.8118 2.8118 2.8118	VOLATILE ORGANICS	Acetone			0	3	5.5%		4.515	10.750		FALSE	7.278	7.278
Methylene chloride UGKG 55 0 1 18% 603 613 4000 FALSE FALSE 6175 744-bittorollenee UGKG 55 0 5 91% 244-909 28.021 400.000 FALSE FALSE 277213 274-bittorollenee UGKG 54 1 1 19% 19.255 28.92 190.000 FALSE FALSE 277213 274-bittorollenee UGKG 54 1 1 19% 19.255 28.92 190.000 FALSE FALSE 277213 274-bittorollenee UGKG 54 1 1 1 18% 21709 132.105 410.000 FALSE FALSE 275.135 27.000 FALSE PALSE 27.000 FALSE	VOLATILE ORGANICS	Benzene	UG/KG	55	0	2	3.6%	5.941	0.939	2.000		FALSE	6.305	2.000
Tolcheme UGKG 55 0 5 91% 590 2801 1133 8000 FALSE FALSE 540 5240 1240tolou FALSE FALSE 544 514 514 514 514 514 514 514 514 514	VOLATILE ORGANICS	Methylene chloride	UG/KG	55	0	_	1.8%	6.023	0.631	4.000		FALSE	6.175	4.000
2.4-Dimitrooluene UGKG 55 0 6 109% 244-909 228.021 1400.000 FALSE 273.21 23.24-Dimitrooluene UGKG 54 1 1 19% 193.56 22.895 70.000 FALSE PALSE 273.21 23.3-Dishloroberalization UGKG 55 0 1 18% 217.051 13.105 70.000 FALSE PALSE 27.81 90.000 FALSE PALSE 27.81 90.000 FALSE 26.431 26.00 40.100 FALSE 26.431 26.00 40.100 FALSE 26.431 26.43	VOLATILE ORGANICS	Toluene	UG/KG	55	0	5	%1.6	5.905	1.153	8.000		FALSE	6.469	6.469
2.6-Distinctoluene UGKG 54 1 1 98 193519 2.889 70.000 FALSE 2.04.13 2.6-Abtinionoluene UGKG 54 1 1 19% 192.56 83.50 10.000 FALSE FALSE 2.04.41 5 3.3Victionomenencial UGKG 55 0 1 18% 52.136 130.000 FALSE FALSE 2.64.31 5 3.3Victonaline UGKG 54 1 2 3.7% 190.204 38.99 30.000 FALSE FALSE 2.64.31 5 Accaraphthylene UGKG 54 1 2 3.7% 190.204 38.90 30.000 FALSE FALSE 2.65.93 Accaraphthylene UGKG 55 0 1 3.9% 18.62.71 7.000 FALSE FALSE 2.66.93 Berzo/la phylane UGKG 55 0 1 3.9% 18.63.7 10.000 FALSE 2.60.93 1	SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	55	0	9	10.9%	244.909	228.021	1400.000		FALSE	273.213	273.213
2. Methylnaphthalene UG/KG 54 1 2 37% 192556 28.83 130.000 FALSE PALSE 20-10 1 3.3-Delpthopenendine UG/KG 55 0 1 1.8% 221736 315.413 90.000 FALSE FALSE 26.431 5 3.4-Delpthopenendine UG/KG 55 0 1 1.8% 221.136 315.413 90.000 FALSE FALSE 26.431 5 Accumphithene UG/KG 54 1 2 3.7% 190.204 29.531 90.000 FALSE 26.431 5 Bernzolejhurrene UG/KG 54 1 2 3.7% 190.204 29.531 300.00 FALSE 26.431 5 Bernzolejhurrene UG/KG 55 0 1 2.95% 18.63 30.000 FALSE 26.93 3 26.63 26.94 30.000 FALSE 26.93 3 26.93 30.000 FALSE 26.431 5 26.93	SEMIVOLATILE ORGANIC	2,6-Dinitrotoluene	UG/KG	54	1	1	1.9%	193.519	22.895	70.000		FALSE	201.453	70.000
3-3-Dichlorobenzidine UG/KG 55 0 1 1.8% 217.091 132.195 410.000 FALSE FALSE 525.89 2 3-Nitroaniline UG/KG 55 0 1 1.8% 525.135 315.413 990.000 FALSE FALSE 546.413 5 3-Nitroaniline UG/KG 55 0 1 1.8% 525.135 315.413 990.000 FALSE FALSE 546.413 5 4-Nitroaniline UG/KG 54 1 2 3.7% 190.204 35.893 33.00 FALSE FALSE 206.905 712 712 712 712 712 712 712 712 712 712	SEMIVOLATILE ORGANIC	2-Methylnaphthalene	UG/KG	54	1	7	3.7%	192.556	28.530	130.000		FALSE	209.105	130.000
3-Nitroaniline UGKG 55 0 1 18% 525.136 315.413 990.000 FALSE FALSE 546.431 5 4-Nitroaniline UGKG 55 0 1 18% 525.136 315.413 990.000 FALSE FALSE 546.431 5 Accomplitation UGKG 54 1 2 37% 192.056 29.531 96.000 FALSE FALSE 20.6590 Authracene UGKG 54 1 2 37% 19.056 29.531 90.000 FALSE FALSE 20.6590 Benzolejlutvamene UGKG 55 0 17 30.9% 18.244 19.000 FALSE FALSE 20.637 Benzolejlutvamene UGKG 55 0 1 2.55% 19.648 19.6483 94.000 FALSE 24.029 28.23 Benzolejlutvaminene UGKG 55 0 1 2.55% 19.6484 19.000 FALSE FALSE	SEMIVOLATILE ORGANIC	3,3'-Dichlorobenzidine	UG/KG	55	0	-	1.8%	217.091	132.195	410.000		FALSE	225.892	225.892
4-Nitroaniline UGKG 55 0 1 18% 525,136 315,413 990,000 FALSE FALSE 546,411 5 Acenaphthylene UGKG 54 1 2 3.7% 190,204 35,893 33,000 FALSE FALSE 206,590 Annthracene UGKG 54 1 2 3.7% 190,204 35,893 33,000 FALSE FALSE 206,590 Benzolghitherene UGKG 55 0 17 30,9% 18,273 130,000 FALSE FALSE 209,277 1 Benzolghitheranthere UGKG 55 0 17 30,9% 216,855 316,342 200,000 FALSE FALSE 209,277 1 Benzolghitheranthere UGKG 55 0 14 25.9% 19,564 16,483 310,000 FALSE FALSE 209,272 1 Benzolghitheranthere UGKG 55 0 14 25.9% 19,564 16,483 310,000 FALSE 7ALSE 20,202 20	SEMIVOLATILE ORGANIC	3-Nitroaniline	UG/KG	55	0	-	1.8%	525.136	315.413	990.000		FALSE	546.431	546.431
Acenaphthene UGKG 54 1 2 3.7% 190.204 53.839 33.000 FALSE FALSE 206.979 Acenaphthene UGKG 54 1 2 3.7% 190.204 29.81 96.000 FALSE PALSE 206.979 140.404 20.000 FALSE PALSE 206.970 140.404 20.000 FALSE PALSE 206.904 20.000 FALSE PALSE 206.904 20.000 FALSE FALSE 206.90	SEMIVOLATILE ORGANIC	4-Nitroaniline	UG/KG	55	0	-	1.8%	525.136	315.413	990.000		FALSE	546.431	546.431
Acenaphthylene UGKG 54 1 2 3.7% 192.056 29.551 96.000 FALSE FALSE 206.550 Anthracenee UGKG 54 1 3 5.6% 19.661 31.057 10.000 FALSE FALSE 206.572 1 Benzolajanthracenee UGKG 55 0 18 32.7% 188.364 16.483 94.000 FALSE FALSE 206.372 1 Benzolajpranee UGKG 55 0 17 30.9% 216.853 316.542 200.000 FALSE FALSE 206.372 1 Benzolajpranee UGKG 55 0 14 25.5% 188.364 19.6483 94.000 FALSE FALSE 280.826 2 Benzolajpranee UGKG 55 0 14 25.5% 183.573 158.117 530.000 FALSE FALSE 280.826 2 Benzolajpranee UGKG 55 0 14 25.5% 183.573 158.117 530.000 FALSE FALSE 259.062 2 Benzolajpranee UGKG 55 0 14 25.5% 183.573 158.117 530.000 FALSE FALSE 259.062 2 Benzolajpranee UGKG 55 0 1 1 20.9% 27.63.45 2 26.649 10.000 FALSE FALSE 290.062 2 Bis(2-Cthoroisopropy)ether UGKG 55 0 1 1 25.9% 191.44 135.00 46.000 FALSE FALSE 290.062 2 Divenzole UGKG 55 0 2 2 3.7% 191.67 30.000 FALSE FALSE 20.33.49 2 Chrysene UGKG 55 0 2 2 3.7% 194.44 18.369 120.000 FALSE FALSE 20.33.49 2 Chrysene UGKG 55 0 2 2 3.64% 2 16.023 1 135.23 4 10.000 FALSE FALSE 20.33.49 2 Chrysene UGKG 55 0 2 2 3.64% 2 16.03 1 135.23 4 10.000 FALSE FALSE 20.33.49 2 Chrysene UGKG 55 0 2 2 3.64% 2 16.03 1 135.23 4 10.000 FALSE FALSE 20.33.49 2 Chrysene UGKG 55 0 2 2 3.64% 2 16.03 1 135.23 4 10.000 FALSE FALSE 20.33.49 2 Chrysene UGKG 55 0 2 3 6.4% 2 16.03 1 135.23 4 10.000 FALSE FALSE 20.33.49 2 Chrysene UGKG 55 0 1 1 1 1.9% 193.44 26.47 36.000 FALSE FALSE 20.33.8 1 10.000 FALSE FALSE 20.03.8 1 10.03.8 1 10.03.8 1 10.03.8 1 10.03.8 1 10.03.8 1 10.03.8 1 10.03	SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	54	pent	2	3.7%	190.204	35.893	33.000		FALSE	218.404	33.000
Anthracene UGKG 54 1 3 56% 190611 31.057 13000 FALSE FALSE 209.727 1 Benzolejantracene UGKG 55 0 17 30.9% 216.855 316.542 200.000 FALSE FALSE 287.067 2 Benzolejantracene UGKG 55 0 17 30.9% 216.855 316.542 2200.000 FALSE FALSE 287.067 2 Benzolejantracene UGKG 55 0 14 25.5% 919.544 10.000 FALSE FALSE 287.007 2 Benzolejantracene UGKG 55 0 14 25.5% 197.944 10.000 FALSE FALSE 287.007 2 Bis(2-Ethylhexyl)phthalate UGKG 55 0 18 37.7% 20.800 FALSE FALSE 287.007 2 Carbazole UGKG 55 0 1 43.9% 10.000 FALSE FALSE	SEMIVOLATILE ORGANIC	Acenaphthylene	UG/KG	54		2	3.7%	192.056	29.551	96.00		FALSE	206.950	000'96
Benzo(a)anthracene UG/KG 55 0 17 30.9% 185.273 175.357 720.000 FALSE FALSE 276.034 2 Benzo(a)anthracene UG/KG 55 0 18 32.7% 188.364 196.482 90.000 FALSE FALSE FALSE 280.826 2 Benzo(a)filuoranthene UG/KG 55 0 14 25.5% 187.964 160.840 100.000 FALSE FALSE 280.020 2 Benzo(a)filuoranthene UG/KG 55 0 1 25.5% 187.964 160.800 FALSE FALSE 259.062 2 Bis/2-Chlorevisopropy)ether UG/KG 55 0 1 25.7% 276.345 350.000 FALSE FALSE 259.022 2 Cerbszole UG/KG 55 0 1 15.3% 10.000 FALSE FALSE 25.05.24 2 Cerbszole UG/KG 55 0 2 13.444 18.369	SEMIVOLATILE ORGANIC	Anthracene	UG/KG	54	-	m	2.6%	1190.611	31.057	130.00		FALSE	209.727	130.000
Benzo[alpyrene UG/KG 55 0 18 32.7% 188.364 196.483 940.000 FALSE FALSE 280.826 2 Benzo[alpyrene UG/KG 55 0 17 30.9% 216.855 316.342 200.000 FALSE FALSE 287.027 24.029 2 24.029 2 24.029 2 24.029 2 24.029 2 24.029 2 24.029 2 24.029 2 24.029 2 26.000 FALSE FALSE 287.029 2 24.020 2 20.0870 46.984 410.000 FALSE FALSE 259.062 2 24.028 20.0870 46.984 410.000 FALSE FALSE 259.062 2 23.006 2 20.0870 46.984 410.000 FALSE FALSE 259.062 2 23.006 410.000 FALSE FALSE 259.062 2 23.009 410.000 FALSE FALSE 259.062 2 23.009 2	SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	55	0	17	30.9%	185.273	175.357	720.000		FALSE	276.034	276.034
Benzo[b]fluoranthene UG/KG 55 0 17 30.9% 216.855 316.342 200.000 FALSE FALSE 287.067 2 Benzo[b]fluoranthene UG/KG 55 0 14 25.5% 187.964 160.000 FALSE FALSE 254.029 2 Bist(2-Chlorisopper)pluben UG/KG 55 0 1 4.3% 10.000 FALSE FALSE 254.029 2 Bist(2-Chlorisopper)plublate UG/KG 55 0 1 4.3% 276.345 264.694 130.000 FALSE FALSE 254.029 2 Bist(2-Libylhexyl)pplublate UG/KG 55 0 1 2.3% 120.01 56.000 FALSE FALSE 259.234 Carbazole UG/KG 55 0 2 3.5% 120.01 FALSE FALSE 259.22 259.22 259.22 259.22 259.22 259.22 259.22 259.22 259.22 259.22 259.22 259.22 259.22<	SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	55	0	18	32.7%	188.364	196.483	940.00		FALSE	280.826	280.826
Benzolghilperylene UGKG 55 0 14 25.5% 197.964 169.840 710.000 FALSE FALSE 254.029 2 Benzolghilperylene UGKG 55 0 14 25.5% 183.77 150.000 FALSE FALSE 259.062 2 Bis/C-Chlynevisopropyl)ether UGKG 55 0 18 327.% 20.874 46.694 10000 FALSE FALSE 213.49 2 Bis/C-Ethylnevylphthalate UGKG 55 0 3 5.5% 213.091 135.238 410.000 FALSE FALSE 299.62 Chrysene UGKG 55 0 2 49.1% 156.409 182.734 670.000 FALSE 78.449 299.52 Chrysene UGKG 55 0 2 49.1% 18.449 182.734 670.000 FALSE 78.449 18.249 19.244 18.369 110.000 FALSE 78.449 18.249 19.2444 18.369 11	SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	55	0	17	30.9%	216.855	•	2200.000		FALSE	287.067	287.067
Benzo[k]fluoranthene UG/KG 55 0 14 25.5% 183.573 158.117 530.000 FALSE FALSE 259.062 2 Bist_C-Chlororisopropy)ether UG/KG 53 0 1 4.3% 200.870 46.984 410.000 FALSE FALSE 213.496 2 Bist_C-Chlororisopropy)ether UG/KG 54 1 2 27.7% 213.091 135.238 410.000 FALSE FALSE 203.34 3 Chrysene UG/KG 55 0 2 49.1% 156.409 182.734 670.00 FALSE FALSE 209.324 Chrysene UG/KG 55 0 2 49.1% 156.409 182.734 670.00 FALSE FALSE 209.324 Diben-burylphthalate UG/KG 55 0 2 49.1% 16.444 18.369 170.00 FALSE FALSE 209.324 Diben-burylphthalate UG/KG 55 0 2 49.1% <	SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	55	0	14	1 25.5%	197.964				FALSE	254.029	254.029
Bis(2-Chloroisopropyl)ether UGKG 23 0 1 4.3% 200.870 46.968 410.000 FALSE FALSE 213.496 2 Bis(2-Ethylhexyl)phthalate UGKG 55 0 18 32.7% 276.345 26.464 130.000 FALSE FALSE 347.496 2 Bury/bearzylphthalate UGKG 55 0 2 3.7% 19.167 33.001 46.000 FALSE FALSE 209.324 Carbazole UGKG 55 0 2 4.944 18.369 120.000 FALSE FALSE 209.324 Crassols (-a) UGKG 55 0 2 4.444 18.369 120.00 FALSE FALSE 209.324 Crassols (-a) UGKG 55 0 2 4.444 18.369 120.00 FALSE FALSE 24.458 19.192 Dibenz(a.h) UGKG 55 0 2 36.4% 216.773 186.387 120.00 FALSE	SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	55	0	14	1 25.5%	183.573		530.00		FALSE	259.062	259.062
Bis(2-Ethylhexyl)phthalate UG/KG 55 0 18 32.7% 276.345 264.694 1300.000 FALSE FALSE 247.543 3 Butylbenzylphthalate UG/KG 54 1 2 3.7% 191.167 33.001 46.000 FALSE FALSE 209.324 Carbazole UG/KG 55 0 3 5.5% 213.091 135.238 410.000 FALSE FALSE 229.562 2 Cresols (-o) UG/KG 54 1 1 19% 194.444 18.369 120.000 FALSE FALSE 209.324 Di-n-butylphthalate UG/KG 55 0 26.494 18.369 120.000 FALSE FALSE 242.556 209.324 Di-n-butylphthalate UG/KG 55 0 36.49 16.444 18.369 120.000 FALSE FALSE 242.556 29.500 Dentalse FALSE 242.556 29.500 Dentalse 74.186 74.58 74.000 74.	SEMIVOLATILE ORGANIC	Bis(2-Chloroisopropyl)ether	UG/KG	23	0		4.3%	200.870				FALSE	213.496	213.496
Butylbenzylphthalate UGKG 54 1 2 3.7% 191.167 33.001 46.000 FALSE 209.324 Carbazole UGKG 55 0 3 5.5% 213.091 135.238 410.000 FALSE FALSE 229.562 2 Chrysene UGKG 55 0 27 49.1% 156.499 182.734 670.000 FALSE FALSE 229.562 2 Di-n-butylphthalate UGKG 55 0 20 36.4% 216.773 186.387 120.000 FALSE FALSE 266.596 2 Di-n-butylphthalate UGKG 54 1 1 19% 194.44 26.407 120.000 FALSE FALSE 266.596 2 20.2727 14.855 120.000 FALSE FALSE 266.596 2 20.2727 14.855 100.000 FALSE FALSE 266.534 2 20.2727 14.855 100.000 FALSE 273.029 2 20.2727	SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate	UG/KG	55	0	18	32.7%	276.345	69,05	1300.00		FALSE	347.543	347.543
Carbazole UG/KG 55 0 3 5.5% 213.091 135.238 410.000 FALSE 729.562 2 Chrysene UG/KG 55 0 27 49.1% 156.409 182.734 670.000 FALSE TRUE 238.449 2 Cresols (-o) UG/KG 55 0 27 49.1% 156.409 182.734 670.000 FALSE TRUE 238.449 2 Dien-burylphthalate UG/KG 55 0 20 36.4% 216.773 186.387 120.000 FALSE FALSE 199.192 1 Dien-burylphthalate UG/KG 54 1 1 1.9% 193.444 18.369 120.00 FALSE FALSE 199.192 1 Dibenzichuan UG/KG 54 1 1 1.9% 193.444 26.47 36.00 FALSE 273.25 2 20.275 144.855 470.00 FALSE FALSE 207.136 273.23 2	SEMIVOLATILE ORGANIC	Butylbenzylphthalate	UG/KG	54	1		3.7%	191.167		46.00		FALSE	209.324	46.000
Chrysene UG/KG 55 0 27 49.1% 156.409 182.734 670.000 FALSE TRUE 238.449 2 Cresols (-o) UG/KG 54 1 1.9% 194.444 18.369 120.000 FALSE FALSE 199.192 1 Di-n-but/phthalate UG/KG 55 0 20 36.4% 216.773 186.387 120.000 FALSE FALSE 199.192 1 Dibenzofuran UG/KG 55 0 2 36.4% 16.055 21.224 470.000 FALSE FALSE 207.136 Fluoranthene UG/KG 55 0 1 1.9% 193.444 26.457 36.000 FALSE FALSE 207.136 Fluoranthene UG/KG 55 0 1 1.9% 193.444 26.457 180.000 FALSE FALSE 207.136 N-Nitrosodiphenylamine UG/KG 54 1 4 4.4% 180.00 FALSE FALSE </td <td>SEMIVOLATILE ORGANIC</td> <td>Carbazole</td> <td>UG/KG</td> <td>55</td> <td>0</td> <td>-</td> <td>3 5.5%</td> <td>213.091</td> <td></td> <td></td> <td></td> <td>FALSE</td> <td>229.562</td> <td>229.562</td>	SEMIVOLATILE ORGANIC	Carbazole	UG/KG	55	0	-	3 5.5%	213.091				FALSE	229.562	229.562
Cresols (-0) UG/KG 54 1 1.9% 194.44 18.369 120.000 FALSE FALSE 199.192 1 Dib-n-butylphthalate UG/KG 55 0 20 36.4% 216.773 186.387 1200.000 FALSE FALSE 266.596 2 Dib-n-butylphthalate UG/KG 55 0 2 36.4% 216.773 186.387 1200.000 FALSE FALSE 266.596 2 Dibenzofuran UG/KG 54 1 1 1.9% 193.444 26.467 36.000 FALSE FALSE 207.136 Fluorene UG/KG 54 1 1 1.9% 193.44 26.447 36.000 FALSE FALSE 207.136 Fluorene UG/KG 54 1 1 1.9% 193.44 26.447 36.000 FALSE FALSE 207.136 N-Nitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95	SEMIVOLATILE ORGANIC	Chrysene	UG/KG	55	0	2.	7 49.1%	156.409		C-5-1/		TRUE	238.449	238.449
Din-buylphthalate UG/KG 55 0 20 36.4% 216.773 186.387 1200.000 FALSE FALSE 266.596 2 Dibenz(a,h)anthracene UG/KG 55 0 8 14.5% 202.727 144.855 470.000 FALSE FALSE 242.255 2 Dibenzofuran UG/KG 54 1 1.9% 193.444 26.467 36.000 FALSE FALSE 27.136 Fluoranthene UG/KG 54 1 1.9% 193.481 26.243 38.000 FALSE 76.034 27.136 Fluorene UG/KG 54 1 1 1.9% 193.481 26.243 38.000 FALSE 76.039 27.136 N-Nitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95.000 FALSE FALSE 26.3081 27.007 N-Nitrosodiphenylamine UG/KG 55 0 2 36.0 41.808 37.00 FALSE<	SEMIVOLATILE ORGANIC	Cresols (-o)	UG/KG	54	_		1.9%	194.444	18.369			FALSE	199.192	120.000
Dibenz(la,h)anthracene UG/KG 55 8 14.5% 202.727 144.855 470.000 FALSE FALSE 242.255 2 Dibenzofuran UG/KG 54 1 1.9% 193.44 26.467 36.000 FALSE FALSE 27.136 Fluoranthene UG/KG 55 0 32 58.2% 160.055 215.284 1000.00 FALSE FALSE 27.136 Fluoranthene UG/KG 54 1 1 1.9% 193.481 26.243 38.000 FALSE FALSE 273.029 2 N-Nitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95.00 FALSE FALSE 263.081 2 Naphthalene UG/KG 55 0 1 3.6% 188.000 FALSE FALSE FALSE 273.03 2 Pentachlorophenol UG/KG 55 0 1 3.6% 172.482 325.004 990.00 F	SEMIVOLATILE ORGANIC	Di-n-butylphthalate	UG/KG	55	0	7	36.4%	216.773	186.387	-		FALSE	266.596	266.596
Dibenzofuran UG/KG 54 1 1.9% 193.444 26.467 36.000 FALSE FALSE 207.136 Fluoranthene UG/KG 55 0 32 58.2% 160.055 215.284 1000.000 FALSE FALSE 207.136 Fluorene UG/KG 54 1 1 1.9% 193.481 26.433 38.000 FALSE FALSE 206.634 Indeno[1,2,3-cd]pyrene UG/KG 55 0 11 20.0% 206.400 170.914 790.000 FALSE FALSE 206.6384 N-Nitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95.000 FALSE FALSE 209.973 Naphthalene UG/KG 55 0 1 3.6% 157.847 360.000 FALSE FALSE 57.632 27.64 Phenanthrene UG/KG 55 0 19.55% 157.847 360.000 FALSE FALSE 77.601 27.77<	SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG	55	0	_	3 14.5%	202.727		7		FALSE	242.255	242.255
Fluoranthene UG/KG 55 0 32 58.2% 160.055 215.284 1000.000 FALSE TRUE 223.029 2 Fluorene UG/KG 54 1 1.9% 193.481 26.43 38.000 FALSE FALSE 206.634 Indeno[1,2,3-cd]pyrene UG/KG 54 1 1.0% 206.400 170.914 790.000 FALSE FALSE 265.081 2 N-Nitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95.000 FALSE FALSE 209.973 N-Shitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95.000 FALSE FALSE 223.615 Pentachlorophenol UG/KG 55 0 1 34.5% 172.945 157.847 360.000 FALSE FALSE 251.632 254.632 254.282 257.725 1200.000 FALSE FALSE 251.632 254.63 163.773 222.7	SEMIVOLATILE ORGANIC	Dibenzofuran	UG/KG	54			1.9%	193.444		36.00		FALSE	207.136	36.000
Fluorene UG/KG 54 1 1.9% 193.481 26.243 38.000 FALSE FALSE 206.634 Indeno[1,2,3-cd]pyrene UG/KG 55 0 11 20.0% 206.400 170.914 790.000 FALSE FALSE 265.081 2 N-Nitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95.000 FALSE FALSE 209.973 Naphthalene UG/KG 55 0 2 3.6% 524.282 325.004 990.00 FALSE FALSE 285.292 5 Phenanthrene UG/KG 55 0 19 34.5% 172.945 157.847 360.000 FALSE FALSE 251.632 2 Pyrene UG/KG 55 0 31 56.4% 163.773 222.725 1200.000 FALSE FALSE 271.601 2 4,4*-DDE UG/KG 55 0 3 3.34 2.546 2.727	SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	55	0	3.	2 58.2%	160.055	7	2		TRUE	223.029	223.029
Indeno[1,2,3-cd]pyrene UG/KG 55 0 11 20.0% 206.400 170.914 790.000 FALSE FALSE 263.081 2 N-Nitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95.000 FALSE FALSE 209.973 Naphthalene UG/KG 54 1 3 5.6% 188.000 41.808 37.000 FALSE FALSE 209.973 Pentachlorophenol UG/KG 55 0 2 3.6% 524.282 325.004 990.000 FALSE FALSE 236.529 5 Phenanthrene UG/KG 55 0 17.2945 157.847 360.000 FALSE FALSE 251.632 2 A,4*-DDD UG/KG 55 0 4 7.3% 2.546 2.727 15.000 FALSE FALSE 2.621 A,4*-DDE UG/KG 55 0 36.4% 7.475 19.553 140.000 FALSE FA	SEMIVOLATILE ORGANIC	Fluorene	UG/KG	54	_		1.9%	193.481				FALSE	206.634	38.000
N-Nitrosodiphenylamine UG/KG 54 1 4 7.4% 187.037 39.556 95.000 FALSE FALSE 209.973 Naphthalene UG/KG 54 1 3 5.6% 188.000 41.808 37.000 FALSE FALSE 223.615 Pentachlorophenol UG/KG 55 0 2 3.6% 524.282 325.004 990.000 FALSE FALSE 253.615 Phenanthrene UG/KG 55 0 19 34.5% 172.945 157.847 360.000 FALSE FALSE 251.632	SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	55	0	1	1 20.0%	206.400			-	FALSE	263.081	263.081
Naphthalene UG/KG 54 1 3 5.6% 188.000 41.808 37.000 FALSE FALSE 223.615 Pentachlorophenol UG/KG 55 0 2 3.6% 524.282 325.004 990.000 FALSE FALSE 585.292 5 Phenanthrene UG/KG 55 0 19 34.5% 172.945 157.847 360.000 FALSE FALSE 551.632 2 Pyrene UG/KG 55 0 4 7.3% 2.546 2.777 15.00.00 FALSE 717.601 2 4,4*-DDE UG/KG 55 0 4 7.3% 2.546 2.777 15.000 FALSE FALSE 7.053 4,4*-DDE UG/KG 55 0 10 18.2% 3.335 3.652 16.000 FALSE FALSE 7.053	SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	54			4 7.4%	187.037				FALSE	209.973	95.000
Pentachlorophenol UG/KG 55 0 2 3.6% 524.282 325.004 990.000 FALSE FALSE 585.292 58 Phenanthrene UG/KG 55 0 19 34.5% 172.945 157.847 360.000 FALSE FALSE 251.632 25 Pyrene UG/KG 55 0 31 56.4% 163.773 222.725 1200.000 FALSE TRUE 217.601 21 4,4*-DDD UG/KG 55 0 4 7.3% 2.546 2.727 15.000 FALSE FALSE 2.621 4,4*-DDE UG/KG 55 0 20 36.4% 7.475 19.553 140.000 FALSE 7.053 4,4*-DDT UG/KG 55 0 10 18.2% 3.335 3.652 16.000 FALSE FALSE 7.053	SEMIVOLATILE ORGANIC	Naphthalene	UG/KG	54		222	3 5.6%	188.000				FALSE	223.615	37.000
Phenanthrene UG/KG 55 0 19 34.5% 172.945 157.847 360.000 FALSE FALSE 251.632 25 Pyrene UG/KG 55 0 31 56.4% 163.773 222.725 1200.000 FALSE TRUE 217.601 21 4,4-DDD UG/KG 55 0 4 7.3% 2.546 2.727 15.000 FALSE FALSE 2.621 4,4-DDE UG/KG 55 0 20 36.4% 7.475 19.553 140.000 FALSE 7.053 4,4-DDT UG/KG 55 0 18.2% 3.335 3.652 16.000 FALSE FALSE 3.583	SEMIVOLATILE ORGANIC	-	UG/KG	55	Ü		3.6%	524.282				FALSE	585.292	585.292
Pyrene UG/KG 55 0 31 56.4% 163.773 222.725 1200.000 FALSE TRUE 217.601 21 4,4*-DDD UG/KG 55 0 4 7.3% 2.546 2.727 15.000 FALSE FALSE 2.621 4,4*-DDE UG/KG 55 0 20 36.4% 7.475 19.553 140.000 FALSE 7.053 4,4*-DDT UG/KG 55 0 10 18.2% 3.335 3.652 16.000 FALSE FALSE 3.583	SEMIVOLATILE ORGANIC		UG/KG	55	_	0	9 34.5%	172.945	Jacob Control		0.13	FALSE	251.632	251.632
4,4°-DDD UG/KG 55 0 4 7.3% 2.546 2.727 15.000 FALSE FALSE 2.621 4,4°-DDE UG/KG 55 0 20 36.4% 7.475 19.553 140.000 FALSE 7.053 4,4°-DDF UG/KG 55 0 10 18.2% 3.335 3.652 16.000 FALSE FALSE 3.583	SEMIVOLATILE ORGANIC		UG/KG	55	_	3	1 56.4%	163.773			0.0	TRUE	217.601	217.601
4,4'-DDE UG/KG 55 0 20 36.4% 7.475 19.553 140.000 FALSE 7.053 4,4'-DDT UG/KG 55 0 10 18.2% 3.335 3.652 16.000 FALSE FALSE 3.583	PESTICIDES/PCB	4,4'-DDD	UG/KG	55	_		4 7.3%	2.546		200	1100	FALSE	2.621	2.621
4,4'-DDT UG/KG 55 0 10 18.2% 3.335 3.652 16.000 FALSE FALSE 3.583	PESTICIDES/PCB	4,4'-DDE	UG/KG	55	_) 2	0 36.4%	7.475		=	7.55	FALSE	7.053	7.053
	PESTICIDES/PCB	4,4'-DDT	UG/KG	55	_	0	0 18.2%	3.335		1200		FALSE	3.583	3.583

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				eq	of	,	ļ				Lognormal	JCT of	
Parameter			Analyses	SQLs	Hits	Freq. (%) Mean		Std. Dev.		Normal?	2		EPC . 200
Aldrin		UG/KG	55	0	-	1.8%	1.178	1.083	1.900	FALSE	FALSE	1.208	1.208
Alpha-Chlordane		UG/KG	54	- 0		1.9%	1.017	0.077	1.100	TRUE FAI SE	TRUE FAI SF	73 979	73.979
Aroclor-1254	res	UG/KG	55	0	1 10	5.5%	22.818	21.010	28.000	FALSE	FALSE	23.393	23.393
	_	UG/KG	55	0	-	1.8%	1.360	2.561	20.000	FALSE	FALSE	1.285	1.285
		UG/KG	55	0	-	1.8%	1.182	1.088	2.200	FALSE	FALSE	1.215	1.215
Dieldrin	7	UG/KG	55	0	7	12.7%	5.644	13.443	80.000	FALSE	FALSE	5.101	5.101
Endosulfan I	ר	UG/KG	55	0	2	9.1%	9.047	57.832	430.000	FALSE	FALSE	2.325	2.325
Endosulfan sulfate U	D	UG/KG	55	0	-	1.8%	2.296	2.436	20.000	FALSE	FALSE	2.331	2.331
Endrin U	n	UG/KG	55	0	3	5.5%	2.786	5.546	43.000	FALSE	FALSE	2.615	2.615
Endrin ketone U	Ď	UG/KG	55	0	2	3.6%	3.280	9.309	71.000	FALSE	FALSE	2.752	2.752
Heptachlorepoxide U(Ď	UG/KG	54	1	-	1.9%	1.014	0.077	1.100	TRUE	TRUE	1.032	1.032
ngen	Σ	MG/KG	55	0	55	100.0%	0.437	0.727	3.800	FALSE	TRUE	0.537	0.537
572	ĭ	UG/KG	55	0	4	7.3%	70.882	39.478	330.000	FALSE	FALSE	74.141	74.141
	ĭ	JG/KG	55	0	-	1.8%	78.182	112.893	900.000	FALSE	FALSE	76.953	76.953
Aluminum MG	Ĭ	MG/KG	55	0	55	100.0%	13215.455	3309.012	19300.000	FALSE	FALSE	14491.312	14491.312
Antimony MC	M	MG/KG	55	0	26	47.3%	6.473	9.550	52.000	FALSE	FALSE	9.516	9.516
Arsenic MG	MG	MG/KG	55	0	55	100.0%	5.861	2.024	16.100	FALSE	FALSE	6.243	6.243
Barium MC	MG	MG/KG	55	0	40	72.7%	133.800	95.455	524.000	FALSE	TRUE	154.126	154.126
Beryllium MC	M	MG/KG	55	0	55	100.0%	0.579	0.173	0.660	TRUE	FALSE	0.618	0.618
Cadmium MG	MG	MG/KG	55	0	42	76.4%	3.262	-	25.500	FALSE	TRUE	6.783	6.783
Calcium MC	M	MG/KG	55	0	55	100.0%	41717.455		229000.000	FALSE	TRUE	87148.232	87148.232
Chromium MC	M	MG/KG	55	0	25	100.0%	19.963	4.144	27.900	FALSE	FALSE	21.238	21.238
Cobalt MC	\mathbf{X}	MG/KG	55	0	25	100.0%	10.155	3,334	21.900	FALSE	TRUE	10.955	10.955
Copper	M	MG/KG	55	0	25	100.0%	134.120	184.261	837.000	FALSE	TRUE	179.232	179.232
Cyanide Mo	Ĭ	MG/KG	52	0	2	3.8%	0.316	0.191	1.500	FALSE	FALSE	0.355	0.355
Iron	M	MG/KG	55	0	25	100.0%	23087.818	5560.503	38700.000	FALSE	FALSE	24851.567	24851.567
Lead	Ž	MG/KG	55	0	54	98.2%	760.433	1164.316	6270.000	FALSE	TRUE	2498.470	2498.470
Magnesium M	X	MG/KG	55	0	22	100.0%	5952.455	3084.811	18100.000	FALSE	TRUE	6614.990	6614.990
Manganese MC	M	MG/KG	55	0	55	100.0%	526.591	199.950	1080.000	TRUE	TRUE	571.731	571.731
	X	MG/KG	55	0	20	%6.06	0.108	0.184	1.000	FALSE	FALSE	0.116	0.116
Nickel	M	MG/KG	55	0	55	100.0%	27.825	8.641	50.800	TRUE	TRUE	29.775	29.775
Potassium Me	Ĭ	MG/KG	55	0	55	100.0%	1382.618	282.451	1960.000	TRUE	TRUE	1446.383	1446.383
Selenium	Σ	MG/KG	55	0	34	61.8%	0.573	0.493	1.700	TRUE	TRUE	0.684	0.684
	2	MG/KG	55	0	16	29.1%	1.191	1.720	9.000	FALSE	TRUE	1.676	1.676
·		MG/KG	55	0	41	74.5%	94.329	75.921	383.000	FALSE	TRUE	115.953	115.953
Thallium	~	MG/KG	55	0	Ξ	20.0%	0.404	0.388	1.500	FALSE	TRUE	0.533	0.533
Vanadium		MG/KG	55	0	55	100.0%	22.510	5.193	30.700	TRUE	FALSE	23.682	23.682

		EPC	300	626
	Lognormal 95th UCL of	Mean	306.138	6261.917
	ognormal		TRUE	FALSE
	ı	Normal? ?	FALSE	FALSE
		Max. Hit	300.841 1475.000 FALSE	34000.000
		td. Dev.	300.841	7708.583
			235	438
		req. (%) M	100.0%	0 4 12.5% 5573.
	lo. of	lits F	55	4
jo	ected N	s SQLs Hits	0	0
No. of	Rejo	s SQI	55	32
No. of	Valid	Analyses		
		Units	MG/KG	UG/KG
		Parameter	Zinc	MCPA
		Class	METALS	HERBICIDES

Parameter	E.	Units	No. of Valid Analyses	No. of Rejected No. of SQLs Hits	No. o		Freq. (%) Mean			Max. Hit	_	Lognormal ?	Lognormal 95th UCL of ? Mean EPC	
ři.		D	co	,		-	3.0%	6.553	17	8.000	FALSE	FALSE	926.9	926.9
		UG/KG	34		0	2	2.9%	5.963	1.145	2.000		FALSE	6.578	2.000
		UG/KG	34		0	т r	8.8%	990.9	1.100	8.000	FALSE	FALSE	6.591	6.591
2,4-Dinitrotoluene		UG/KG	33 54			20	0.0%	196.212	14.845	0.000	TRUE	TRUE	200.587	0.000
ne)	UG/KG	33		_	7	6.1%	190.545	34.248	130.000	FALSE	FALSE	218.793	130.000
je	n	UG/KG	34		0	_	2.9%	230.294	167.232	410.000	FALSE	FALSE	247.172	247.172
	U	UG/KG	34		0	-	2.9%	556.985	399.030	990.000	FALSE	FALSE	597.864	597.864
4-Nitroaniline U	Ď	UG/KG	34		0	-	2.9%	556.985	399.030	990.000	FALSE	FALSE	597.864	597.864
Acenaphthene UC	ŏ	UG/KG	33		_	7	6.1%	186.697	44.007	33.000	FALSE	FALSE	236.221	33.000
Acenaphthylene UG	ne	UG/KG	33		_	2	%1.9	189.727	35.601	96.000	FALSE	FALSE	214.874	000.96
Anthracene UG	NG	UG/KG	33		_	2	6.1%	193.030	23.316	130.000	FALSE	FALSE	201.727	130.000
Benzo[a]anthracene UG/	NG/	UG/KG	34		0	10	29.4%	211.853	210.778	720.000	FALSE	FALSE	343.755	343.755
Benzo[a]pyrene UG/	nG/	UG/KG	34		0	12	35.3%	213.471	240.759	940.000	FALSE	FALSE	380.185	380.185
Benzo[b]fluoranthene UG/KG	/9n	KG	34		0	10	29.4%	261.618	393.512	2200.000	FALSE	FALSE	372.032	372.032
Benzo[ghi]perylene UG/KG	NG/I	93	34		0	8	23.5%	226.824	204.920	710.000		FALSE	306.396	306.396
Benzo[k]fluoranthene UG/KG	NG/I	5	34		0	×	23.5%	204.676	189.464	530.000	FALSE	FALSE	294.589	294.589
Bis(2-Chloroisopropyl)ether UG/KG		93	17		0	-	2.9%	203.235	54.571	410.000	FALSE	FALSE	221.331	221.331
Bis(2-Ethylhexyl)phthalate UG/KG	UG/K	Ö	34		0	6	26.5%	261.353	259.112	1300.000	FALSE	FALSE	327.750	327.750
Butylbenzylphthalate UG/KG	UG/K	O	33			-	3.0%	192.303	29.928	46.000	FALSE	FALSE	211.222	46.000
Carbazole UG/KG	UG/K	C	34	9770	0	n	8.8%	223.824	171.632	410.000	FALSE	FALSE	255.751	255.751
Chrysene UG/KG	UG/K	D	34		0	18	52.9%	173.235	223.256	670.000	FALSE	FALSE	324.585	324.585
Cresols (-o) UG/KG	UG/K	Ŋ	33			-	3.0%	193.636	19.814	120.000	FALSE	FALSE	200.523	120.000
Di-n-butylphthalate UG/KG	NG/I	9	34	105510	0	6	26.5%	238.529	215.671	1200.000	e	FALSE	294.284	294.284
ıthracene	UG/k	9	34		0	2	14.7%	220.324	178.157	470.000		FALSE	284.260	284.260
	UG/K	Ö	33		_	-	3.0%	192.000	31.466	36.000		FALSE	215.124	36.000
iene	UGA	9	34		0,	19	55.9%	192.912	263.225	1000.000	0.00	FALSE	325.407	325.407
	50	5	33		_	_	3.0%	197.001	31.15/	38.000	20010	FALSE	214.211	38.000
	NG/	5 Y	34		0	∞	23.5%	226.676	211.650	790.000		FALSE	328.688	328.688
N-Nitrosodiphenylamine UG/KG	NG/I	SG	33		_	2	6.1%	190.061	34.083	95.000	2010	FALSE	210.480	95.000
Naphthalene UG/KG	UG/	S	33		_	3	9.1%	183.091	51.639	37.000	FALSE	FALSE	246.019	37.000
Pentachlorophenol UG/KG	UG/K	D,	34		0	2	5.9%	544.721	408.400	990.000	FALSE	FALSE	968.659	968.659
Phenanthrene UG/KG	UG/K	D	34		0	10	29.4%	197.647	187.380	360.000	FALSE	FALSE	318.510	318.510
UG/KG	UG/K	Ð	34		0	19	55.9%	194.412	273.925	1200.000	FALSE	FALSE	301.259	301.259
4,4'-DDD UG/KG	NG/	KG	34		0	2	5.9%	2.810	3.427	15.000	FALSE	FALSE	3.005	3.005
	UG	UG/KG	34		0	7	%9.02	7.407	24.205	140.000	FALSE	FALSE	5.784	5.784
	NG	UG/KG	34		0	33	8.8%	3.132	3.474	13.000	FALSE	FALSE	3.494	3.494
DO	ne	UG/KG	34		0	П	2.9%	1.286	1.373	1.900	FALSE	FALSE	1.359	1.359

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Class	Parameter	Units An	Analyses SQLs	Hits	Freq. (%) Mean	Mean	Std. Dev. N	Max. Hit N	Normal? ?			EPC
PESTICIDES/PCB	Alnha-Chlordane	UG/KG	33	1	1 3.0%	1.027	9200	1.100	FALSE	FALSE	1.060	1.060
PECTICIDES/PCR	Aroclor-1260	UG/KG	34	0	2 5.9%	, 24.544	26.661	28.000	FALSE	FALSE	25.831	25.831
DESTICIDES/DCB	Beta-BHC	UG/KG	34	0	1 2.9%	1.580	3.256	20.000	FALSE	FALSE	1.512	1.512
PECTICIDES/I CB	Delta-BHC	UG/KG	34	0	1 2.9%	1.293	1.379	2.200	FALSE	FALSE	1.371	1.371
PESTICIDES/PCB	Dieldrin	UG/KG	34	0	3 8.8%	4.416	10.424	62.000	FALSE	FALSE	4.284	4.284
PESTICIDES/PCB	Endosulfan I	UG/KG	34	0	3 8.8%	, 13.985	73.532	430.000	FALSE	FALSE	4.022	4.022
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	34	0	1 2.9%	5 2.509	3.094	20.000	FALSE	FALSE	2.611	2.611
PESTICIDES/PCB	Endrin	UG/KG	34	0	2 5.9%	3.300	7.043	43.000	FALSE	FALSE	3.159	3.159
PESTICIDES/PCB	Endrin ketone	UG/KG	34	0	2 5.9%	6 4.100	11.832	71.000	FALSE	FALSE	3.449	3.449
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	34	0	34 100.0%	6 0.335	5 0.415	2.400	FALSE	TRUE	0.478	0.478
NITROAROMATICS	2.4-Dinitrotoluene	UG/KG	34	0	1 2.9%	70.294	45.957	330.000	FALSE	FALSE	74.685	74.685
NITROAROMATICS	2.6-Dinitrotoluene	UG/KG	34	0	1 2.9%	87.206	5 143.639	900.000	FALSE	FALSE	87.405	87.405
METALS	Aluminum	MG/KG	34	0	34 100.0%	6 13438.235	5 2922.173	19300.000	FALSE	FALSE	14793.610	14793.610
METALS	Antimony	MG/KG	34	0	17 50.0%	6 4.73	8.647	52.000	FALSE	TRUE	7.818	7.818
METALS	Arsenic	MG/KG	34	0	34 100.0%	6 5.229	9 1.068	8.900	FALSE	TRUE	5.540	5.540
METALS	Barium	MG/KG	34	0	28 82.4%	6 106.394	4 59.652	357.000	FALSE	TRUE	125.247	125.247
METALS	Beryllium	MG/KG	34	0	34 100.0%	% 0.580	0 0.171	0.990	TRUE	FALSE	0.629	0.629
METALS	Cadmium	MG/KG	34	0	24 70.6%	6 1.244	4 1.956	3.500	FALSE	TRUE	2.060	2.060
METALS	Calcium	MG/KG	34	0	34 100.0%	6 28600.588	8 52136.981	229000.000	FALSE	FALSE	50697.394	50697.394
MFTALS	Chromium	MG/KG	34	0	34 100.0%	68.61 %	4 3.933	27.900	TRUE	FALSE	21.035	21.035
METALS	Cobalt	MG/KG	34	0	34 100.0%	6 10.265	5 3.719	21.900	FALSE	TRUE	11.360	11.360
METALS	Copper	MG/KG	34	0	34 100.0%	6 55.347	7 89.252	546.000	FALSE	FALSE	62.403	62.403
MFTALS	Cvanide	MG/KG	34	0	1 2.9%	6 0.31	5 0.220	1.500	FALSE	FALSE	0.377	0.377
METALS	Iron	MG/KG	34	0	34 100.0%	6 23757.64	7 5597.783	38700.000	TRUE	FALSE	25381.795	25381.795
METALS	Lead	MG/KG	34	0	33 97.1%	% 279.938	8 542.982	686.000	FALSE	TRUE	619.014	619.014
METALS	Magnesium	MG/KG	34	0	34 100.0%	% 5178.088	8 2028.900	9830.000	FALSE	TRUE	5854.933	5854.933
METALS	Manganese	MG/KG	34	0	34 100.0%	% 539.426	6 220.701	1080.000	TRUE	TRUE	603.461	603.461
METALS	Mercury	MG/KG	34	0	30 88.2%	660.0 %	9 0.182	1.000	FALSE	FALSE	0.111	0.111
METALS	Nickel	MG/KG	34	0	34 100.0%	% 27.003	3 9.145	50.800	FALSE	TRUE	29.987	29.987
METALS	Potassium	MG/KG	34	0	34 100.0%	% 1351.500	0 287.221	1960.000	TRUE	TRUE	1434.835	1434.835
METALS	Selenium	MG/KG	34	0	20 58.8%	% 0.638	8 0.521	1.600	FALSE	FALSE	1.158	1.158
METALS	Silver	MG/KG	34	0	4 11.8%	% 0.546	6 0.765	4.600	FALSE	FALSE	0.750	0.750
METALS	Sodium	MG/KG	34	0	23 67.6%	75.86	5 72.860	383.000	FALSE	FALSE	93.909	93.909
METALS	Thallium	MG/KG	34	0	7 20.6%	% 0.417	7 0.385	1.500	FALSE	FALSE	0.610	0.610
METALS	Vanadium	MG/KG	34	0	34 100.0%	% 23.104	4.422	30.700	TRUE	TRUE	24.387	24.387
METALS	Zinc	MG/KG	34	0	34 100.0%	% 132.59	196.701 961	620.000	FALSE	FALSE	153.822	153.822
HERBICIDES	MCPA	UG/KG	17	0	1 5.9%	% 4773.52	9 7020.486	32000.000	FALSE	FALSE	5626.631	5626.631

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			No. of Valid	No. of Rejected	No. of						Lognormal	95th UCL of		
Class	Parameter	Units	ses	SQLs		Freq. (%) Mean	lean	Std. Dev.	Max. Hit	Normal?		Mean	EPC	
VOLATILE ORGANICS	Acetone	UG/KG		-	-	3.2%	6.581	2.659	8.000	FALSE	FALSE	7.038	7.038	
VOLATILE ORGANICS	Benzene	UG/KG	32	0	2	6.3%	5.953	1.180	2.000	FALSE	FALSE	6.610	2.000	
VOLATILE ORGANICS	Toluene	UG/KG	32	0	3	6.4%	6.063	1.134	8.000	FALSE	FALSE	6.624	6.624	
SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	32	0	3	6.4%	251.906	208.161	880.000	FALSE	FALSE	285.788	285.788	
SEMIVOLATILE ORGANIC	2,6-Dinitrotoluene	UG/KG	31	-	0	%0.0	196.452	15.286	0.000	TRUE	TRUE	201.107	0.000	
SEMIVOLATILE ORGANIC	2-Methylnaphthalene	UG/KG	31	-	2	6.5%	190.419	35.362	130.000	FALSE	FALSE	220.816	130.000	
SEMIVOLATILE ORGANIC	3,3'-Dichlorobenzidine	UG/KG	32	0	1	3.1%	232.656	172.257	410.000	FALSE	FALSE	251.163	251.163	
SEMIVOLATILE ORGANIC	3-Nitroaniline	UG/KG	32	0	-	3.1%	562.500	411.049	990.000	FALSE	FALSE	607.294	607.294	
SEMIVOLATILE ORGANIC	4-Nitroaniline	UG/KG	32	0	1	3.1%	562.500	411.049	990.000	FALSE	FALSE	607.294	607.294	
SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	31	-	2	6.5%	186.323	45.420	33.000	FALSE	FALSE	239.797	33.000	
SEMIVOLATILE ORGANIC	Acenaphthylene	UG/KG	31	1	2	6.5%	189.548	36.756	96.000	FALSE	FALSE	216.576	96.000	
SEMIVOLATILE ORGANIC	Anthracene	UG/KG	31	-	2	6.5%	193.065	24.072	130.000	FALSE	FALSE	202.377	130.000	
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	32	0	10	31.3%	213.063	217.411	720.000	FALSE	FALSE	358.367	358.367	
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	32	0	12	37.5%	214.781	248.342	940.000	FALSE	FALSE	398.693	398.693	
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	32	0	10	31.3%	265.938	405.604	2200.000	FALSE	FALSE	390.703	390.703	
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	32	0	∞	25.0%	228.969	211.235	710.000	FALSE	FALSE	317.024	317.024	
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	32	0	00	25.0%	205.438	195.453	530.000	FALSE	FALSE	303.775	303.775	
SEMIVOLATILE ORGANIC	Bis(2-Chloroisopropyl)ether	UG/KG	17	0	-	2.9%	203.235	54.571	410.000	FALSE	FALSE	221.331	221.331	
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate	UG/KG	32	0	00	25.0%	256.438	263.989	1300.000	FALSE	FALSE	323.444	323.444	
SEMIVOLATILE ORGANIC	Butylbenzylphthalate	UG/KG	31	-	-	3.2%	192.290	30.902	46.000	FALSE	FALSE	212.610	46.000	
SEMIVOLATILE ORGANIC	Carbazole	UG/KG	32	0	3	9.4%	225.781	176.891	410.000	FALSE	FALSE	260.800	260.800	
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	32	0	18	56.3%	172.031	230.290	000.029	FALSE	FALSE	330.564	330.564	
SEMIVOLATILE ORGANIC	Cresols (-o)	UG/KG	31	П	1	3.2%	193.710	20.452	120.000	FALSE	FALSE	201.080	120.000	
SEMIVOLATILE ORGANIC	Di-n-butylphthalate	UG/KG	32	0	6	28.1%	241.406	222.192	1200.000	FALSE	FALSE	303.389	303.389	
SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG	32	0	2	15.6%	222.063	183.669	470.000	FALSE	FALSE	292.389	292.389	
SEMIVOLATILE ORGANIC	Dibenzofuran	UG/KG	31	П	1	3.2%	191.968	32.492	36.000	FALSE	FALSE	216.839	36.000	
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	32	0	19	59.4%	192.938	271.582	1000.000	FALSE	FALSE	333.775	333.775	
SEMIVOLATILE ORGANIC	Fluorene	UG/KG	31	-	-	3.2%	192.032	32.172	38.000	FALSE	FALSE	215.844	38.000	
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	32	0	00	25.0%	228.813	218.186	790.000	FALSE	FALSE	341.962	341.962	
SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	31	-	7	6.5%	189.903	35.189	95.000	FALSE	FALSE	211.815	95.000	
SEMIVOLATILE ORGANIC	Naphthalene	UG/KG	31	-	3	6.7%	182.484	53.270	37.000	FALSE	FALSE	250.492	37.000	
SEMIVOLATILE ORGANIC	Pentachlorophenol	UG/KG	32	0	2	6.3%	549.469	420.895	990.000	FALSE	FALSE	675.909	675.909	
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	32	0	10	31.3%	197.969	193.325	360.000	FALSE	FALSE	329.947	329.947	
SEMIVOLATILE ORGANIC	Pyrene	UG/KG	32	0	19	59.4%	194.531	282.622	1200.000	FALSE	FALSE	307.838	307.838	
PESTICIDES/PCB	4,4'-DDD	UG/KG	32	0	2	6.3%	2.866	3.528	15.000	FALSE	FALSE	3.093	3.093	
PESTICIDES/PCB	4,4'-DDE	UG/KG	32	0	7	21.9%	7.750	24.932	140.000	FALSE	FALSE	6.212	6.212	
PESTICIDES/PCB	4,4'-DDT	UG/KG	32	0	3	6.4%	3.208	3.570	13.000	FALSE	FALSE	3.626	3.626	
PESTICIDES/PCB	Aldrin	UG/KG	32	0	-	3.1%	1.305	1.415	1.900	FALSE	FALSE	1.387	1.387	

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Class	Parameter	Units	ses	SQLs Hits		Freq. (%) Mean		Std. Dev. N	Max. Hit	Normal?			EPC
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	-	-	_	3.2%	1.029	0.077	1.100	FALSE	FALSE	1.064	1.064
PESTICIDES/PCB	Aroclor-1260	UG/KG	32	0	2	6.3%	24.875	27.473	28.000	FALSE	FALSE	26.326	26.326
PESTICIDES/PCB	Beta-BHC	UG/KG	32	0	-	3.1%	1.617	3.355	20.000	FALSE	FALSE	1.555	1.555
PESTICIDES/PCB	Delta-BHC	UG/KG	32	0	I	3.1%	1.313	1.420	2.200	FALSE	FALSE	1.400	1.400
PESTICIDES/PCB	Dieldrin	UG/KG	32	0	3	9.4%	4.572	10.735	62.000	FALSE	FALSE	4.509	4.509
PESTICIDES/PCB	Endosulfan I	UG/KG	32	0	3	9.4%	14.797	75.791	430.000	FALSE	FALSE	4.431	4.431
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	32	0	П	3.1%	2.545	3.189	20.000	FALSE	FALSE	2.664	2.664
PESTICIDES/PCB	Endrin	UG/KG	32	0	7	6.3%	3.386	7.258	43.000	FALSE	FALSE	3.263	3.263
PESTICIDES/PCB	Endrin ketone	UG/KG	32	0	7	6.3%	4.236	12.194	71.000	FALSE	FALSE	3.585	3.585
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	32	0	32	100.0%	0.339	0.423	2.400	FALSE	TRUE	0.460	0.460
NITROAROMATICS	2.4-Dinitrotoluene	UG/KG	32	0	-	3.1%	70.625	47.396	330.000	FALSE	FALSE	75.387	75.387
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	32	0	-	3.1%	88.594	148.086	900.000	FALSE	FALSE	89.191	89.191
METALS	Aluminum	MG/KG	32	0	32	100.0%	13317.188	2969.022	19300.000	FALSE	FALSE	14736.484	14736.484
METALS	Antimony	MG/KG	32	0	17	53.1%	4.675	8.917	52.000	FALSE	TRUE	7.790	7.790
METALS	Arsenic	MG/KG	32	0	32	100.0%	5.188	1.074	8.900	FALSE	TRUE	5.507	5.507
METALS	Barium	MG/KG	32	0	26	81.3%	105.920	60.489	357.000	FALSE	TRUE	125.562	125.562
METALS	Beryllium	MG/KG	32	0	32	100.0%	0.579	0.176	0.990	TRUE	FALSE	0.631	0.631
METALS	Cadmium	MG/KG	32	0	23	71.9%	1.224	1.992	3.500	FALSE	TRUE	2.043	2.043
METALS	Calcium	MG/KG	32	0	32	100.0%	26394.375	33.57	229000.000	FALSE	FALSE	41678.432	41678.432
METALS	Chromium	MG/KG	32	0	32	100.0%	19.609	3.820	27.900	TRUE	FALSE	20.754	20.754
METALS	Cobalt	MG/KG	32	0	32	100.0%	10.272	3.834	21.900	FALSE	TRUE	11.448	11.448
METALS	Copper	MG/KG	32	0	32	100.0%	55.522	91.711	546.000	FALSE	FALSE	62.476	62.476
METALS	Cyanide	MG/KG	32	0	1	3.1%	0.313	0.227	1.500	FALSE	FALSE	0.379	0.379
METALS	Iron	MG/KG	32	0	32	100.0%	23226.875	5072.381	36100.000	TRUE	FALSE	24746.207	24746.207
METALS	Lead	MG/KG	32	0	31	%6.96	275.619	553.353	496.000	FALSE	TRUE	576.842	496.000
METALS	Magnesium	MG/KG	32	0	32	100.0%	5032.813	1990.612	9830.000	FALSE	TRUE	5695.790	5695.790
METALS	Manganese	MG/KG	32	0	32	100.0%	527.594	221.797	1080.000		TRUE	594.029	594.029
METALS	Mercury	MG/KG	32	0	29	%9.06	0.103	0.187	1.000	FALSE	FALSE	0.117	0.117
METALS	Nickel	MG/KG	32	0	32	100.0%	26.697	9.321	50.800	FALSE	TRUE	29.792	29.792
METALS	Potassium	MG/KG	32	0	32	100.0%	1330.813	283.073	1960.000	TRUE	TRUE	1415.601	1415.601
METALS	Selenium	MG/KG	32	0	20	62.5%	0.670	0.520	1.600	FALSE	FALSE	1.250	1.250
METALS	Silver	MG/KG	32	0	4	12.5%	0.536	0.788	4.600		FALSE	0.738	0.738
METALS	Sodium	MG/KG	32	0	21	65.6%	69.575	69.646	383.000	FALSE	FALSE	84.336	84.336
METALS	Thallium	MG/KG	32	0	7	21.9%	0.435	0.390	1.500		FALSE	0.656	0.656
METALS	Vanadium	MG/KG	32	0	32	100.0%	22.981	4.497	30.700	TRUE	TRUE	24.328	24.328
METALS	Zinc	MG/KG	32	0	32	100.0%	133.325	110.589	620.000	FALSE (FALSE	155.685	155.685
HERBICIDES	MCPA	UG/KG	15	0	-	%1.9	5016.667	7469.239	32000.000	FALSE	FALSE	6203.085	6203.085

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				Rejected No. of	No. of			1		,		JCL of	
Class	Parameter	Units	Analyses	SQLs	Hits	Freq. (9	Mean	Std. De	Max.	~	0.		EPC
VOLATILE ORGANICS	Acetone	UG/KG	10	_	60	30.0%	0% 10.550	0 6.025	5 26.000	00 FALSE	FALSE	14.388	14.388
VOLATILE ORGANICS	Toluene	UG/KG	10	_		10.0%	009.7 %	0 1.329				8.401	8.000
SEMIVOLATILE ORGANIC	2,4-Dimethylphenol	UG/KG	10	_	I	10.0%	0% 235.200	0 76.328	8 32.000	00 FALSE	FALSE	450.613	32.000
SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	10		-	10.0%	0% 275.000	002'29 00	0 450.000	00 FALSE	TRUE	314.342	314.342
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	10	_	-	10.0%	232.500	0 78.218	8 25.000	00 FALSE	FALSE	504.850	25.000
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	10	_	-	10.0%	233.000	0 76.746	9 30.000	00 FALSE	FALSE	459.333	30.000
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	10	_	_	10.0%	234.300	0 72.941	1 43.000	00 FALSE	FALSE	390.528	43.000
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	10	Ū	-	10.0%	233.100	0 76.453	3 31.000	00 FALSE	FALSE	452.046	31.000
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	10	J	-	10.0%	233.300	00 75.865	5 33.000	00 FALSE	FALSE	438.746	33.000
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate	UG/KG	10		3	30.0%	193.200	97.726	000.77 9	00 FALSE	FALSE	424.382	77.000
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	10	_	_	10.0%	34.800	71.487	7 48.000	00 FALSE	FALSE	373.930	48.000
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	10	_	2	20.0%	219.100	00 91.240	000.07 0	00 FALSE	FALSE	444.591	70.000
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	10	_	-	10.0%	0% 232.400	78.513	3 24.000			516.219	24.000
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	10	_	_	10.0%	33.500	00 75.279	9 35.000	00 FALSE	FALSE	426.909	35.000
SEMIVOLATILE ORGANIC	Pyrene	UG/KG	10		2	20.0%	0% 215.800	97.732	2 47.000		FALSE	567.092	47.000
PESTICIDES/PCB	4,4'-DDD	UG/KG	10	_	3	30.0%	9% 4.080	3.562	2 13.000	00 FALSE	FALSE	6.461	6.461
PESTICIDES/PCB	4,4'-DDE	UG/KG	10		9	%0.09	12.475	75 19.212	2 62.000	00 FALSE	FALSE	48.172	48.172
PESTICIDES/PCB	4,4'-DDT	UG/KG	10	_	2	20.0%	3.490	3.007	7 12.000			4.897	4.897
PESTICIDES/PCB	Dieldrin	UG/KG	10	•	1	10.0%	3% 2.805	5 0.814		5.000 FALSE	-	3.255	3.255
PESTICIDES/PCB	Endosulfan I	UG/KG	10		-	10.0%	1.330	0.170		1.600 TRUE		1.428	1.428
PESTICIDES/PCB	Endosulfan II	UG/KG	10	_	2	20.0%	3% 2.685			3.800 FALSE	-	3.048	3.048
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	10	_	01 0	100.0%	720.0 %0	77 0.062	2 0.240	200		0.133	0.133
OTHER ANALYSES	Total Organic Carbon	MG/KG	10		6	%0.06	0% 11102.050	1006	3610			339623.717	36100.000
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	10		0	0.0	000.09 %0.0	0000 0000		_	_	64.034	0.000
METALS	Aluminum	MG/KG	10) 10	100.0%	0% 16370.000	328	2210			18253.483	18253.483
METALS	Antimony	MG/KG	10	_	4	40.0%	1.636	36 1.923		-	-	5.590	5.500
METALS	Arsenic	MG/KG	10		01 10	100.0%	9% 5.290	00 1.405		7.500 TRUE		6.095	6.095
METALS	Barium	MG/KG	10		01 0	100.0%	0% 111.770	70 34.514	4 162.000		•	131.547	131.547
METALS	Beryllium	MG/KG	10	_	01 0	100.0%	0.642	12 0.213			3 (1.27)	0.764	0.764
METALS	Cadmium	MG/KG	10	_	01 0	100.0%	1.573			4.800 TRUE	TRUE	2.403	2.403
METALS	Calcium	MG/KG	10	<i>></i> ====	01 0	100.0%	0% 6031.000	00 6852.533	3 25000.000	00 FALSE	TRUE	10822.064	10822.064
METALS	Chromium	MG/KG	10		01 0	100.0%	0% 22.160	50 4.368	8 27.700		.	24.663	24.663
METALS	Cobalt	MG/KG	10		01 0	100.0%	018.01 %0	3.041	17.800	00 TRUE	TRUE	12.553	12.553
METALS	Copper	MG/KG	10		01 0	100.0%	73.320	20 85.855	5 309.000	00 FALSE	FALSE	133.422	133.422
METALS	Iron	MG/KG	10) 10	100.0%	56	S	5 35000.000	00 TRUE		29436.330	29436.330
METALS	Lead	MG/KG	10		01 0	100.0%	3% 270.320		6 1050.000	-		683.420	683.420
METALS	Magnesium	MG/KG	10	90 -00	01 (100.0%	7	1127.987	7 6490.000		_	5536.342	5536.342
METALS	Manganese	MG/KG	10	10.	0 10	100.0%	0% 445.100	00 151.769	000.892 6	00 TRUE	TRUE	532.064	532.064

No. of No. of		C	0.081	31.600	2184.986	1.266	427.232	0.824	29.747	188.428
	95th UCL of	Mean EP	0.081	34.349	2184.986	1.266	427.232	0.824	29.747	188.428
	ognormal		TRUE	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
	I	Normal? ?	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE
		Max. Hit	0.160	31.600	2630.000	1.900	452.000	1.300	33.800	278.000
		Std. Dev. N	0.044	6.366	499.098	0.507	160.693	0.288	5.196	73.599
		ean St	0.043	27.200	1899.000	0.853	180.615	0.659	26.770	130.030
of No. of	No. of	Freq. (%) Me	40.0%	100.0%	100.0%	30.0%	%0.08	20.0%	100.0%	100.0%
		Hits	4	10	10	3	∞	7	10	10
	ted N	H	0	0	0	0	0	0	0	0
	Rejec	s SQLs	10	10	10	10	10	10	10	10
No. of	Valid	Analyse								
		Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
		Parameter	Mercury	Nickel	Potassium	Selenium	Sodium	Thallium	Vanadium	Zinc
		Class	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS

		10.01	140.01										
		Valid	Rejected No. of	1 No. (Jo						Lognormal	Lognormal 95th UCL of	
Parameter	Units	Analyses	SQLs	Hits	五	Freq. (%) Mean		Std. Dev.	Max. Hit	Normal?	3	Mean	EPC
Benzo[a]pyrene	NG/L	=	li .	0	_	9.1%	4.745	1.361	0.700	FALSE	FALSE	8.018	0.700
SEMIVOLATILE ORGANIC Benzo[ghi]perylene	e UG/L	=		0	_	%1.6	4.818	1.124	1.500	FALSE	FALSE	6.273	1.500
SEMIVOLATILE ORGANIC Dibenz[a,h]anthracene	cene UG/L	=		0	-	9.1%	4.768	1.287	0.950	FALSE	FALSE	7.172	0.950
SEMIVOLATILE ORGANIC Indeno[1,2,3-cd]pyrene	rene UG/L	=		0		9.1%	4.818	1.124	1.500	FALSE	FALSE	6.273	1.500
Nitrate/Nitrite Nitrogen	ogen MG/L	=		0	Ξ	100.0%	0.103	0.089	0.260	FALSE	TRUE	0.257	0.257
Tetryl	NG/L	9		0	-	16.7%	0.089	0.032	0.080	FALSE	FALSE	0.128	0.080
Aluminum	NG/L	10	_	_	7	%0.07	2043.090	3784.878	10800.000	FALSE	TRUE	692383.106	10800.000
Arsenic	UG/L	11	115000	0	3	27.3%	2.206	1.394	5.800	FALSE	TRUE	3.440	3.440
Barium	NG/L	1	1000	0	9	54.5%	54.377	41.600	147.000	TRUE	TRUE	76.904	76.904
Beryllium	NG/L	=	0.004	0	4	36.4%	0.208	0.139	0.520	FALSE	FALSE	0.325	0.325
Cadmium	T/Sn	7		4	_	14.3%	0.269	0.058	0.230	FALSE	FALSE	0.339	0.230
Calcium	NG/L	=	73527	0	11	100.0%	114736.364	24802.108	170000.000	TRUE	TRUE	128167.061	128167.061
Chromium	NG/L	11		0	3	27.3%	3.345	5.903	17.300	FALSE	FALSE	12.924	12.924
Cobalt	NG/L	11		0	3	27.3%	2.545	3.484	11.400	FALSE	FALSE	6.553	6.553
Copper	NG/L	=		0	4	36.4%	3.945	5.675	18.000		TRUE	15.145	15.145
Iron	NG/L	=	15-12-1	0	6	81.8%	3147.850	6163.169	18300.000	FALSE	TRUE	248669.470	18300.000
Lead	NG/L	Ξ	Nima	0	4	36.4%	4.529	9.505	32.300	FALSE	FALSE	14.168	14.168
Magnesium	NG/L	=	000	0	11	100.0%	20109.091	7650.419	40200.000	15.15	TRUE	24529.529	24529.529
Manganese	NG/L	10		-	6	%0.06	189.850	215.756	550.000	FALSE	TRUE	48711.666	550.000
Mercury	NG/L	=		0	7	18.2%	0.048	0.012	0.070	FALSE	FALSE	0.059	0.059
Nickel	NG/L	11		0	4	36.4%	4.950	7.672	24.400	FALSE	FALSE	12.134	12.134
Potassium	NG/L	=		0	7	63.6%	2466.682	2257.774	5820.000	FALSE	FALSE	9340.819	5820.000
Selenium	NG/L	∞		3	-	12.5%	1.274	0.874	2.000	TRUE	TRUE	1.848	1.848
Silver	NG/L	8		3		12.5%	0.997	0.517	1.475	FALSE	FALSE	1.423	1.423
Sodium	NG/L	1	Vocas	0	=	100.0%	20480.455	14017.160	46100.000	FALSE	TRUE	34092.579	34092.579
Thallium	UG/L	11		0	7	18.2%	2.468	1.808	5.750	TRUE	TRUE	3.447	3.447
Vanadium	NG/L	11		0	3	27.3%	3.818	6.410	19.900	FALSE	FALSE	11.832	11.832
Zinc	nG/L	10			V	20 00/	24 103	22 001	100 000	EALOR	TITIL		100 000

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			Valid Re	Rejected	No. 0						Lognormal	95th UCL		
Class	Parameter	Units	Analyses St	SQLs	Hits	Freq. (%) Mean	Mean		Max. Hit	Normal?	3	of Mean	EPC	
SEMIVOLATILE ORGANIC		NG/L	10	J	_	2 20.09	6 4.300		2.000	FALSE		6.957		0
OTHER ANALYSES			10	_	1	0.001 0			11.600	TRUE		9.087		7
OTHER ANALYSES	Ha	MG/L	10	_	1	0.001 0			7.890	TRUE		7.750		0
METALS	Antimony	NG/L	10	_	_	4 40.0%	6 5.170	7.457	23.600	FALSE	FALSE	22.095	22.095	2
METALS	Arsenic	UG/L	10	_	-	6 60.09			4.600	FALSE		4.264		4
METALS	Barium	NG/L	10		1	0 100.0			100.000	FALSE		72.197		7
METALS	Cadmium	NG/L	10		_	5 50.09			1.300	FALSE		0.782		2
METALS	Calcium	NG/L	10	_	1 (0.001 0			73500.000	TRUE		63164.917	-	7
METALS	Chromium	NG/L	10		0	1 10.0			1.000	FALSE		0.631		1
METALS	Copper	NG/L	10	_	0	0 100.0			32.700	FALSE		19.253		3
METALS	Iron	NG/L	10		0 1	0 100.0			322.000	TRUE		193.322		2
METALS	Lead	NG/L	10		0	0.09 9			37.100	FALSE		44.167		0
MFTALS	Magnesium	NG/L	10		0	0 100.0			9280.000	FALSE		8904.835		2
METALS	Manganese	NG/L	10		0	0 100.0			19.600	TRUE		11.983		3
METALS	Nickel	NG/L	10		0	1 10.0			1.700	FALSE		1.034		4
MFTALS	Potassium	NG/L	10		0 1	0 100.0			4380.000	TRUE		3520.734		4
METALS	Selenium	NG/L	10		0	5 50.0			3.500	FALSE		3.228		8
METALS	Sodium	NG/L	10		0	0 100.0			9460.000	TRUE		7031.528		8
METALS	Vanadium	NG/L	10		0	1 10.0			1.800	FALSE		0.900		0
METALS	Zinc	NG/L	10		0	0 100.0			61.700		TRUE	36.264		4

No. of

No. of

			Valid Re	Rejected No. of	No. of						ognormal	Lognormal 95th UCL of	
Class	Parameter	Units /	Analyses S(SQLs		Freq. (%) Mean		Std. Dev. Ma	Max. Hit	Normal?		Mean EPC	
VOLATILE ORGANICS	Acetone	UG/KG	55	0	c	5.5%	6.945	4.515	10.750	FALSE	FALSE	7.278	7.278
VOLATILE ORGANICS	Benzene	UG/KG	55	0	2	3.6%	5.941	0.939	2.000	FALSE	FALSE	6.305	2.000
VOLATILE ORGANICS	Methylene chloride	UG/KG	55	0	-	1.8%	6.023	0.631	4.000	FALSE	FALSE	6.175	4.000
VOLATILE ORGANICS	Toluene	UG/KG	55	0	5	9.1%	5.905	1.153	8.000	FALSE	FALSE	6.469	6.469
SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	55	0	9	10.9%	244.909	228.021	1400.000	FALSE	FALSE	273.213	273.213
SEMIVOLATILE ORGANIC	2,6-Dinitrotoluene	UG/KG	54	1	1	1.9%	193.519	22.895	70.000	FALSE	FALSE	201.453	70.000
SEMIVOLATILE ORGANIC	2-Methylnaphthalene	UG/KG	54	-	2	3.7%	192.556	28.530	130.000	FALSE	FALSE	209.105	130.000
SEMIVOLATILE ORGANIC	3,3'-Dichlorobenzidine	UG/KG	55	0	-	1.8%	217.091	132.195	410.000	FALSE	FALSE	225.892	225.892
SEMIVOLATILE ORGANIC	3-Nitroaniline	UG/KG	55	0	1	1.8%	525.136	315.413	990.000	FALSE	FALSE	546.431	546.431
SEMIVOLATILE ORGANIC	4-Nitroaniline	UG/KG	55	0	-	1.8%	525.136	315.413	990.000	FALSE	FALSE	546.431	546.431
SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	54	1	2	3.7%	190.204	35.893	33.000	FALSE	FALSE	218.404	33.000
SEMIVOLATILE ORGANIC	Acenaphthylene	UG/KG	54	П	2	3.7%	192.056	29.551	96.000	FALSE	FALSE	206.950	96.000
SEMIVOLATILE ORGANIC	Anthracene	UG/KG	54	-	n	2.6%	190.611	31.057	130.000	FALSE	FALSE	209.727	130.000
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	55	0	17	30.9%	185.273	175.357	720.000	FALSE	FALSE	276.034	276.034
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	55	0	18	32.7%	188.364	196.483	940.000	FALSE	FALSE	280.826	280.826
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	55	0	17	30.9%	216.855	316.542	2200.000	FALSE	FALSE	287.067	287.067
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	55	0	14	25.5%	197.964	169.840	710.000	FALSE	FALSE	254.029	254.029
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	55	0	14	25.5%	183.573	158.117	530.000	FALSE	FALSE	259.062	259.062
SEMIVOLATILE ORGANIC	Bis(2-Chloroisopropyl)ether	UG/KG	23	0	1	4.3%	200.870	46.968	410.000	FALSE	FALSE	213.496	213.496
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate	UG/KG	55	0	18	32.7%	276.345	264.694	1300.000	FALSE	FALSE	347.543	347.543
SEMIVOLATILE ORGANIC	Butylbenzylphthalate	UG/KG	54	-	7	3.7%	191.167	33.001	46.000	FALSE	FALSE	209.324	46.000
SEMIVOLATILE ORGANIC	Carbazole	UG/KG	25	0	3	5.5%	213.091	135.238	410.000	FALSE	FALSE	229.562	229.562
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	55	0	27	49.1%	156.409	182.734	670.000	FALSE	TRUE	238.449	238.449
SEMIVOLATILE ORGANIC	Cresols (-o)	UG/KG	54	-	-	1.9%	194.444	18.369	120.000	FALSE	FALSE	199.192	120.000
SEMIVOLATILE ORGANIC	Di-n-butylphthalate	UG/KG	55	0	20	36.4%	216.773	186.387	1200.000	FALSE	FALSE	266.596	266.596
SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG	55	0	00	14.5%	202.727	144.855	470.000	FALSE	FALSE	242.255	242.255
SEMIVOLATILE ORGANIC	Dibenzofuran	UG/KG	54	-	1	1.9%	193.444	26.467	36.000	FALSE	FALSE	207.136	36.000
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	55	0	32	58.2%	160.055	215.284	1000.000	FALSE	TRUE	223.029	223.029
SEMIVOLATILE ORGANIC	Fluorene	UG/KG	54	1	1	1.9%	193.481	26.243	38.000	FALSE	FALSE	206.634	38.000
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	55	0	11	20.0%	206.400	170.914	790.000	FALSE	FALSE	263.081	263.081
SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	54	-	4	7.4%	187.037	39.556	95.000	FALSE	FALSE	209.973	95.000
SEMIVOLATILE ORGANIC	Naphthalene	UG/KG	54	-	3	2.6%	188.000	41.808	37.000	FALSE	FALSE	223.615	37.000
SEMIVOLATILE ORGANIC	Pentachlorophenol	UG/KG	55	0	7	3.6%	524.282	325.004	990.000	FALSE	FALSE	585.292	585.292
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	55	0	19	34.5%	172.945	157.847	360.000	FALSE	FALSE	251.632	251.632
SEMIVOLATILE ORGANIC	Pyrene	UG/KG	55	0	31	56.4%	163.773	222.725	1200.000	FALSE	TRUE	217.601	217.601
PESTICIDES/PCB	4,4'-DDD	UG/KG	55	0	4	7.3%	2.546	2.727	15.000	FALSE	FALSE	2.621	2.621
PESTICIDES/PCB	4,4'-DDE	UG/KG	55	0	20	36.4%	7.475	19.553	140.000	FALSE	FALSE	7.053	7.053
PESTICIDES/PCB	4,4'-DDT	UG/KG	55	0	10	18.2%	3.335	3.652	16.000	FALSE	FALSE	3.583	3.583

			No. of No. Valid Re	No. of Rejected No. of	No. of						Lognormal 95th UCL of	95th UCL of	
Class	Parameter	Units	ses	SOLs	Hits	Freq. (%) Mean		Std. Dev.	Max. Hit	Normal?	2	Mean EPC	
PESTICIDES/PCB	Aldrin	UG/KG	10	0	-	1.8%	1.178	1.083	1.900	FALSE	FALSE	1.208	1.208
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	54	I	-	1.9%	1.017	0.077	1.100	TRUE	TRUE	1.035	1.035
PESTICIDES/PCB	Aroclor-1254	UG/KG	55	0	-	1.8%	23.273	21.621	61.000	FALSE	FALSE	23.979	23.979
PESTICIDES/PCB	Aroclor-1260	UG/KG	55	0	n	5.5%	22.818	21.010	28.000	FALSE	FALSE	23.393	23.393
PESTICIDES/PCB	Beta-BHC	UG/KG	55	0	-	1.8%	1.360	2.561	20.000	FALSE	FALSE	1.285	1.285
PESTICIDES/PCB	Delta-BHC	UG/KG	55	0	-	1.8%	1.182	1.088	2.200	FALSE	FALSE	1.215	1.215
PESTICIDES/PCB	Dieldrin	UG/KG	55	0	7	12.7%	5.644	13.443	80.000	FALSE	FALSE	5.101	5.101
PESTICIDES/PCB	Endosulfan I	UG/KG	55	0	5	9.1%	9.047	57.832	430.000	FALSE	FALSE	2.325	2.325
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	55	0	_	1.8%	2.296	2.436	20.000		FALSE	2.331	2.331
PESTICIDES/PCB	Endrin	UG/KG	55	0	m	5.5%	2.786	5.546	43.000		FALSE	2.615	2.615
PESTICIDES/PCB	Endrin ketone	UG/KG	55	0	7	3.6%	3.280	608.6	71.000	-	FALSE	2.752	2.752
PESTICIDES/PCB	Heptachlorepoxide	UG/KG	54	1		1.9%	1.014	0.077	1.100		TRUE	1.032	1.032
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	55	0	55	100.0%	0.437	0.727	3.800		TRUE	0.537	0.537
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	55	0	4	7.3%	70.882	39.478	330.000		FALSE	74.141	74.141
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	55	0		1.8%	78.182	112.893	900.000		FALSE	76.953	76.953
METALS	Aluminum	MG/KG	55	0	55	100.0%	13215.455	3309.012	19300.000		FALSE	14491.312	14491.312
METALS	Antimony	MG/KG	55	0	26	47.3%	6.473	9.550	52.000		FALSE	9.516	9.516
METALS	Arsenic	MG/KG	55	0	55	%0.001	5.861	2.024	16.100		FALSE	6.243	6.243
METALS '	Barium	MG/KG	55	0	4(72.7%	133.800	95.455	524.000	1	TRUE	154.126	154.126
METALS	Beryllium	MG/KG	55	0	55	100.0%	0.579	0.173	0.990		FALSE	0.618	0.618
METALS	Cadmium	MG/KG	55	0	4	76.4%	3.262	4.737	25.500		TRUE	6.783	6.783
METALS	Calcium	MG/KG	55	0	5.	200.001	41717.455	57950.097	229000.000	-	TRUE	87148.232	87148.232
METALS	Chromium	MG/KG	55	0	5.	200.001	19.963	4.144	27.900		FALSE	21.238	21.238
METALS	Cobalt	MG/KG	55	0	S	2 100.0%	10.155	3.334	21.900	FALSE	TRUE	10.955	10.955
METALS	Copper	MG/KG	55	0	S	2 100.0%	134.120	184.261	837.000		TRUE	179.232	179.232
METALS	Cyanide	MG/KG	52	0		3.8%	0.316	0.191	1.500		FALSE	0.355	0.355
METALS	Iron	MG/KG	55	0	S	2 100.0%	23087.818	5560.503	38700.000		FALSE	24851.567	24851.567
METALS	Lead	MG/KG	55	0	Ň	4 98.2%	760.433	1164.316	6270.000		TRUE	2498.470	2498.470
METALS	Magnesium	MG/KG	55	0	5	2 100.0%	5952.455	3084.811	18100.000	1	TRUE	6614.990	6614.990
METALS	Manganese	MG/KG	55	0	5	2 100.0%	526.591	199.950	1080.000		TRUE	571.731	571.731
METALS	Mercury	MG/KG	55	0	5	%6.06 0		0.184	1.000	щ	FALSE	0.116	0.116
METALS	Nickel	MG/KG	55	0	5	2 100.0%		8.641	50.800		TRUE	29.775	29.775
METALS	Potassium	MG/KG	55	0	5	2 100.0%	138	282.451	1960.000		TRUE	1446.383	1446.383
METALS	Selenium	MG/KG	55		3	4 61.8%		0.493	1.700		TRUE	0.684	0.684
METALS	Silver	MG/KG	55	_	1	6 29.1%		1.720	9.000	100000	TRUE	1.676	1.676
METALS	Sodium	MG/KG	55	_	4	1 74.5%	94.329	75.921	383.000	-	TRUE	115.953	115.953
METALS	Thallium	MG/KG	55	_) 1	1 20.0%		0.388	1.500	-	TRUE	0.533	0.533
METALS	Vanadium	MG/KG	55	_	5 (2 100.0%	22.510	5.193	30.700	TRUE	FALSE	23.682	23.682

	306.138 6261.917
95th UCL of	Mean EPC 306.138 6261.917
Lognormal	TRUE
1	Normal? ? FALSE FALSE
	Max. Hit Normal? ? 1475.000 FALSE 34000.000 FALSE
	Std. Dev. 300.841 7708.583
	3.235
	Freq. (%) Mean 100.0% 25 1 12.5% 557
lo. of	Hits F 55
Vo. of Rejected No. of	Ls I
No. of No Valid Re	Analyses SQ 55 32
	Units MG/KG UG/KG
	Parameter Zinc MCPA
	Class METALS HERBICIDES

		2000	Rejected No. of	No. of						Lognormal	Lognormal 95th UCL of	
Parameter	Units	Analyses S	SQLs	Hits	Freq. (%) Mean		Std. Dev.	Max. Hit	Normal?	ć	Mean	EPC
Acetone	UG/KG		_	-	3.0%	6.553	2.577	8.000	FALSE	FALSE	926.9	926.9
Benzene	UG/KG	34	0	2	2.9%	5.963	1.145	2.000	FALSE	FALSE	6.578	2.000
Foluene	UG/KG	34	0	3	8.8%	990.9	1.100	8.000	FALSE	FALSE	6.591	6.591
2,4-Dinitrotoluene	UG/KG	34	0	33	8.8%	248.412	202.253	880.000	FALSE	FALSE	278.937	278.937
2,6-Dinitrotoluene	UG/KG	33	1	0	%0.0	196.212	14.845	0.000	TRUE	TRUE	200.587	0.000
2-Methylnaphthalene	UG/KG	33		2	6.1%	190.545	34.248	130.000	FALSE	FALSE	218.793	130.000
3,3'-Dichlorobenzidine	UG/KG	34	0	-	2.9%	230.294	167.232	410.000	FALSE	FALSE	247.172	247.172
3-Nitroaniline	UG/KG	34	0	1	2.9%	556.985	399.030	990.000	FALSE	FALSE	597.864	597.864
4-Nitroaniline	UG/KG	34	0	-	2.9%	556.985	399.030	990.000	FALSE	FALSE	597.864	597.864
Acenaphthene	UG/KG	33	_	2	6.1%	186.697	44.007	33.000	FALSE	FALSE	236.221	33.000
Acenaphthylene	UG/KG	33	1	2	6.1%	189.727	35.601	96.000	FALSE	FALSE	214.874	000.96
Anthracene	UG/KG	33	_	2	6.1%	193.030	23.316	130.000	FALSE	FALSE	201.727	130.000
Benzo[a]anthracene	UG/KG	34	0	10	29.4%	211.853	210.778	720.000	FALSE	FALSE	343.755	343.755
Benzo[a]pyrene	UG/KG	34	0	12	35.3%	213.471	240.759	940.000	FALSE	FALSE	380.185	380.185
Benzo[b]fluoranthene	UG/KG	34	0	10	29.4%	261.618	393.512	2200.000	FALSE	FALSE	372.032	372.032
Benzo[ghi]perylene	UG/KG	34	0	80	23.5%	226.824	204.920	710.000	FALSE	FALSE	306.396	306.396
SEMIVOLATILE ORGANIC Benzo[k]fluoranthene	UG/KG	34	0	∞	23.5%	204.676	189.464	530.000	FALSE	FALSE	294.589	294.589
SEMIVOLATILE ORGANIC Bis(2-Chloroisopropyl)ether	r UG/KG	17	0	1	2.6%	203.235	54.571	410.000	FALSE	FALSE	221.331	221.331
SEMIVOLATILE ORGANIC Bis(2-Ethylhexyl)phthalate	UG/KG	34	0	6	26.5%	261.353	259.112	1300.000	FALSE	FALSE	327.750	327.750
SEMIVOLATILE ORGANIC Butylbenzylphthalate	UG/KG	33	-	-	3.0%	192.303	29.928	46.000		FALSE	211.222	46.000
200	UG/KG	34	0	3	8.8%	223.824	171.632	410.000	FALSE	FALSE	255.751	255.751
SEMIVOLATILE ORGANIC Chrysene	UG/KG	34	0	18	52.9%	173.235	223.256	670,000	FALSE	FALSE	324.585	324.585
SEMIVOLATILE ORGANIC Cresols (-o)	UG/KG	33	1	-	3.0%	193.636	19.814	120.000	FALSE	FALSE	200.523	120.000
SEMIVOLATILE ORGANIC Di-n-butylphthalate	UG/KG	34	0	6	26.5%	238.529	215.671	1200.000	FALSE	FALSE	294.284	294.284
200	UG/KG	34	0	5	14.7%	220.324	178.157	470.000	FALSE	FALSE	284.260	284.260
SEMIVOLATILE ORGANIC Dibenzofuran	UG/KG	33	_	-	3.0%	192.000	31.466	36.000	FALSE	FALSE	215.124	36.000
	UG/KG	34	0	19	25.9%	192.912	263.225	1000.000	FALSE	FALSE	325.407	325.407
SEMIVOLATILE ORGANIC Fluorene	UG/KG	33	-	1	3.0%	192.061	31.157	38.000	FALSE	FALSE	214.211	38.000
	UG/KG	34	0	00	23.5%	226.676	211.650	790.000	FALSE	FALSE	328.688	328.688
SEMIVOLATILE ORGANIC N-Nitrosodiphenylamine	UG/KG	33	-	2	%1.9	190.061	34.083	95.000	FALSE	FALSE	210.480	95.000
SEMIVOLATILE ORGANIC Naphthalene	UG/KG	33	-	n	6.1%	183.091	51.639	37.000	FALSE	FALSE	246.019	37.000
SEMIVOLATILE ORGANIC Pentachlorophenol	UG/KG	34	0	2	2.9%	544.721	408.400	990.000	FALSE	FALSE	659.896	659.896
SEMIVOLATILE ORGANIC Phenanthrene	UG/KG	34	0	10	29.4%	197.647	187.380	360.000	FALSE	FALSE	318.510	318.510
SEMIVOLATILE ORGANIC Pyrene	UG/KG	34	0	19	25.9%	194.412	273.925	1200.000	FALSE	FALSE	301.259	301.259
4,4'-DDD	UG/KG	34	0	2	2.9%	2.810	3.427	15.000	FALSE	FALSE	3.005	3.005
4,4'-DDE	UG/KG	34	0	7	20.6%	7.407	24.205	140.000	FALSE	FALSE	5.784	5.784
4,4'-DDT	UG/KG	34	0	3	8.8%	3.132	3.474	13.000	FALSE	FALSE	3.494	3.494
Aldrin	UG/KG	34	0	200	2.9%	1.286	1.373	1 900	EALCE	EATOR	1 250	1 250

7 Mean FALSE 25.831 FALSE 25.831 FALSE 1.512 FALSE 1.371 FALSE 1.371 FALSE 1.371 FALSE 2.611 FALSE 2.611 FALSE 3.499 TRUE 7.818 TRUE 5.540 TRUE 5.540 TRUE 6.2097 TRUE 60.403 FALSE 0.377 FALSE 0.629 TRUE 2.060 FALSE 2.063 FALSE 2.063 FALSE 2.063 FALSE 2.063 FALSE 2.069 FALSE 62.403 FALSE 63.461 FALSE 62.403 FALSE 62.403 FALSE 62.987 TRUE 8854.933 TRUE 8854.933 TRUE 8854.933 TRUE 29.987 TRUE 29.987 TRUE 1434.835 FALSE 0.610 TRUE 24.387			7	No. of No. of Valid Reject	No. of Rejected No. of	55						Lognormal	Lognormal 95th UCL of	
Archelordame UGNGG 34 1 1 379, 1027 0076 1100 FALSE FALSE PALSE Arcsior-1260 UGNGG 34 0 1 2.9% 1264 2666 1200 FALSE FALSE PALSE Delu-BHC UGNGG 34 0 1 2.9% 1263 1379 2266 FALSE FALSE PALSE Delu-BHC UGNGG 34 0 1 2.9% 1263 1379 2260 FALSE FALSE FALSE Endosulfian I UGNGG 34 0 1 2.9% 1263 1379 2260 FALSE FALSE FALSE Endosulfian UGNGG 34 0 2 8.8% 13.98 7.352 49.000 FALSE FALSE Endosulfian UGNGG 34 0 2 5.9% 12.93 1379 2000 FALSE FALSE Endosulfian UGNGG 34 0 2 5.9% 12.93 1370 7.043 45.000 FALSE FALSE Endosulfian UGNGG 34 0 2 5.9% 12.95 1370 12.000 FALSE FALSE Endosulfian UGNGG 34 0 2 5.9% 12.95 13.00 FALSE FALSE Endosulfian UGNGG 34 0 2 2 5.9% 12.00 FALSE FALSE FALSE Endosulfian UGNGG 34 0 2 1 2.9% 12.95 10.00 FALSE FALSE FALSE Endosulfian UGNGG 34 0 1 2.9% 12.09 14.53 10.00 FALSE FALSE FALSE Endosulfian UGNGG 34 0 1 2.9% 10.09 14.53 10.00 FALSE FALSE CASE Adminion MGNGG 34 0 1 2.9% 10.09 14.53 10.00 FALSE FALSE FALSE Adminion MGNGG 34 0 1 2.9% 10.09 14.53 10.00 FALSE FALSE FALSE CASE Adminion MGNGG 34 0 1 2.9% 10.09 FALSE FALSE FALSE CASE MARKED SALSE FALSE CASE FALSE CASE MARKED SALSE FALSE FALSE CASE FALSE CASE FALSE FALSE FALSE FALSE CASE FALSE FALSE CASE FALSE FALSE CASE FALSE FALSE FALSE FALSE FALSE CASE FALSE FALS	Class	Parameter					eq. (%) N	1		Max. Hit	Normal?	3		EPC
Avoider-1260 UG/KG 34 0 1 2.9% 13.64 5.6661 28.000 FALSE FALSE Diebel-BHC UG/KG 34 0 1 2.9% 11.895 13.79 2.00 FALSE FALSE PALSE Diebel-BHC UG/KG 34 0 1 2.9% 11.895 13.79 2.00 FALSE FALSE FALSE Endosulfan sufface UG/KG 34 0 1 2.9% 13.88 73.52 450.000 FALSE FALSE FALSE Endosulfan sufface UG/KG 34 0 1 2.9% 13.85 73.52 450.000 FALSE FALSE FALSE Endosulfan sufface UG/KG 34 0 1 2.9% 13.89 73.52 450.000 FALSE FALSE Endosulfan sufface UG/KG 34 0 1 2.9% 13.09 7.043 450.00 FALSE FALSE Endosulfan sufface UG/KG 34 0 1 2.9% 13.09 7.043 450.00 FALSE FALSE Endomore UG/KG 34 0 2 5.9% 33.00 7.043 450.00 FALSE FALSE FALSE Endomore UG/KG 34 0 1 2.9% 70.29% 145.09 20.00 FALSE FALSE FALSE Endomore UG/KG 34 0 1 2.9% 70.29% 145.09 20.00 FALSE FALSE FALSE Endomore UG/KG 34 0 1 2.9% 70.29% 145.09 20.00 FALSE FALSE FALSE FALSE Antenioral MG/KG 34 0 1 2.9% 70.29% 145.09 20.000 FALSE F	PESTICIDES/PCB	Alpha-Chlordane	UG/KG	33	-	-	3.0%	1.027	0.076	1.100		FALSE	1.060	1.060
Delta-BHC UGKG 34 0 1 29% 1.380 3.256 2.000 FALSE FALSE FALSE Endoatifian UGKG 34 0 3 88% 4.169 1.379 2.000 FALSE FALSE FALSE Endoatifian UGKG 34 0 3 88% 4.169 1.379 2.000 FALSE FALSE Endoatifian UGKG 34 0 3 8.8% 4.169 3.094 2.000 FALSE FALSE Endoatifian sulfate UGKG 34 0 1 2.9% 2.390 3.094 2.000 FALSE FALSE FALSE Endoatifian sulfate UGKG 34 0 2 5.9% 3.300 7.043 4.300 FALSE FALSE FALSE Endoatifian sulfate UGKG 34 0 2 5.9% 3.300 7.043 4.300 FALSE FALSE FALSE FALSE Endoatifian sulfate UGKG 34 0 1 2.9% 7.0294 4.300 FALSE	PESTICIDES/PCB	Aroclor-1260	UG/KG	34	0	2	5.9%	24.544	26.661	28.000		FALSE	25.831	25.831
Deletine BHC UGKG 34 0 1 29% 1139 1379 2200 FALSE FALSE FALSE Endosulfant UGKG 34 0 3 88% 1388 73532 430.00 FALSE FALSE Endosulfan sulfate UGKG 34 0 2 59% 2509 7359 43000 FALSE FALSE Endosulfan sulfate UGKG 34 0 2 59% 2509 7394 4300 FALSE FALSE Endosulfan sulfate UGKG 34 0 2 59% 2400 7443 43000 FALSE FALSE Endosulfan sulfate UGKG 34 0 1 2.9% 2509 2400 FALSE FALSE FALSE Endosulfan sulfate UGKG 34 0 1 2.9% 2509 2400 FALSE FALSE FALSE CS 2.4-Dinitroolusne UGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE Aluminum MGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE Bendin MGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE Bendin MGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE RAISE Bendin MGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE Bendin MGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE Bendin MGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE RAISE Bendin MGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE RAISE Bendin MGKG 34 0 1 2.9% 70.294 45.97 330.00 FALSE FALSE RAISE RAIS	PESTICIDES/PCB	Beta-BHC	UG/KG	34	0	-	2.9%	1.580	3.256	20.000	FALSE	FALSE	1.512	1.512
Dieldrin UGNG 34 0 3 88% 4416 10.434 62.000 FALSE FALSE FALSE Endosulfant sulface UGNG 34 0 1 2.9% 2.599 3.094 20.000 FALSE FALSE FALSE Endosulfant sulface UGNG 34 0 1 2.9% 2.599 3.094 20.000 FALSE FALSE FALSE Endosulfant sulface UGNG 34 0 2 5.9% 3.300 7.043 43.000 FALSE FALSE FALSE Endosulfant sulface UGNG 34 0 2 5.9% 3.300 7.043 43.000 FALSE	PESTICIDES/PCB	Delta-BHC	UG/KG	34	0	-	2.9%	1.293	1.379	2.200		FALSE	1.371	1.371
Endosulfina I I I I I I I I I	PESTICIDES/PCB	Dieldrin	UG/KG	34	0	3	8.8%	4.416	10.424	62.000		FALSE	4.284	4.284
Endosulfan sulfate UGKG 34 0 1 29% 2509 3.094 20000 FALSE FALSE Endrink schore UGKG 34 0 2 5.9% 4.100 1 3.00 FALSE FALSE Endrink schore UGKG 34 0 2 5.9% 4.100 1 2.00 FALSE FALSE FALSE CS 2.4-Districtoulene UGKG 34 0 1 2.9% 7.00 4.100 FALSE FALSE<	PESTICIDES/PCB	Endosulfan I	UG/KG	34	0	c	8.8%	13.985	73.532	430.000	_	FALSE	4.022	4.022
Es Hodrin GUGKG 34 0 2 59% 330 704 34000 FALSE FALSE Endire MGKG 34 0 2 59% 4100 11832 71000 FALSE FALSE END MGKG 34 100.0% 6.353 0415 2.400 FALSE FALSE FALSE CS 2,4-Dinitrotoluene UGKG 34 0 1 2.9% 70.294 45.957 330.000 FALSE FALSE FALSE Adminisory MGKG 34 0 1 2.9% 70.294 45.957 330.000 FALSE FALSE FALSE Adminisory MGKG 34 0 1 2.9% 70.294 45.957 330.000 FALSE FALSE FALSE Adminisory MGKG 34 0 1 2.9% 70.294 45.957 330.000 FALSE FALSE FALSE Adminisory MGKG 34 0 1 2.9% 70.294 45.957 330.000 FALSE FALSE FALSE Adminisory MGKG 34 0 1 7 50.0% 2.229 10.08 2.9500 FALSE FALSE PALSE Adminisory MGKG 34 0 2 8 4.00 0 0.171 0.990 TRUE FALSE PALSE Cadminisory MGKG 34 0 2 8 4.00 0.000 FALSE FALSE PALSE CADMINISORY MGKG 34 0 2 8 4.00 0.000 FALSE FALSE PALSE CADMINISORY MGKG 34 0 2 8 4.00 0.000 FALSE FALSE PALSE CADMINISORY MGKG 34 0 2 8 4.00 0.000 FALSE FALSE PALSE CADMINISORY MGKG 34 0 2 8 4.00 0.000 FALSE FALSE PALSE PALSE PALSE CADMINISORY MGKG 34 0 2 8 4.00 0.000 FALSE FALSE PALSE PAL	PESTICIDES/PCB	Endosulfan sulfate	UG/KG	34	0	-	2.9%	2.509	3.094	20.000		FALSE	2.611	2.611
Endrin ketone UGKG 34 0 2 59% 4.100 1.832 7.1000 FALSE FALSE CS 2,4-Dinitrotoluene UGKG 34 0 34 10.0% 3.33 0.415 5.400 FALSE FALSE FALSE CS 2,4-Dinitrotoluene UGKG 34 0 1 2.9% 87.26 45.637 390.00 FALSE FALSE FALSE FALSE FALSE 140.0 Astuminom MGKG 34 0 1 2.9% 87.26 90.00 FALSE FALSE FALSE 140.0 Astenic MGKG 34 0 34 10.0% 5.29 1.06 8.00 FALSE FALSE FALSE 140.0 Bartimon MGKG 34 0 2.4 10.0% 5.22 1.06 8.00 FALSE FALSE FALSE FALSE 180.0 Cadminam MGKG 34 0 2.4 70.6%	PESTICIDES/PCB	Endrin	UG/KG	34	0	7	5.9%	3.300	7.043	43.000		FALSE	3.159	3.159
Nitrate/Nitrite Nitrogen MGKG 34 10,00% 0.335 0,415 2400 FALSE TRUE 2,4-Dinitroollene UGKG 34 0 1 2.9% 0.335 0.415 30.000 FALSE FALSE FALSE 2,4-Dinitroollene UGKG 34 0 1 2.9% 87.206 145.639 900.000 FALSE FALSE 147.8 Aluminoum MGKG 34 0 1 50.0% 52.29 1.08 8.90 FALSE FALSE 147.9 Assenic MGKG 34 0 1 7.00% 5.29 1.08 8.94 1.08 8.94 1.08 8.94 1.08 8.94 1.08 8.94 1.08 8.94 1.01 9.98 3.95 3.7000 FALSE TRUE 1.7 9.99 PALSE TRUE 1.1 1.0 9.94 1.0 9.1 1.0 9.94 1.0 9.1 1.0 9.8 1.0 9.94	PESTICIDES/PCB	Endrin ketone	UG/KG	34	0	7	5.9%	4.100	11.832	71.000		FALSE	3.449	3.449
2,4-Dinitrooluene UGKG 34 0 1 2.9% 70.294 45.557 33.000 FALSE FALSE 74.25 2,4-Dinitrooluene UGKG 34 0 1 2.9% 87.206 143.639 90.0000 FALSE FALSE 1 Aluminoum MGKG 34 0 17 50.0% 1.735 222.17 1900.000 FALSE TRUE 1 Artminoum MGKG 34 0 1.24 10.09% 8.647 52.00 FALSE TRUE 17 Arsenic MGKG 34 0 2 8.222 1.06 8.90 FALSE TRUE 17 Beryllium MGKG 34 0 2 8.20 0.17 0.90 FALSE TRUE 17 Calcium MGKG 34 0 2 4 10.6% 3.50 1.24 11.86 8.90 FALSE TRUE 17 Calcium MGKG	OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	34	0	34	100.0%	0.335	0.415	2.400		TRUE	0.478	0.478
2,6-Dinitrotoluene UGKG 34 0 1 2.9% 87.206 143.639 900.000 FALSE FALSE FALSE 14.15 Atluminum MGKG 34 0 34 100.0% 1.382.33 292.17 1900.00 FALSE FALSE 14.15 Astenin MGKG 34 0 34 100.0% 5.229 1.068 8.900 FALSE TRUE 17.1 1.000 FALSE 1.000 FALSE FALSE 1.000 FALSE	NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	34	0	-	2.9%	70.294	45.957	330.000		FALSE	74.685	74.685
Atluminum MG/KG 34 0 17 1000% 13438.235 2921.71 91300.000 FALSE FALSE 1479 Atluminum MG/KG 34 0 17 1000% 15.29 1.068 8.900 FALSE TRUE Bartium MG/KG 34 0 28 82.4% 106.394 59.652 357.000 FALSE TRUE Cadmium MG/KG 34 0 24 100.0% 10.89 1.04 1.956 1.090 TRUE FALSE Cadmium MG/KG 34 0 24 10.00% 10.89 1.04 1.956 1.090 TRUE FALSE Cadmium MG/KG 34 0 24 10.00% 10.88 1.04 1.956 1.090 TRUE FALSE Cabit MG/KG 34 0 24 10.00% 10.88 1.04 1.956 1.090 TRUE FALSE Cobalt MG/KG 34 0 34 10.00% 10.285 1.1090 FALSE TRUE Cobalt MG/KG 34 0 34 10.00% 10.285 1.1090 FALSE TRUE Cobalt MG/KG 34 0 34 10.00% 10.285 1.1090 FALSE TRUE Cobalt MG/KG 34 0 34 10.00% 10.285 1.1090 FALSE TRUE Cobalt MG/KG 34 0 34 10.00% 10.285 1.1090 FALSE TRUE Cobalt MG/KG 34 0 34 10.00% 10.285 1.1090 FALSE TRUE Iron MG/KG 34 0 34 10.00% 10.285 1.1090 FALSE TRUE MG/KG 34 0 34 10.00% 10.285 1.1090 FALSE TRUE Magnesium MG/KG 34 0 34 10.00% 10.280 1.100 FALSE TRUE NG/KG 34 0 34 10.00% 10.280 1.100 FALSE TRUE Selenium MG/KG 34 0 34 10.00% 10.280 1.100 FALSE TRUE Selenium MG/KG 34 0 34 10.00% 10.280 0.182 1.000 FALSE TRUE Selenium MG/KG 34 0 34 10.00% 10.280 0.182 1.000 FALSE TRUE Selenium MG/KG 34 0 34 10.00% 10.280 0.182 1.000 FALSE TRUE Thallium MG/KG 34 0 36 10.00% 10.280 0.182 1.000 FALSE FALSE Sodium MG/KG 34 0 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 0 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 0 36 10.00% 10.00 FALSE FALSE Thallium MG/KG 34 0 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 FALSE FALSE Thallium MG/KG 34 10.00% 10.280 0.182 1.000 0.182 1.000 0.182 1.000 0.182 1.000 0.182 1.000 0.182 1.000 0.182 1.	NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	34	0	1	2.9%	87.206	143.639	900.000		FALSE	87.405	87.405
Antimony MGKG 34 0 17 500% 4.735 8.447 5.000 FALSE TRUE Arsenic MGKG 34 0 24 100.0% 5.229 1.068 8.900 FALSE TRUE Beryllium MGKG 34 0 24 100.0% 5.229 1.068 8.900 FALSE TRUE Cadmium MGKG 34 0 24 70.6% 1.24 1.256 3.57.000 FALSE TRUE Cadmium MGKG 34 0 24 70.6% 1.24 1.256 3.57.000 FALSE TRUE Cadmium MGKG 34 0 24 70.6% 280.0.88 237.000 FALSE TRUE Cobalt MGKG 34 0 34 100.0% 280.0.88 21.2900.000 FALSE TRUE Copper MGKG 34 0 34 100.0% 10.265 3.719 2.7900 FALSE FALSE Iron MGKG 34 0 34 100.0% 5.35.47 89.22 546.000 FALSE FALSE Iron MGKG 34 0 3 100.0% 5.73.7 83.20 FALSE FALSE 2.000 MGKG 34 0 3 100.0% 5.73.7 83.9 870.000 TALSE FALSE 1.00 MGKG 34 0 3 100.0% 5.73.7 83.9 870.000 FALSE FALSE 5.000 MGKG 34 0 3 100.0% 5.73.7 83.9 870.000 FALSE FALSE 5.000 MGKG 34 0 3 100.0% 5.75.7 647 589.0 FALSE FALSE 5.000 MGKG 34 0 3 100.0% 5.75.7 647 589.0 FALSE FALSE 5.000 MGKG 34 0 3 100.0% 5.75.7 647 589.0 FALSE FALSE 5.000 MGKG 34 0 3 100.0% 5.75.7 647 589.0 FALSE FALSE 5.000 MGKG 34 0 3 100.0% 5.75.8 38.00.000 TALSE FALSE 5.000 MGKG 34 0 2 3 100.0% 5.75.8 38.00.000 TALSE FALSE 5.000 MGKG 34 0 2 3 100.0% 5.75.8 38.00.000 TALSE FALSE 5.000 MGKG 34 0 2 3 100.0% 5.75.8 38.00 MGKG 5.45 6.000 FALSE FALSE 5.000 MGKG 34 0 2 3 100.0% 5.75 6.000 FALSE FALSE 5.000 MGKG 34 0 2 3 100.0% 5.75 6.000 FALSE FALSE 5.000 MGKG 34 0 2 3 100.0% 5.75 6.000 MGKG 5.000 FALSE FALSE 5.000 MGKG 34 0 2 3 100.0% 5.75 6.000 MGKG 5.000 FALSE FALSE 5.000 MGKG 34 0 2 3 100.0% 6.058 0.018 5.000 MGKG 5.000 FALSE FALSE 5.000 MGKG 5.000	METALS	Aluminum	MG/KG	34	0	34	%0.001	13438.235	2922.173	19300.000	FALSE	FALSE	14793.610	14793.610
Arsenic MGKG 34 10.0% 5.229 1.068 8.900 FALSE TRUE 12 Barium MGKG 34 0 28 8.24% 106.394 5.652 35.000 FALSE TRUE 12 Barium MGKG 34 0 24 10.00% 1.244 1.956 3.500 FALSE TRUE 12 Cadrium MGKG 34 0 24 10.00% 1.244 1.956 3.500 FALSE TRUE 12 CADrium MGKG 34 0 24 10.00% 1.244 1.956 3.500 FALSE TRUE 12 CADrium MGKG 34 0 34 10.00% 1.249 1.956 3.500 FALSE TRUE 14 1.956 Chromium MGKG 34 0 34 10.00% 1.249 1.956 3.719 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.249 1.956 3.719 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.249 1.956 3.719 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.956 3.719 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.956 3.719 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.956 3.719 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.719 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.719 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.729 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.729 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.729 1.900 FALSE FALSE FALSE SILVE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.721 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.721 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.721 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.721 1.900 FALSE FALSE COMPLETE CADRIUM MGKG 34 0 34 10.00% 1.958 3.721 1.900 FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.958 3.7201 1.900 FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.958 3.7201 1.900 FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.958 3.7201 1.900 FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.958 3.7201 1.900 FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.958 3.700 FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.9538 1.900 0.900 FALSE FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.9538 1.900 0.900 FALSE FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.9538 1.900 0.900 0.900 FALSE FALSE CADRIUM MGKG 34 0 34 10.00% 1.95259 1.9000 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900	METALS	Antimony	MG/KG	34	0	17	20.0%	4.735	8.647	52.000	_	TRUE	7.818	7.818
Barium MG/KG 34 0 28 82.4% 106.394 59.652 357.000 FALSE TRUE 12 Cadenium MG/KG 34 0 24 10.0% 2860.388 513.691 23.00 FALSE FALSE FALSE Cadenium MG/KG 34 0 34 10.0% 2860.388 513.691 23.00 FALSE FALSE 5069 Chromium MG/KG 34 0 34 10.0% 18.894 3.35 27.900 TRUE FALSE 2606 Chosit MG/KG 34 0 34 10.0% 10.285 3.79 12.99 7.90 FALSE FALSE 24.8 10.0% 5.35 27.90 TRUE FALSE 25.90 7.80 2.80 0.71 27.90 RALSE 7.80 0.78 1.80 0.71 27.90 TRUE FALSE 27.80 0.00 7.80 0.78 0.78 0.78 0.78 0.78	METALS	Arsenic	MG/KG	34	0	34	100.0%	5.229	1.068	8.900		TRUE	5.540	5.540
Beryllium MGKG 34 0 34 1000% 0.580 0.171 0.990 TRUE FALSE Cadeinium MGKG 34 0 24 70.6% 1.244 1.990 TRUE FALSE 5069 Cadeinium MGKG 34 0 34 100.0% 28600.58 5.306 FALSE TRUE 5069 Chromium MGKG 34 0 34 100.0% 19.894 3.933 7.900 TRUE FALSE 5069 Cobalt MGKG 34 0 34 100.0% 15.34 1.00 FALSE FALSE 7.80 Cobalt MGKG 34 0 34 100.0% 55.347 59.00 FALSE FALSE 55.80 Cobalt MGKG 34 0 34 100.0% 55.347 589.00 FALSE FALSE 55.80 Magnesium MGKG 34 0 34 100.0% 5178.08	METALS	Barium	MG/KG	34	0	28	82.4%	106.394	59.652	357.000	FALSE	TRUE	125.247	125.247
Cadmium MG/KG 34 0 24 70.6% 1.244 1.956 3.500 FALSE TRUE 500 Calcium MG/KG 34 0 34 100.0% 28600.588 2136.881 23900.000 FALSE 500 Chromium MG/KG 34 0 34 100.0% 15.84 3.93 27.90 TRUE FALSE 500 Copper MG/KG 34 0 34 100.0% 55.34 82.22 546.00 FALSE FALSE 500 Copper MG/KG 34 0 1 2.9% 0.315 0.220 1.50 FALSE FALSE 578 Iron MG/KG 34 0 34 100.0% 23757.64 559.78 84.00 FALSE FALSE 78.18 78.28 68.00 FALSE 78.18 78.28 68.00 FALSE 78.18 78.28 78.00 78.28 78.00 78.28 78.00 78.28 <t< td=""><td>METALS</td><td>Beryllium</td><td>MG/KG</td><td>34</td><td>0</td><td>34</td><td>100.0%</td><td>0.580</td><td>0.171</td><td>0.990</td><td></td><td>FALSE</td><td>0.629</td><td>0.629</td></t<>	METALS	Beryllium	MG/KG	34	0	34	100.0%	0.580	0.171	0.990		FALSE	0.629	0.629
Calcium MG/KG 34 0 34 100.0% 28600.588 52136.981 229000.000 FALSE 5069 Chromium MG/KG 34 0 34 100.0% 19.894 3.933 27.900 FALSE 5069 Cobalt MG/KG 34 0 34 100.0% 55.347 89.225 546.00 FALSE FALSE 7.80 Copper MG/KG 34 0 34 100.0% 55.347 89.225 546.00 FALSE FALSE 7.80 Load MG/KG 34 0 34 100.0% 53.53.47 89.225 746.00 FALSE FALSE 75.80 75.90 FALSE FALSE 75.80 75.90 FALSE 74.80 75.90 FALSE 74.85 75.80 75.91 75.91 78.90 78.90 78.90 78.90 78.90 78.90 78.90 78.90 78.90 78.90 78.90 78.90 78.90 78.90 78.90 <td>METALS</td> <td>Cadmium</td> <td>MG/KG</td> <td>34</td> <td>0</td> <td>24</td> <td>%9.02</td> <td>1.244</td> <td>1.956</td> <td>3.500</td> <td></td> <td>TRUE</td> <td>2.060</td> <td>2.060</td>	METALS	Cadmium	MG/KG	34	0	24	%9.02	1.244	1.956	3.500		TRUE	2.060	2.060
Chromium MGKG 34 0 34 100.0% 19.894 3.933 27.900 TRUE FALSE 2 Cobalt MGKG 34 0 34 100.0% 10.265 3.719 21.900 FALSE TRUE 1 Copper MGKG 34 0 34 100.0% 23.547 89.252 546.00 FALSE FALSE FALSE Load MGKG 34 0 34 100.0% 2375.447 559.783 38700.00 FALSE 558 FALSE FALSE FALSE FALSE 558 FALSE FALSE 558 FALSE FA	METALS	Calcium	MG/KG	34	0	34	100.0%	28600.588	52136.981	229000.000		FALSE	50697.394	50697.394
Cobalt MG/KG 34 0 34 100.0% 55.347 89.252 54.00 FALSE TRUE 1 Copper MG/KG 34 0 34 100.0% 55.347 89.252 546.000 FALSE TRUE 638 828 60.090 823.000 FALSE TRUE 658 68.000 FALSE TRUE 658 68.000 FALSE TRUE 658 68.000 FALSE TRUE 658 68.000 FALSE TRUE 69.830 69.300 FALSE TRUE 69.830 69.300 FALSE FALSE FAL	METALS	Chromium	MG/KG	34	0	34	100.0%	19.894	3.933	27.900		FALSE	21.035	21.035
Copper MG/KG 34 0 34 100.0% 55.347 89.252 546.000 FALSE FALSE 6 Cyanide MG/KG 34 0 1 2.9% 0.315 0.220 1.500 FALSE FALSE Iron MG/KG 34 0 31 97.1% 279.93 870.000 FALSE FALSE Magnesium MG/KG 34 0 34 100.0% 23757.647 5597.783 38700.00 FALSE FALSE 558 Magnesium MG/KG 34 0 34 100.0% 5178.08 2028.90 PALSE TRUE 585 Mickel MG/KG 34 0 34 100.0% 537.03 9.145 50.80 FALSE 780.E 780.E </td <td>METALS</td> <td>Cobalt</td> <td>MG/KG</td> <td>34</td> <td>0</td> <td>34</td> <td>100.0%</td> <td>10.265</td> <td>3.719</td> <td>21.900</td> <td>-</td> <td>TRUE</td> <td>11.360</td> <td>11.360</td>	METALS	Cobalt	MG/KG	34	0	34	100.0%	10.265	3.719	21.900	-	TRUE	11.360	11.360
Cyanide MG/KG 34 0 1 2.9% 0.315 0.220 1.500 FALSE FALSE 2538 Iron MG/KG 34 0 34 100.0% 23757.647 5597.783 38700.000 TRUE FALSE 2538 Magnesium MG/KG 34 0 34 100.0% 5757.647 5597.783 38700.00 TRUE FALSE TRUE 66 66 66 700 FALSE TRUE 65 68 68 60 FALSE TRUE 65 78	METALS	Copper	MG/KG	34	0	34	100.0%	55.347	89.252	546.000	FALSE	FALSE	62.403	62.403
Iron MG/KG 34 0 34 100.0% 23757.647 5597.783 38700.000 TRUE FALSE 2538 Lead MG/KG 34 0 34 100.0% 5178.08 542.982 686.000 FALSE TRUE 5138 Manganese MG/KG 34 0 34 100.0% 5178.08 2028.90 9830.00 FALSE TRUE 518 Manganese MG/KG 34 0 34 100.0% 5178.08 2028.90 9830.00 FALSE TRUE 585 Mercury MG/KG 34 0 34 100.0% 5178.09 9830.00 FALSE TRUE 585 Nickel MG/KG 34 0 34 100.0% 1351.500 145 50.00 FALSE TRUE 580.00 Selenium MG/KG 34 0 28.8% 0.638 0.521 1.600 FALSE FALSE Sodium MG/KG 34	METALS	Cyanide	MG/KG	34	0	-	2.9%	0.315	0.220	1.500	-	FALSE	0.377	0.377
Lead MG/KG 34 0 33 97.1% 279.938 542.982 686.000 FALSE TRUE 61 Magnesium MG/KG 34 0 34 100.0% 5178.088 2028.900 9830.000 FALSE TRUE 588 Mercury MG/KG 34 0 34 100.0% 539.426 220.701 1080.000 FALSE TRUE 588 Nickel MG/KG 34 0 30 88.2% 0.099 0.182 1.000 FALSE FALSE TRUE 78 78 1.000 50.890 FALSE FALSE 78 1.43 1.000 78 70.093 9.145 50.800 FALSE FALSE 78 1.43 1.000 78 70.093 9.145 50.800 FALSE FALSE 78 70.093 9.145 50.800 FALSE 78 78 70.033 9.145 50.800 FALSE 78 78 70.033 9.145 50.800	METALS	Iron	MG/KG	34	0	34	100.0%	23757.647	5597.783	38700.000	TRUE	FALSE	25381.795	25381.795
Magnesium MG/KG 34 0 34 100.0% 5178.088 2028.900 9830.000 FALSE TRUE 585 Manganese MG/KG 34 0 34 100.0% 539.426 220.701 1080.00 TRUE 588 Mercury MG/KG 34 0 30 88.2% 0.099 0.182 1.000 FALSE FALSE Nickel MG/KG 34 0 34 100.0% 27.003 9.145 50.800 FALSE FALSE Potassium MG/KG 34 0 34 100.0% 1351.500 287.221 1960.00 FALSE TRUE 143 Selenium MG/KG 34 0 20 58.8% 0.638 0.521 1760.00 FALSE FALSE Sodium MG/KG 34 0 23 67.6% 0.755 4.600 FALSE FALSE Vanadium MG/KG 34 0 27.6% 0.76%	METALS	Lead	MG/KG	34	0	33	97.1%	279.938	542.982	686.000	FALSE	TRUE	619.014	619.014
Manganese MG/KG 34 0 34 100.0% 539.426 220.701 1080.000 TRUE FALSE Mercury MG/KG 34 0 30 88.2% 0.099 0.182 1.000 FALSE FALSE Nickel MG/KG 34 0 34 100.0% 27.003 9.145 50.800 FALSE TRUE 2 Selenium MG/KG 34 0 20 58.8% 0.638 0.521 196.000 TRUE 143 Selenium MG/KG 34 0 20 58.8% 0.638 0.521 1600 FALSE FALSE Sodium MG/KG 34 0 23 67.6% 0.546 0.765 4.600 FALSE FALSE Vanadium MG/KG 34 0 23 67.6% 0.417 0.385 1.500 FALSE FALSE Vanadium MG/KG 34 100.0% 23.104 4.422 30.700	METALS	Magnesium	MG/KG	34	0	34	100.0%	5178.088	2028.900	9830.000	FALSE	TRUE	5854.933	5854.933
Mercury MG/KG 34 0 30 88.2% 0.099 0.182 1.000 FALSE FALSE Nickel MG/KG 34 0 34 100.0% 27.003 9.145 50.800 FALSE TRUE 2 Potassium MG/KG 34 0 20 58.8% 0.638 0.521 1960.000 TRUE TRUE 143 Selenium MG/KG 34 0 20 58.8% 0.638 0.521 1960.000 TRUE TRUE 143 Solium MG/KG 34 0 20 58.8% 0.638 0.521 1600 FALSE FALSE Sodium MG/KG 34 0 23 67.6% 72.860 383.000 FALSE FALSE 9 Vanadium MG/KG 34 0 23 67.6% 73.86 383.00 FALSE FALSE 7 Zinc Vanadium MG/KG 34 100.0% <td< td=""><td>METALS</td><td>Manganese</td><td>MG/KG</td><td>34</td><td>0</td><td>34</td><td>100.0%</td><td>539.426</td><td>220.701</td><td>1080.000</td><td></td><td>TRUE</td><td>603.461</td><td>603.461</td></td<>	METALS	Manganese	MG/KG	34	0	34	100.0%	539.426	220.701	1080.000		TRUE	603.461	603.461
Nickel MG/KG 34 0 34 100.0% 27.003 9.145 50.800 FALSE TRUE 2 Potassium MG/KG 34 0 34 100.0% 1351.500 287.221 1960.000 TRUE TRUE 143 Selenium MG/KG 34 0 20 58.8% 0.638 0.521 1.600 FALSE FALSE Soliver MG/KG 34 0 20 58.8% 0.638 0.521 1.600 FALSE FALSE Sodium MG/KG 34 0 23 67.6% 75.865 72.860 383.000 FALSE FALSE Vanadium MG/KG 34 0 23.06% 0.417 0.385 1.500 FALSE FALSE MG/KG 34 100.0% 23.104 4.422 30.700 FALSE FALSE MG/KG 34 100.0% 132.596 107.961 620.000 FALSE FALSE 15	METALS	Mercury	MG/KG	34	0	30	88.2%	0.099	0.182	1.000		FALSE	0.111	0.111
Potassium MG/KG 34 0 34 100.0% 1351.500 287.221 1960.000 TRUE TRUE 143 Selenium MG/KG 34 0 20 58.8% 0.638 0.521 1.600 FALSE FALSE Silver MG/KG 34 0 4 11.8% 0.546 0.765 4.600 FALSE FALSE Sodium MG/KG 34 0 23 67.6% 75.865 72.860 383.000 FALSE 9 Vanadium MG/KG 34 0 7 20.6% 0.417 0.385 1.500 FALSE FALSE Zinc MG/KG 34 100.0% 23.104 4.422 30.700 TRUE 7 Zinc MG/KG 34 100.0% 132.596 107.961 620.000 FALSE FALSE 15 Zinc MCPA UG/KG 17 0 132.596 107.961 620.000 FALSE FA	METALS	Nickel	MG/KG	34	0	34	100.0%	27.003	9.145	50.800	200	TRUE	29.987	29.987
Selenium MG/KG 34 0 20 58.8% 0.638 0.521 1.600 FALSE FALSE Silver MG/KG 34 0 4 11.8% 0.546 0.765 4.600 FALSE FALSE Sodium MG/KG 34 0 23 67.6% 75.865 72.860 383.000 FALSE FALSE Vanadium MG/KG 34 0 7 20.6% 0.417 0.385 1.500 FALSE FALSE Zinc MG/KG 34 100.0% 23.104 4.422 30.700 TRUE 2 Zinc MG/KG 34 100.0% 132.596 107.961 620.000 FALSE FALSE 15 DES MCPA UG/KG 17 0 1 5.9% 4773.529 7020.486 32000.000 FALSE 562	METALS	Potassium	MG/KG	34	0	34	100.0%	1351.500	287.221	1960.000	TRUE	TRUE	1434.835	1434.835
Silver MG/KG 34 0 4 11.8% 0.546 0.765 4.600 FALSE FALSE Sodium MG/KG 34 0 23 67.6% 75.865 72.860 383.000 FALSE FALSE Thallium MG/KG 34 0 7 20.6% 0.417 0.385 1.500 FALSE FALSE Vanadium MG/KG 34 0 34 100.0% 23.104 4.422 30.700 TRUE TRUE Zinc MG/KG 34 0 34 100.0% 132.596 107.961 620.000 FALSE FALSE 1 DES MCPA UG/KG 17 0 1 5.9% 4773.529 7020.486 32000.000 FALSE FALSE 56	METALS	Selenium	MG/KG	34	0	20	58.8%	0.638	0.521	1.600		FALSE	1.158	1.158
Sodium MG/KG 34 0 23 67.6% 75.865 72.860 383.000 FALSE FALSE Thallium MG/KG 34 0 7 20.6% 0.417 0.385 1.500 FALSE FALSE Vanadium MG/KG 34 0 34 100.0% 23.104 4.422 30.700 TRUE TRUE Zinc MG/KG 34 0 34 100.0% 132.596 107.961 620.000 FALSE FALSE 1 DES MCPA UG/KG 17 0 1 5.9% 4773.529 7020.486 32000.000 FALSE FALSE 56	METALS	Silver	MG/KG	34	0	4	11.8%	0.546	0.765	4.600	-	FALSE	0.750	0.750
Thallium MG/KG 34 0 7 20.6% 0.417 0.385 1.500 FALSE FALSE Vanadium MG/KG 34 0 34 100.0% 23.104 4.422 30.700 TRUE TRUE Zinc MG/KG 34 0 34 100.0% 132.596 107.961 620.000 FALSE FALSE 1: DES MCPA UG/KG 17 0 1 5.9% 4773.529 7020.486 32000.000 FALSE FALSE 56	METALS	Sodium	MG/KG	34	0	23	%9'.29	75.865	72.860	383.000	FALSE	FALSE	93.909	93.909
Vanadium MG/KG 34 0 34 100.0% 23.104 4.422 30.700 TRUE TRUE Zinc MG/KG 34 100.0% 132.596 107.961 620.000 FALSE FALSE 1 DES MCPA UG/KG 17 0 1 5.9% 4773.529 7020.486 32000.000 FALSE FALSE 56	METALS	Thallium	MG/KG	34	0	7	20.6%	0.417	0.385	1.500	-	FALSE	0.610	0.610
Zinc MG/KG 34 0 34 100.0% 132.596 107.961 620.000 FALSE FALSE MCPA UG/KG 17 0 1 5.9% 4773.529 7020.486 32000.000 FALSE FALSE 5	METALS	Vanadium	MG/KG	34	0	34	100.0%	23.104	4.422	30.700		TRUE	24.387	24.387
MCPA UG/KG 17 0 1 5.9% 4773.529 7020.486 32000.000 FALSE FALSE	METALS	Zinc	MG/KG	34	0	34	100.0%	132.596	107.961	620.000	FALSE	FALSE	153.822	153.822
	HERBICIDES	MCPA	UG/KG	17	0	-	2.9%	4773.529	7020.486	32000.000	FALSE	FALSE	5626.631	5626.631

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Lognormal 95th UCL	Normal?	8.000 FALSE FALSE 7.038 7.038	2.000 FALSE FALSE 6.610 2.000	8.000 FALSE FALSE 6.624 6.624	880.000 FALSE FALSE 285.788 285.788	0.000 TRUE TRUE 201.107 0.000	130.000 FALSE FALSE 220.816 130.000	410.000 FALSE FALSE 251.163 251.163	990.000 FALSE FALSE 607.294 607.294	990.000 FALSE FALSE 607.294 607.294	33.000 FALSE FALSE 239.797 33.000	96.000 FALSE FALSE 216.576 96.000	130.000 FALSE FALSE 202.377 130.000	720.000 FALSE FALSE 358.367 358.367	940.000 FALSE FALSE 398.693 398.693	2200.000 FALSE FALSE 390.703 390.703	710.000 FALSE FALSE 317.024 317.024	530.000 FALSE FALSE 303.775 303.775	410.000 FALSE FALSE 221.331 221.331	1300.000 FALSE FALSE 323.444 323.444	46.000 FALSE FALSE 212.610 46.000	410.000 FALSE FALSE 260.800 260.800	670.000 FALSE FALSE 330.564 330.564	120.000 FALSE FALSE 201.080 120.000	200.000 FALSE FALSE 303.389 303.389	470.000 FALSE FALSE 292.389 292.389	36.000 FALSE FALSE 216.839 36.000	000.000 FALSE FALSE 333.775 333.775	38.000 FALSE FALSE 215.844 38.000	790.000 FALSE FALSE 341.962 341.962	95.000 FALSE FALSE 211.815 95.000	37.000 FALSE FALSE 250.492 37.000	990.000 FALSE FALSE 675.909 675.909	360.000 FALSE FALSE 329.947 329.947	200.000 FALSE FALSE 307.838 307.838	15.000 FALSE FALSE 3.093 3.093	140.000 FALSE FALSE 6.212 6.212	Total motion and the
	Std. Dev. Max. Hit	2.659	3 1.180	3 1.134	208.161	2 15.286	35.362	172.257	411.049	411.049	45.420	36.756	24.072	217.411	248.342	405.604	211.235	195.453	54.571	263.989	30.902	176.891	230.290	20.452	222.192	183.669	32.492	271.582	32.172	218.186	35.189	53.270	420.895	193.325	282.622 1	3.528	24.932	2 570
	Freq. (%) Mean	3.2% 6.581	6.3% 5.953	9.4% 6.063	9.4% 251.906	0.0% 196.452	6.5% 190.419	3.1% 232.656	3.1% 562.500	3.1% 562.500	6.5% 186.323	6.5% 189.548	6.5% 193.065	31.3% 213.063	37.5% 214.781	31.3% 265.938	25.0% 228.969	25.0% 205.438	5.9% 203.235	25.0% 256.438	3.2% 192.290	9.4% 225.781	56.3% 172.031	3.2% 193.710	28.1% 241.406	15.6% 222.063			3.2% 192.032	25.0% 228.813	6.5% 189.903	9.7% 182.484	6.3% 549.469	31.3% 197.969	59.4% 194.531	6.3% 2.866	21.9% 7.750	0000
No. of Rejected No. of	Hits	1 1	0 2	0 3	0 3	1 0	1 2	0 1	0 1	0 1	1 2	1 2	1 2	0 10	0 12	0 10	8 0	8 0	0 1	8 0	1	0 3	0 18	1	6 0	0 5	1	0 19	1 1	0 8	1 2	1 3	0 2	0 10	0 19	0 2	0 7	0
No. of No. of Valid Reject	Analyses SQLs	31	32	32	32	31	31	32	32	32	31	31	31	32	32	32	32	32	17	32	31	32	32	31	32	32	31	32	31	32	31	31	32	32	32	32	32	23
	Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	her UG/KG	te UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	TIG/KG
	Parameter	Acetone	Benzene	Toluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Methylnaphthalene	3,3'-Dichlorobenzidine	3-Nitroaniline	4-Nitroaniline	Acenaphthene	Acenaphthylene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[ghi]perylene	Benzo[k]fluoranthene	Bis(2-Chloroisopropyl)ether	Bis(2-Ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene	Cresols (-o)	Di-n-butylphthalate	Dibenz[a,h]anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	N-Nitrosodiphenylamine	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	4,4'-DDD	4,4'-DDE	4 4'-DDT
	Class	VOLATILE ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	SEMIVOLATILE ORGANIC 2	SEMIVOLATILE ORGANIC		SEMIVOLATILE ORGANIC:	SEMIVOLATILE ORGANIC:	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC .	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC		SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC		SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCR

	CDC	1.064	26.326	1.555	1.400	4.509	4.431	2.664	3.263	3.585	0.460	75.387	89.191	14736.484	7.790	5.507	125.562	0.631	2.043	41678.432	20.754	11.448	62.476	0.379	24746.207	496.000	5695.790	594.029	0.117	29.792	1415.601	1.250	0.738	84.336	0.656	24.328	155.685	6203.085
1011		4	26.326	1.555	1.400	4.509	4.431	2.664	3.263	3.585	0.460	75.387	89.191	########	7.790	5.507	125.562	0.631	2.043	########	20.754	11.448	62.476	0.379	########	576.842	5695.790	594.029	0.117	29.792	1415.601	1.250	0.738	84.336	0.656	24.328	155.685	6203.085
	Lognormal 95th UCL	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	TRUE	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
	Normal?			FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE		FALSE	TRUE	FALSE	-			FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
	May Uit	1.100	28.000	20.000	2.200	62.000	430.000	20.000	43.000	71.000	2.400	330.000	900.000	19300.000	52.000	8.900	357.000	0.660	3.500	#########	27.900	21.900	546.000	1.500	36100.000	496.000	9830.000	1080.000	1.000	50.800	1960.000	1.600	4.600	383.000	1.500	30.700	620.000	32000.000
	Std Day	0.077	27.473	3.355	1.420	10.735	75.791	3.189	7.258	12.194	0.423	47.396	148.086	2969.022	8.917	1.074	60.489	0.176	1.992	########	3.820	3.834	91.711	0.227	5072.381	553.353	1990.612	221.797	0.187	9.321	283.073	0.520	0.788	69.949	0.390	4.497	110.589	7469.239
	Mean	1.029	24.875	1.617	1.313	4.572	14.797	2.545	3.386	4.236	0.339	70.625	88.594	########	4.675	5.188	105.920	0.579	1.224	########	19.609	10.272	55.522	0.313	########	275.619	5032.813	527.594	0.103	26.697	1330.813	0.670	0.536	69.575	0.435	22.981	133.325	5016.667
	Fred (%) Mean	3.2%	6.3%	3.1%	3.1%	9.4%	9.4%	3.1%	6.3%	6.3%	100.0%	3.1%	3.1%	100.0%	53.1%	100.0%	81.3%	100.0%	71.9%	100.0%	100.0%	100.0%	100.0%	3.1%	100.0%	%6.96	100.0%	100.0%	%9.06	100.0%	100.0%	62.5%	12.5%	65.6%	21.9%	100.0%	100.0%	6.7%
,	Hite	1	2	-	-	n	c	-	2	7	32	_	_	32	17	32	26	32	23	32	32	32	32	_	32	31	32	32	29	32	32	20	4	21	7	32	32	_
No. of	י חבובים		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of	SOI s	2	2	2	7	7	7	2	2	2	7	7	2	2	7	~	2	2	2	2	2	6	6	6	~	6	6	2	61	6	~	~	61	61	6	61	61	10
No. of	Analyees	3]	32	32	33	32	32	32	32	32	37	37	32	37	37	37	37	32	32	32	32	37	37	32	32	32	32	32	37	32	32	32	32	32	32	32	32	\$3
	Unite	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	MG/KG	UG/KG	UG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	UG/KG
	Parameter	Alpha-Chlordane	Aroclor-1260	Beta-BHC	Delta-BHC	Dieldrin	Endosulfan I	Endosulfan sulfate	Endrin	Endrin ketone	Nitrate/Nitrite Nitrogen	2,4-Dinitrotoluene	2,6-Dinitrotoluene	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	MCPA
	Class	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	OTHER ANALYSES	NITROAROMATICS	NITROAROMATICS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	HERBICIDES

SEAD-16 AND 17 FEASIBILITY STUDY SENECA ARMY DEPOT Table 2-3

SEAD-17 AREAS FOR SOIL REMEDIATION

	· · · · · · · · · · · · · · · · · · ·		-
SAMPLING LOCATIONS REMEDIATED OR EXCAVATED ²	SS17-1, SS17-4 through 9, SS17-12 through 14, SS17-16, SS17-18, SS17-26, SS17-27, SS17-28, SS17-35, SS17-36, SS17-37	SS17-1, SS17-4 through 9, SS17-12 through 14, SS17-16, SS17-18, SS17-26, SS17-27, SS17-28, SS17-35, SS17-37, SD/SW-17-1 through 8	SS17-1, SS17-4 through 9, SS17-12 through 14, SS17-16, SS17-18, SS17-26, SS17-27, SS17-28, SS17-35, SS17-36, SS17-37, SD/SW-17-1 through 8, SB17-2
VOLUME (ft³)	842 842	53 <u>7</u> 1,379	<u>56</u> 1,434
DEPTH (in)	ω	ω	24
AREA (ft²)	45,475	28,975	750
DESCRIPTION OF AREA TO BE REMEDIATED ¹	North and Northeast of Bidg 367, Southwest Corner and Southeast of Bidg 367 Cumulative Soil Volume	North and Northeast of Bidg 367, Pb <31 mg/kg Southwest Corner of Bidg 367, and Southeast of Bidg 367 (Extend Areas) Cumulative Soil Volume	North and Northwest of Bidg 367 Cumulative Soil Volume
CLEAN UP GOAL	Pb <500 mg/kg	Pb <31 mg/kg	Pb <500 mg/kg
BASIS	a) Protection of Current and Future On-site Workers b) Protection of Surface Water	a) Protection of Terrestrial and Aquatic Ecology b) Protection of Surface Water	a) Protection of Current and Future On-site Workers b) Protection of Ground Water
REMEDIAL ACTION OBJECTIVES	a) Prevent ingestion/direct contact with surface soil having Future On-site Workers excess heavy metals b) Prevent migration of soil to drainage ditches and Kendaia Creek	a) Prevent ingestion/direct contact with sediment having excess heavy metals b) Prevent sediment migration in surface water to drainage ditches and Kendaia Creek	 a) Prevent ingestion/direct contact with subsurface soil having excess heavy metals b) Minimize potential for leaching to groundwater
CASE		2	en en

1) For Case 3, area to be remediated/excavated includes an additional 24 inches in depth within the areas considered by Case 1 (see Figure 2-1).

2) Bold items in Sampling Location Column are additional locations to be remediated/excavated when the case is considered.

Page 1 of 2

TABLE 7-28

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

ANICS ANICS (mg/kg-day) (mg/kg-day) (mg/kg) (kg/mg) (cm²) (mg/kg-day) (mg/kg				0							,		-
2.73E-03 1,00E-06 5,800 1,0 250 2.00E-03 1,00E-06 5,800 1,0 220 4,00E-03 1,00E-06 5,800 1,0 220 1,00E-06 5,800 1,0 220 1,00E-06 5,800 1,0 250 1,00E-06 5,800 1,0 220 1,00E-07 1,00E-06 5,800 1,0 220 1,30E-01 1,00E-06 5,800 1,0 220 1,30E-01 1,00E-06 5,800 1,0 220 1,30E-01 1,00E-06 5,800 1,0 220 2,4E-01 1,00E-06 5,800 1,0 220 3,4E-01 1,00E-06 5,800 1,0 220 1,30E-01 1,00E-06 5,800 1,0 220 1,30E-01 1,00E-06 5,800 1,0 220 1,30E-01 1,00E-06 5,800 1,0 220 2,3E-01 1,00E-06 5,800	Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Aver TJ	Averaging Time (davs)
7.28E-03 1.00E-06 5,800 1.0 250 1.0 200E-03 1.00E-06 5,800 1.0 1.0 250 1.0 250 1.0 4,00E-03 1.00E-06 5,800 1.0 1.0 250 1.0 250 1.0 250 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2				5	6						10.1	Nc	Car
2.00E-03 1.00E-06 5,800 1.0 250 1 2.00E-03 1.00E-06 5,800 1.0 250 1 4.00E-03 1.00E-06 5,800 1.0 250 1 4.00E-03 1.00E-06 5,800 1.0 250 1 7.00E-02 1.00E-06 5,800 1.0 250 1 7.00E-02 1.00E-06 5,800 1.0 250 1 2.26E-01 1.00E-06 5,800 1.0 250 1 2.26E-01 1.00E-06 5,800 1.0 250 1 2.26E-01 1.00E-06 5,800 1.0 250 1 5.46E-01 1.00E-06 5,800 1.0 250 1 5.46E-01 1.00E-06 5,800 1.0 250 1 5.46E-01 1.00E-06 5,800 1.0 250 1 2.46E-01 1.00E-06 5,800 1.0 250 1 2.46E-01	VOLATILE ORGANICS												
2.728E-03 1,00E-06 5,800 1,0 250 1 2.00E-03 1,00E-06 5,800 1,0 250 1 4.00E-03 1,00E-06 5,800 1,0 250 1 2.73E-01 1,00E-06 5,800 1,0 250 1 7.00E-02 1,00E-06 5,800 1,0 250 1 1.30E-01 1,00E-06 5,800 1,0 250 1 2.26E-01 1,00E-06 5,800 1,0 250 1 2.26E-01 1,00E-06 5,800 1,0 250 1 2.26E-01 1,00E-06 5,800 1,0 250 1 2.46E-01 1,00E-06 5,800 1,0 250 1 2.56E-01 1,00E-06 5,800 1,0 250 1 2.56E-01 1,00E-06 5,800 1,0 250 1 2.56E-01 1,00E-06 5,800 1,0 250 1 2.56E-0													
2,00E-03 1,00E-06 5,800 1,0 250 1 4,00E-03 1,00E-06 5,800 1,0 250 1 6,47E-03 1,00E-06 5,800 1,0 250 1 7,00E-02 1,00E-06 5,800 1,0 250 1 7,00E-02 1,00E-06 5,800 1,0 250 1 2,26E-01 1,00E-06 5,800 1,0 250 1 2,26E-01 1,00E-06 5,800 1,0 250 1 2,46E-01 1,00E-06 5,800 1,0 250 1 5,46E-01 1,00E-06 5,800 1,0 250 1 5,46E-01 1,00E-06 5,800 1,0 250 1 1,30E-02 1,00E-06 5,800 1,0 250 1 2,46E-01 1,00E-06 5,800 1,0 250 1 2,76E-01 1,00E-06 5,800 1,0 250 1 2,46E-01	Acetone			7.28E-03	1.00E-06	5,800	1.0		250	-	70	365	25,550
4,00E-03 1,00E-06 5,800 1,0 250 1 2,73E-01 1,00E-06 5,800 1,0 250 1 2,73E-01 1,00E-06 5,800 1,0 250 1 1,30E-01 1,00E-06 5,800 1,0 250 1 2,26E-01 1,00E-06 5,800 1,0 250 1 2,26E-01 1,00E-06 5,800 1,0 250 1 2,46E-01 1,00E-06 5,800 1,0 250 1 3,46E-01 1,00E-06 5,800 1,0 250 1 3,46E-01 1,00E-06 5,800 1,0 250 1 1,30E-01 1,00E-06 5,800 1,0 250 1 2,54E-01	Benzene			2.00E-03	1.00E-06	5,800	1.0		250	-	70	365	25,550
2.73E-01 1.00E-06 5,800 1.0 250 1.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2	Methylene Chloride			4.00E-03	1.00E-06	5,800	1.0		250	-	70	365	25,550
2.73E-01 1.00E-06 5,800 1.0 250 1 7.00E-02 1.00E-06 5,800 1.0 250 1 1.00E-06 5,800 1.0 250 1 2.26E-01 1.00E-06 5,800 1.0 250 1 5.46E-01 1.00E-06 5,800 1.0 250 1 6.60E-02 1.00E-06 5,800 1.0 250 1 2.81E-01 1.00E-06 5,800 1.0 250 1 2.81E-01 1.00E-06 5,800 1.0 250 1 2.59E-01 1.00E-06 5,800 1.0 250 1 2.38E-01 1.00E-06 5,800 1.0 250 1 2.38E-01 1.00E-06	Toluene			6.47E-03	1.00E-06	5,800	1.0		250	-	70	365	25,550
anne 2.73E-01 1.00E-06 5,800 1.0 250 1.0 dine 7.00E-02 1.00E-06 5,800 1.0 250 1.0 2.26E-01 1.00E-06 5,800 1.0 250 1.0 5.46E-01 1.00E-06 5,800 1.0 250 1.0 6 5.46E-01 1.00E-06 5,800 1.0 250 1.0 6 2.76E-01 1.00E-06 5,800 1.0 250 1.0 7.54E-01 1.00E-06 5,800 1.0 250 1.0 8 2.54E-01 1.00E-06 5,800 1.0 250 1.0 8 2.54E-01 1.00E-06 5,800 1.0 250 1.0 8	SEMIVOLATILE ORGANICS												
dine 1.00E-06 5,800 1.0 250 1.0 1.0 1.0 250 1.0 2.0 1.0 2.0 1.0 2.0 1.0 2.0 1.0 2.0 1.0 2.0 1.0 2.0 2.0 1.0 2.0													
me 7.00E-02 1.00E-06 5,800 1.0 250 1 dine 1.30E-01 1.00E-06 5,800 1.0 250 1 dine 2.26E-01 1.00E-06 5,800 1.0 250 1 5.46E-01 1.00E-06 5,800 1.0 250 1 5.46E-01 1.00E-06 5,800 1.0 250 1 6 5.46E-01 1.00E-06 5,800 1.0 250 1 7.46E-01 1.00E-06 5,800 1.0 250 1 8 2.36E-01 1.00E-06 5,800 1.0 250 9.60E-02 1.00E-06 5,800 1.0 250 1 1.30E-01 1.00E-06 5,800 1.0 250 1 1.00E-06 5,800 1.0 250 1 2.34E-01 1.00E-06 5,800 1.0 250 1 4.60E-02 1.00E-06 5,800 1.0 250	2,4-Dinitrotoluene			2.73E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
e 1,30E-01 1,00E-06 5,800 1.0 250 1 2,26E-01 1,00E-06 5,800 1.0 250 1 5,46E-01 1,00E-06 5,800 1.0 250 1 5,46E-01 1,00E-06 5,800 1.0 250 1 3,30E-02 1,00E-06 5,800 1.0 250 1 1,30E-01 1,00E-06 5,800 1.0 250 1 1,30E-01 1,00E-06 5,800 1.0 250 1 2,81E-01 1,00E-06 5,800 1.0 250 1 2,81E-01 1,00E-06 5,800 1.0 250 1 2,54E-01 1,00E-06 5,800 1.0 250 1 2,55E-01 1,00E-06 5,800 1.0 250 1 2,55	2,6-Dinitrotoluene			7.00E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
raidine 2.26E-01 1.00E-06 5,800 1.0 250 1 5.46E-01 1.00E-06 5,800 1.0 250 1 5.46E-01 1.00E-06 5,800 1.0 250 1 6.46E-01 1.00E-06 5,800 1.0 250 1 1.30E-02 1.00E-06 5,800 1.0 250 1 1.30E-01 1.00E-06 5,800 1.0 250 1 1.40E-0 2.81E-01 1.00E-06 5,800 1.0 250 1 1.40E-0 2.59E-01 1.00E-06 5,800 1.0 250 1 2.39E-01 1.00E-06 5,800 1.0 250 1 2.39E-01 1.00E-06 5,800 1.0	2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
zidine	2-Methylphenol			A CONTRACTOR	1.00E-06	5,800	1.0		250	_	70	365	25,550
ene 5,46E-01 1,00E-06 5,800 1,0 250 1 5,46E-01 1,00E-06 5,800 1,0 250 1 3,30E-02 1,00E-06 5,800 1,0 250 1 1,30E-01 1,00E-06 5,800 1,0 250 1 1,30E-01 1,00E-06 5,800 1,0 250 1 1,30E-01 1,00E-06 5,800 1,0 250 1 1,40E-06 5,800 1,0 250 1 1,50E-01 1,00E-06 5,800 1,0 250 1 1,50E-02 1,00E-06 5,800 1,0 250 1 1,50E-03 1,00E-06 5,800 1,0 250 1 1,50E-04 1,00E-06 5,800 1,0 250 1 1,50E-05 1,00E-06 5,800 1,0 250 1 2,30E-01 1,00E-06 5,800 1,0 250 1 2,30E-01 1,00E-06 5,800 1,0 250 1 2,30E-01 1,00E-06 5,800 1,0 250 1 2,50E-01 1,00E-06 5,800 1,0 250 1 2,	3,3'-Dichlorobenzidine			2.26E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
ene 5.46E-01 1.00E-06 5,800 1.0 250 1 3.30E-02 1.00E-06 5,800 1.0 250 1 1.30E-01 1.00E-06 5,800 1.0 250 1 1.30E-01 1.00E-06 5,800 1.0 250 1 1.40E-06 5,800 1.0 250 1 2.59E-01 1.00E-06 5,800 1.0 250 1 4.60E-02 1.00E-06 5,800 1.0 250 1 4.60E-02 1.00E-06 5,800 1.0 250 1 2.39E-01 1.00E-06 5,800 1.0 250 1 2.59E-01 1.00E-06 5,800 1.0 250	3-Nitroaniline			5.46E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
3.30E-02 1.00E-06 5,800 1.0 250 1 9,60E-02 1.00E-06 5,800 1.0 250 1 1.30E-01 1.00E-06 5,800 1.0 250 1 2.76E-01 1.00E-06 5,800 1.0 250 1 2.81E-01 1.00E-06 5,800 1.0 250 1 2.81E-01 1.00E-06 5,800 1.0 250 1 2.59E-01 1.00E-06 5,800 1.0 250 1 2.59E-01 1.00E-06 5,800 1.0 250 1 2.59E-01 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.50E-01 1.00E-06 5,800 1.0 250 1	4-Nitroaniline			5.46E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Hene the care and a state to t	Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
there 2.76E-01 1.00E-06 5,800 1.0 250 1 2.76E-01 1.00E-06 5,800 1.0 250 1 2.81E-01 1.00E-06 5,800 1.0 250 1 2.87E-01 1.00E-06 5,800 1.0 250 1 2.58E-01 1.00E-06 5,800 1.0 250 1 4.66E-02 1.00E-06 5,800 1.0 250 1 2.39E-01 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.55E-01 1.00E-06 5,800 1.0 250 1 2.55E-01 1.00E-06 5,800 1.0 250 1 2.56E-01 1.00E-06 5,800 1.0 250 1 2.56E-01 1.00E-06 5,800 1.0 250 1	Acenaphthylene			9.60E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
thene 2.76E-01 1.00E-06 5,800 1.0 250 1 281E-01 1.00E-06 5,800 1.0 250 1 281E-01 1.00E-06 5,800 1.0 250 1 250 1 240E-0E 2.58E-01 1.00E-06 5,800 1.0 250 1 25	Anthracene			1.30E-01	1.00E-06	5,800	1.0		250	_	70	365	25,550
thene there 2.8TE-01 1.00E-06 5,800 1.0 250 1 2.8TE-01 1.00E-06 5,800 1.0 250 1 2.54E-01 1.00E-06 5,800 1.0 250 1 2.54E-01 1.00E-06 5,800 1.0 250 1 3.550 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.550	Benzo(a)anthracene			2.76E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
thene 2.87E-01 1.00E-06 5,800 1.0 250 1 line 2.54E-01 1.00E-06 5,800 1.0 250 1 line 2.59E-01 1.00E-06 5,800 1.0 250 1 line 4.60E-02 1.00E-06 5,800 1.0 250 1 line 2.30E-01 1.00E-06 5,800 1.0 250 1 line 2.30E-01 1.00E-06 5,800 1.0 250 1 line 2.58E-01 1.00E-06 5,800 1.0 250 1 line 2.56E-01 1.00E-06 5,800 1.0 250 1	Benzo(a)pyrene			2.81E-01	1.00E-06	5,800	1.0		250		70	365	25,550
2.54E-01 1.00E-06 5,800 1.0 250 1 2.59E-01 1.00E-06 5,800 1.0 250 1 4.60E-02 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.38E-01 1.00E-06 5,800 1.0 250 1 2.57E-01 1.00E-06 5,800 1.0 250 1	Benzo(b)fluoranthene			2.87E-01	1.00E-06	5,800	1.0		250	_	70	365	25,550
2.59E-01 1.00E-06 5,800 1.0 250 1 4.60E-02 1.00E-06 5,800 1.0 250 1 2.39E-01 1.00E-06 5,800 1.0 250 1 2.38E-01 1.00E-06 5,800 1.0 250 1 2.57E-01 1.00E-06 5,800 1.0 250 1	Benzo(g,h,i)perylene			2.54E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
te 4.60E-02 1.00E-06 5,800 1.0 250 1 2.30E-01 1.00E-06 5,800 1.0 250 1 2.38E-01 1.00E-06 5,800 1.0 250 1 2.50E-01 1.00E-06 5,800 1.00E-06 5,800 1.0 2.50E-01 1.00E-06 5,800 1.0 250 1 2.50E-01 1.00E-06 5,800 1.00	Benzo(k)fluoranthene			2.59E-01	1.00E-06	5,800	1.0		250	_	70	365	25,550
2.30E-01 1.00E-06 5,800 1.0 250 1 2.38E-01 1.00E-06 5,800 1.0 250 1 250 1 2 6.7E-01 1.00E-06 5,800 1.0 250 1	Butylbenzylphthalate			4.60E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
2.38E-01 1.00E-06 5,800 1.0 250 1	Carbazole			2.30E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
2 67E-01 1 00E-06 5 800 1 0 250 1	Chrysene			2.38E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
2001	Di-n-butylphthalate			2.67E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Averaging Time (days)	Car	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		No. of the last of	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550
Aver T	Nc	365	365	365	365	365	365	365	365	365	365	365	365			365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Body Weight (kg)		70	70	20	70	70	70	70	70	70	70	70	20		1000	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Exposure Duration (years))	-	-	-	_	_	-			-	-	1	-		8	-	-	_	-	-	_	-	-	-	-	-		-	-	-
Exposure Frequency (days/year)		250	250	250	250	250	250	250	250	250	250	250	250		2500	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Absorption Factor (unitless)																				90.0	90.0									
Adherence Factor (mg soil/cm²)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Skin Surface Area Contact (cm²)		5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800		- No-steed of	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5.800	5,800
Conv. Factor (kg/mg)	9	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		200000000000000000000000000000000000000	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
EPC Total Soils (mg/kg)	ò	2.42E-01	3.60E-02	2.23E-01	3.80E-02	2.63E-01	9.50E-02	3.70E-02	5.85E-01	2.52E-01	2.18E-01	2.13E-01	3.48E-01		The second second	2.62E-03	7.05E-03	3.58E-03	1.21E-03	2.40E-02	2.34E-02	5.10E-03	2.33E-03	2.33E-03	2.62E-03	2.75E-03	1.03E-03	1.03E-03	1.28E-03	1.21E-03
Dose (Car) (mg/kg-day)																				1.166E-09	1.138E-09						100	·		
Dose (Nc)																				8.165E-08	7.966E-08	CONTRACTOR STORY								
Analyte		Dihenz(a hlanthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	N-Nitrosodiphenylamine (1)	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	bis(2-Chloroisopropyl) ether	bis(2-Ethylhexyl)phthalate	PESTICIDES/PCB		4,4'-DDD	4,4'-DDE	4.4'-DDT	Aldrin	Aroclor-1254	Aroclor-1260	Dieldrin	Endosulfan I	Endosulfan sulfate	Endrin	Endrin ketone	Heptachlor epoxide	alpha-Chlordane	beta-BHC	delta-BHC

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

			EPC	Conv.	Skin Surface	Adherence	Absorption	Exposure	Exposure	Body	Averaging	ging
Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	Total Soils (mg/kg)	Factor (kg/mg)	Area Contact (cm²)	Factor (mg soil/cm²)	Factor (unitless)	Frequency (days/year)	Duration (years)	Weight (kg)	Time (days)	ne /s)
METAIC											Nc	Car
METALS												
Antimony			9.52E+00	1.00E-06	5,800	1.0		250		70	365	25,550
Arsenic			6.24E+00	1.00E-06	5,800	1.0		250	-	20	365	25,550
Barium			1.54E+02	1.00E-06	5,800	0.0		250		70	365	25,550
Conner			1 79E+07	1.00E-06	5,800	1.0		250		0, 6	365	25,530
Lead			2.50E+03	1.00E-06	5.800	1.0		250		70	365	25,550
Mercury			1.16E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Selenium			6.84E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Silver			1.16E-01	1.00E-06	5,800	1.0		250	_	70	365	25,550
Zinc			3.06E+02	1.00E-06	5,800	1.0		250	-	70	365	25,550
HERBICIDES												
MCPA			6.26E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
EQUATION:	Absorbed Dose	Absorbed Dose (mg/kg-day) = CSxCExSAxAExABSxEExED BWxAT	CSxCFxSAx	AFxABSxEl BWxAT	EXED							
Variables:		nuti	Assumptions:				Variables:			Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg)	ng soil/kg)	7	EPC - Soil Data (RME)	(RME)			EF = Exposure	EF = Exposure Frequency (days/year)	s/year)	250 (RME Construction Worker)	truction Worke	í.
CF = Conversion Factor (10-6 kg/mg)			9-01				ED = Exposure	ED = Exposure Duration (years)	•	1 (Upper bound limit for CW)	limit for CW)	
SA = Surface Area Contact (cm²)		wat.	5,800 (RME Adult Worker)	ult Worker)			BW = Bodyweight (kg)	tht (kg)		70 (Adult Male)		
AF =Soil to Skin Adherence Factor (mg/cm²)	z/cm²)		1.0 (RME - All Receptors)	Receptors)			AT = Averaging Time (days)	Time (days)		1 x 365 (Nc) 70 x 365 (Car)	x 365 (Car)	
ABS = Absorption Factor (unitless)			Applicable for P	CBs and Cadn	Applicable for PCBs and Cadmium (EPA, 1992b)	(q						

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

SEAD-16 EPC, INTAKE AND **RISK TABLES**

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	EPC	3.000	0.500	4.000	1.770	8.467	7.648	139.898	57.414	3.682	153.991	1.391	79855.202	1.899	2.312	112.117	3650.000	532.192	10129.197	217.104	0.229	3.882	3420.760	2.583	1.699	6869.361	4.109	250.410
95th UCL		6.209	8.375	34.475	16.474	8.467	7.648	139.898	57.414	3.682	153.991	1.391		_	2.312	112.117	7913.346	532.192	10129.197	217.104	0.229	3.882	3420.760	2.583	1.699	19869361	4.109	250.410
Lognormal 95th UCI		FALSE	FALSE	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE
	Normal?	FALSE	FALSE	FALSE	FALSE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE
	Max. Hit	3.000	0.500	4.000	1.770	12.500	7.800	261.000	124.000	5.700	348.000	2.000	89900.000	3.000	4.100	424.000	3650.000	813.000	1400.000	252.000	0.900	5.500	4590.000	4.300	5.200	9220.000	4.900	380.000
\$ 2 83	Std. Dev. N	1.334	1.320	4.940	0.555	3.692	0.164	85.982	35.483	1.669	76.739	0.528	15602.134	0.875	1.170	115.307	1304.183	224.334	2295.529	75.807	0.244	1.829	994.507	1.081	1.342	2714.604	1.708	105.687
		4.375	4.667	9.975	0.410	6.211	7.548	90.630	24.342	2.823	116.558	0.662	71829.167	1.117	1.325	61.204	859.867	115.858	8948.333	52.733	0.137	2.942	2909.167	1.638	1.150	5472.917	1.954	122.700
	Freq. (%) Mean	25.0%	8.3%	25.0%	83.3%	100.0%	100.0%	20.0%	83.3%	%1.99	100.0%	58.3%	100.0%	25.0%	16.7%	100.0%	83.3%	100.0%	100.0%	100.0%	25.0%	58.3%	100.0%	33.3%	8.3%	100.0%	58.3%	100.0%
No. of	Hits I	3	-	3	10	6	6	7	10	8	12	7	12	3	7	12	10	12	12	12	3	7	12	4	-	12	7	12
pa		0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of Rejected	SQLs																											
No. of Valid	Analyses !	12	12	12	12	6	6	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Units	NG/L	NG/L	NG/L	MG/L	MG/L	MG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L
	Parameter	Bis(2-Ethylhexyl)phthalate	Di-n-butylphthalate	Pentachlorophenol	Nitrate/Nitrite Nitrogen	Total Organic Carbon	Hd	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Vanadium	Zinc
	Class	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	OTHER ANALYSES	OTHER ANALYSES	OTHER ANALYSES	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) BASE CAN BASE SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Ne)	Child Absorbed Dose (Car)	Absorbed Dose/Event	EPC Surface W.	Child Skin Surface Area Contact (cm²)	Kp Permeability Coefficient (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Volumetric Conv. Factor (1 liter/1000 cm²)	B (unitless)	Tau (hours)	ı	9	v	5.2/5.21	Child Body Weight (kg)	Averaging Time (days)	ging si
	(- a. a. a											TOROUS .				1	38.0	ž	ð
Semivolatile Organics																			
Di-n-buty lphthalate	1.86E-08	0.0000000000000000000000000000000000000	9.46E-05	5.00E-04	2,170	3.30E-02	_	52	٧,	1.00E-03	1.30E+01	4.30E+00	4586.67	111.44	13.33		25	1,825	25,550
Pentachlorophenol bis(2-Ethylhexyl)phthalate	5.34E-05 2.46E-07	3.82E-06 1.76E-08	1.38E-02 1.25E-03	4,00E-03 3,00E-03	2,170	6.50E-01 3.30E-02		ឧឧ	0.00	1.00E-03	1.30E+01	2.10E+01	22400.00	111.44	13.33		2 23	1.825	25,550
Metals																			
Aliminim			1,40E-04	1.40E-01	2,170	1.00E-03	-	25	S	1.00E-03	AN	NA		0.30	0.33	2	25	1,825	25,550
Antimony	3.41E-10		5.74E-05	5.74E-02	2,170	1.00E-03	-	25	\$	1.00E-03	Y.	NA		0.30	0.33	7	22	1,825	25,550
Arsenie	2.19E-11	1.56E-12	3.68E-06	3.68E-03	2,170	1.00E-03		52 5	50 1	1.00E-03	YY.	NA.		0.30	0.33	7 (2 %	6781	055,55
Barium	9.16E-10		1.54E-04	1.54E-01	2,170	1.00E-03		9 %	n 4	1.00E-03	X X	Y Y		0.30	0.33	,,	1 %	1 875	25.550
Cadmium	8.27E-12		1.39E-06	7.005.03	2,170	1.005-03		3 X		1 00E-03	NAN	Y Y		0.30	0.33	. 7	22	1.825	25.550
Calcium	11 203 1		3 80E-06	1 90F-03	2,170	2 00F-03		25	'n	1.00E-03	NA	NA		0.30	0.33	2	25	1,825	25,550
Chromium	11-976+		9.25E-07	2.31E-03	2,170	4.00E-04	-	22	8	1.00E-03	NA	NA		0.30	0.33	2	25	1,825	25,550
Conner	6.67F-10		1.12E-04	1.12E-01	2,170	1.00E-03	-	25	\$	1.00E-03	NA	NA.		0.30	0.33	7	52	1,825	25,550
Logical			3.65E-03	3.65E+00	2,170	1.00E-03	1	25	2	1.00E-03	NA	NA		0.30	0.33	2	25	1,825	25,550
Lead			2.13E-06	5.32E-01	2,170	4.00E-06		25	2	1.00E-03	NA	NA		0.30	0.33	7	52	1,825	25,550
Magnesium			1.01E-02	1.01E+01	2,170	1.00E-03	_	25	8	1.00E-03	NA	NA NA		0.30	0.33	7	52	1,825	25,550
Manganese	1.29E-09		2.17E-04	2.17E-01	2,170	1.00E-03	-	25	2	1.00E-03	YY.	Y.		0.30	0.33	7 0	25	578.1	055,55
Mercury	1.36E-12		2.29E-07	2.29E-04	2,170	1.00E-03	-	25	2	1.00E-03	NA.	NA.		0.30	0.33	7	52	529	000,02
Nickel	2,31E-11		3.88E-06	3.88E-03	2,170	1.00E-03	-	52	9	1.00E-03	NA	Y.		0.30	0.33	~ .	52	1,825	055.55
Potassium	10000000000		3.42E-03	3.42E+00	2,170	1.00E-03	-	25	v. '	1.00E-03	Y.	YY:		0.30	0.33	7 1	3 7	578,1	055,55
Selenium	1.54E-11		2.58E-06	2.58E-03	2,170	1.00E-03		52	0 4	1.00E-03	Y X	Y'A		0.50	0.33	4 0	3 %	1 875	25,550
Silver	3.64E-12		1.02E-06	1.70E-03	2,170	6.00E-04		2 %	0 4	1.005-03	V.V	NA		0.20	0.33	10	3 %	1.825	25 550
Sodium			6.8/E-03	6.8/E+00	2,170	1.00E-03		3 %	. •	1 00E-03	Y N	Y N		0.30	0.33	, (35	1 825	25.550
Vanadium Zinc	2.44E-11 5.36E-10		1.50E-04	4.11E-03 2.50E-01	2,170	6.00E-04		2 23	. 50	1.00E-03	×	NA		0.30	0.33	2	25	1,825	25,550
EQUATION:	Absorbed Dose	Absorbed Dose (mg/kg-day) =		DAXSAXKp	DAXSAXKQXETXEEXEDXCE BWXAT	5													
	Variables:				Assumptions:			Variables:				Assumptions:	130						
	DA = Absorbed	DA = Absorbed Dose per Event (mg-cm²/event) SA = Surface Area Contact (cm²)	t (mg-cm²/event		Calculated from 2,170 (RME Chil	EPA, 1992 d)		EF = Exposu ED = Exposu	EF = Exposure Frequency (days/ ED = Exposure Duration (years)	EF = Exposure Frequency (days/year) ED = Exposure Duration (years)		25 5 (RME at	25 5 (RME at 1 Residence)						
	Kp = Permeab ET = Exposure	Kp = Permeability Coefficient (cm/hour) ET = Exposure Time (hours/day)	(cm/hour)		Compound Specific, EPA, 1992 1 RME Commound Specific EPA 1992	ific, EPA, 1992		CF = Vol. Conv. Factor BW = Bodyweight (kg) R = Bunge Model Value	onv. Factor (I veight (kg) fodel Value	CF = Vol. Conv. Factor (1 L/1000 cm ³) BW = Bodyweight (kg) B = Burner Model Value		0.001 25 (Child) Compound	0.001 25 (Child) Compound Specific. EPA, 1992	A. 1992					
Lao = Lag ume (nours)	I no = Lag ume (nours)	e (nours)	of of towinity do	1	Compound open	110 to 0 177		- Same					- Commander						

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg)	Child CDI (Car) (mg/kg)	Dermal RfD (mg/kg/day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Semivolatile Organics						
Di-n-butylphthalate	1.86E-08		8.50E-02	NA	2.18E-07	
Pentachlorophenol	5.34E-05	3.82E-06	3.00E-02	1.20E-01	1.78E-03	4.58E-07
bis(2-Ethylhexyl)phthalate	2.46E-07	1.76E-08	2.00E-02	1.40E-02	1.23E-05	2.46E-10
Metals	1 253,775	11 2000	= 775			
Aluminum			NA	NA		
Antimony	3.41E-10		4.00E-04	NA	8.53E-07	9.7
Arsenic	2.19E-11	1.56E-12	2.94E-04	1.79E+00	7.44E-08	2.80E-12
Barium	9.16E-10		7.00E-03	NA	1.31E-07	
Cadmium	8.27E-12		3.00E-05	NA	2.76E-07	127.1
Calcium	DESTRUCTION OF THE PARTY OF THE		NA	NA		
Chromium	4.52E-11		2.50E-04	NA	1.81E-07	1230 0
Cobalt		1	NA	NA		P 153 -
Copper	6.67E-10		2.00E-02	NA	3.33E-08	
Iron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	1.29E-09		5.00E-03	NA	2.58E-07	
Mercury	1.36E-12		4.50E-05	NA	3.03E-08	
Nickel	2.31E-11		1.00E-03	NA	2.31E-08	
Potassium	12555725-00-00		NA	NA		
Selenium	1.54E-11		3.00E-03	NA	5.12E-09	
Silver	3.64E-12		5.00E-03	NA	7.27E-10	
Sodium	-		NA	NA		
Vanadium	2.44E-11		7.00E-03	NA	3.49E-09	
Zinc	5.36E-10		1.50E-01	NA	3.57E-09	
Totals - HQ & CR					1.79E-03	4.58E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Surface W. (mg/L)	Contact Rate (L/hr)	Exposure Time (hr/day)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Aver Ti	Averaging Time (days)
									Nc	Car
Semivolatile Organics					1					
Di-n-butylohthalate	6.85E-08		\$ 00E-04	0.05	-	25	5	25	1 825	25.550
Pentachlorophenol	5.48E-07	3.91E-08	4.00E-03	0.05		25	٧.	25	1.825	25.550
bis(2-Ethylhexyl)phthalate	4.11E-07	2.94E-08	3.00E-03	0.05	-	25	5	25	1,825	25,550
Metals					1					
Aluminum	10000		1.40E-01	0.05	-	25	5	25	1,825	25,550
Antimony	7.86E-06		5.74E-02	0.05	-	25	5	25	1,825	25,550
Arsenic	5.04E-07	3.60E-08	3.68E-03	0.05	-	25	5	25	1,825	25,550
Barium	2.11E-05		1.54E-01	0.05	-	25	S	25	1,825	25,550
Cadmium	1.90E-07		1.39E-03	0.05		25	v, i	25	1,825	25,550
Calcium	20 707 6		7.99E+01	0.00		57	0 4	2 2	1,825	25,550
Cohalt	7.00E-07		1.90E-03	0.05		57	0 4	57	1,825	25,550
Copper	1 54E-05		1.12F-01	0.05		25	, 4	25	1,825	25.550
Iron			3.65E+00	0.05		25	8	25	1.825	25,550
Lead			5.32E-01	0.05	-	25	v	25	1,825	25,550
Magnesium			1.01E+01	0.05	1	25	2	25	1,825	25,550
Manganese	2.97E-05		2.17E-01	0.05	_	25	S	25	1,825	25,550
Mercury	3.14E-08		2.29E-04	0.05	-	25	S	25	1,825	25,550
Nickel	5.32E-07		3.88E-03	0.05	-	25	· ·	25	1,825	25,550
Potassium			3.42E+00	0.05		. 52	n '	25	1,825	25,550
Selenium	3.54E-07		2.58E-03	0.05	_	25	'n	25	1,825	25,550
Silver	7.335-07		1.70E-03	0.05		52	0.4	25	1,825	25,550
Vanadium	\$ 63E 07		4.11E.03	50.0		57	n 4	52	1,623	25,530
Zinc	3.43E-05		2.50E-01	0.05	-	25	. v	22	1,825	25,550
EQUATION:	Intake (mg/kg-day) =	ay) =	CSxCRxETxEFxED BWxAT	X EF X ED						
	Variables:					Assumptions:				
	CS = Chemical (CS = Chemical Concentration in Surface Water (mg/L)	Surface Water	(mg/L)		EPC - Surface Water Data - RME	Vater Data - RA	ME		
	CR = Contact R ET = Exposure	CR = Contact Rate (Liters/hour) ET = Exposure Time (hours/day)				0.05 (all recreators) I (RME - all recreators)	ors) :reators)			
	ED = Exposure	EP = Exposure Frequency (days/year) ED = Exposure Duration (years)	year)			5 (RME)				
	BW = Bodyweight (kg) AT = Averaging Time (days)	ht (kg) Time (dave)				25 (Child) 5 x 365 (No) 70 x 365 (Car)	v 365 (Car)			
	AII - AVETABILIE	Time (uays)				or (or) coc x c	X 303 (CAF)			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SURFACE WATER FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
	(Ilig/kg-day)	(mg/kg-day)	(mg/kg-day)	(mg/kg day) 1		
Semivolatile Organics						
Di-n-butylphthalate	6.85E-08		1.00E-01	NA	6.85E-07	
Pentachlorophenol	5.48E-07	3.91E-08	3.00E-02	1.20E-01	1.83E-05	4.70E-09
bis(2-Ethylhexyl)phthalate	4.11E-07	2.94E-08	2.00E-02	1.40E-02	2.05E-05	4.11E-10
Metals						
Aluminum			NA	NA		
Antimony	7.86E-06		4.00E-04	NA	1.97E-02	
Arsenic	5.04E-07	3.60E-08	3.00E-04	1.75E+00	1.68E-03	6.30E-08
Barium	2.11E-05		7.00E-02	NA	3.01E-04	
Cadmium	1.90E-07		5.00E-04	NA	3.81E-04	
Calcium	CHARLES CARROL		NA	NA		
Chromium	2.60E-07		5.00E-03	NA	5.20E-05	
Cobalt			NA	NA		
Copper	1.54E-05		4.00E-02	NA	3.84E-04	
Iron	***************************************		NA	NA		1
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	2.97E-05		5.00E-03	NA	5.95E-03	
Mercury	3.14E-08		3.00E-04	NA	1.05E-04	
Nickel	5.32E-07		2.00E-02	NA	2.66E-05	
Potassium	CARON OF EDDAG S (SAC)		NA	NA		
Selenium	3.54E-07		5.00E-03	NA	7.08E-05	
Silver	2.33E-07		5.00E-03	NA	4.65E-05	
Sodium			NA	NA		
Vanadium	5.63E-07		7.00E-03	NA	8.04E-05	
Zinc	3.43E-05		3.00E-01	NA	1.14E-04	
Totals - HQ & CR					2.89E-02	6.81E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime avs)
	1,000		0.000		5 5 5 5	32		Nc	Car
Volatile Organics									
1,1,2,2-Tetrachloroethane		1.88E-13	2.40E-10	2	50	5	25	1,825	25,550
Acetone			2.78E-10	2	50	5	25	1,825	25,550
Benzene		2.17E-13	2.78E-10	2	50	5	25	1,825	25,550
Carbon Disulfide	2.08E-12		1.90E-10	2	50	5	25	1,825	25,550
Chloroform		5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Methylene Chloride	8.33E-13	5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Toluene Toluene	1.25E-12	5.0000000000000000000000000000000000000	1.14E-10	2	50	5	25	1,825	25,550
Xylene (total)			2.32E-10	2	50	5	25	1,825	25,550
Semivolatile Organics									
2,4-Dinitrotoluene			1.53E-07	2	50	5	25	1,825	25,550
2,6-Dinitrotoluene			4.20E-08	2	50	5	25	1,825	25,550
2-Methylnaphthalene			4.20E-08	2	50	5	25	1,825	25,550
3,3'-Dichlorobenzidine			2.83E-08	2 2	50	5	25	1,825	25,550
3-nitroaniline			6.89E-08	2	50	5	25	1,825	25,550
Acenaphthene			5.26E-08	2 2 2 2	50	5	25	1,825	25,550
Acenaphthylene			1.12E-08	2	50	5	25	1,825	25,550
Anthracene			5.46E-08	2	50	5	25	1,825	25,550
Benzo(a)anthracene			9.77E-08	2	50	5	25	1,825	25,550
Benzo(a)pyrene			1.32E-07	2	50	5	25	1,825	25,550
Benzo(b)fluoranthene			1.35E-07	2	50	5	25	1,825	25,550
Benzo(g,h,i)perylene			1.07E-07	2	50	5	25	1,825	25,550
Benzo(k)fluoranthene			8.95E-08	2	50	5	25	1,825	25,550
Carbazole			1.12E-07	2	50	5	25	1,825	25,550
Chrysene			5.95E-08	2	50	5	25	1,825	25,550
Di-n-butylphthalate			5.79E-08	2	50	5	25	1,825	25,550
Dibenz(a,h)anthracene			4.63E-08	2 2 2 2	50	5	25	1,825	25,550
Dibenzofuran			ERR	2	50	5	25	1,825	25,550
Diethylphthalate			7.22E-10	2 2	50	5	25	1,825	25,550
Fluoranthene			1.49E-07	2	50	5	25	1,825	25,550
Fluorene			4.80E-08	2 2	50	5	25	1,825	25,550
ndeno(1,2,3-cd)pyrene			1.04E-07	2	50	5	25	1,825	25,550
N-Nitrosodiphenylamine (1)			6.29E-08	2	50	5	25	1,825	25,550
Naphthalene			5.32E-08	2	50	5	25	1,825	25,550
Pentachlorophenol			4.30E-08	2	50	5	25	1,825	25,550
Phenanthrene			1.09E-07	2	50	5	25	1,825	25,550
Pyrene			1.51E-07	2	50	5	25	1,825	25,550
ois(2-Ethylhexyl)phthalate			7.03E-08	2	50	5	25	1,825	25,550

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
	(Ing/kg-day)	(mg/kg-day)	(mg/m)	()	(,			Nc	Car
'esticides								11,000 117	
			2.03E-10	2	50	5	25	1,825	25,550
1,4'-DDD			3.38E-09	2	50	5	25	1,825	25,550
4,4'-DDE		1 007 10		2	50	5	25	1,825	25,550
1,4'-DDT	0.400.40	1.28E-12	1.63E-09		50	5	25	1,825	25,550
Aldrin	9.42E-13	6.73E-14	8.59E-11	2	50	5	25	1,825	25,550
Aroclor-1254		1.82E-12	2.33E-09	2	50	5	25	1,825	25,550
Aroclor-1260		CV CV 2000 CV 2000	2.52E-09	2	(200	5	25	1,825	25,550
Dieldrin		1.41E-13	1.80E-10	2	50	5			25,550
Endosulfan I			3.40E-10	2	50		25	1,825	100000000000000000000000000000000000000
Endosulfan II			1.67E-10	2	50	5	25	1,825	25,550
Endosulfan sulfate			1.63E-10	2	50	5	25	1,825	25,550
Endrin			2.02E-10	2	50	5	25	1,825	25,550
Endrin aldehyde	4		1.85E-10	2	50	5	25	1,825	25,550
Endrin ketone			1.91E-10	2	50	5	25	1,825	25,550
Heptachlor		3.69E-14	4.72E-11	2	50	5	25	1,825	25,550
Heptachlor epoxide		7.24E-14	9.24E-11	2	50	5	25	1,825	25,550
Toxaphene		3.69E-12	4.72E-09	2	50	5	25	1,825	25,550
alpha-Chlordane		(5000000000000000000000000000000000000	2.17E-10	2	50	5	25	1,825	25,550
beta-BHC		7.11E-14	9.08E-11	2	50	5	25	1,825	25,550
gamma-BHC (Lindane)			8.50E-11	2	50	5	25	1,825	25,550
gamma-Chlordane			2.18E-10	2	50	5	25	1,825	25,550
Nitroaromatics								20000000	0.000000
2-amino-4,6-Dinitrotoluene			3.36E-09	2	50	5	25	1,825	25,550
Tetryl			3.23E-09	2	50	5	25	1,825	25,550
Metals				77				400000	
Antimony			1.97E-06	2	50	5	25	1,825	25,550
Barium	1.58E-07		1.44E-05	2	50	5	25	1,825	25,550
Copper	1.502 07		3.42E-04	2	50	5	25	1,825	25,550
Lead			1.31E-05	2	50	5	25	1,825	25,550
Mercury	4.04E-06		3.69E-04	2	50	5	25	1,825	25,550
Selenium	4.042 00		4.62E-06	2	50	5	25	1,825	25,550
Thallium			5.17E-08	2	50	5	25	1,825	25,550
			1.37E-05	2	50	5	25	1,825	25,550
Zinc			1,5715-05		1. T. T. T.	- E	200	×3,53	- 9
Herbicides									
2.4.5.T			1.53E-10	2	50	5	25	1,825	25,550
2,4,5-T			1.65E-07	2	50	5	25	1,825	25,550
MCPP			1.0015-07					_^	1.97
EQUATION:	Intake (mg/kg	g-day) =	CA x IR x E BW x AT	The Control of the Co					
	Variables:					Assumptions:			
	IR = Inhalatio EF = Exposu		y) days/yr) ears)	m³)		Calculated Air 2 (RME Child 50 5 (RME) 25 (Child) 5 x 365 (Nc), 7)	RME	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		1.88E-13	NA	2.03E-01		3.81E-14
Acetone		~	NA	NA		35.00.000.00
Benzene		2.17E-13	NA	2.91E-02		6.31E-15
Carbon Disulfide	2.08E-12		2.86E-03	NA	7.29E-10	0.01211
Chloroform		5.95E-14	NA	8.05E-02	100000	4.79E-15
Methylene Chloride	8.33E-13	5.95E-14	8.57E-01	1.65E-03	9.72E-13	9.82E-17
Toluene	1.25E-12	THE STATE OF THE S	1.14E-01	NA NA	1.09E-11	3.0213-17
Xylene (total)	1.2.2.12		NA NA	NA-	1.071-11	
(roun)				33/4		
Semivolatile Organics						
- Carrie Organico						
2.4-Dinitrotoluene	1		NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA NA	NA NA		
3,3'-Dichlorobenzidine	1. 1		NA NA	NA NA		
3-nitroaniline			NA NA	NA I		
Acenaphthene			NA NA	NA NA		
Acenaphthylene			NA NA	NA NA		
Anthracene			NA NA	NA NA		
Benzo(a)anthracene			NA.	NA NA		
Benzo(a)pyrene			NA NA	NA NA		
Benzo(b)fluoranthene			NA NA	NA NA		
Benzo(g,h,i)perylene			NA NA	NA NA		
Benzo(k)fluoranthene			NA NA	(7)(7)(7)		
Carbazole			100 TO 100	NA NA		
Chrysene			NA	NA		
Chrysene Di-n-butylphthalate		1	NA	NA		
			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran Distribute belefa			NA	NA		
Diethylphthalate			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)		#i	NA	NA		
Naphthalene		1	NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		
ois(2-Ethylhexyl)phthalate	1 1		NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides					-44	
1,4'-DDD		10000	NA	NA		
4,4'-DDE			NA	NA		
1,4'-DDE 1,4'-DDT	1	1.28E-12	NA	3.40E-01		4.34E-13
Aldrin	9.42E-13	6.73E-14	1.70E+01	1.72E+01	5.54E-14	1.15E-12
Aroclor-1254	7.4215-15	1.82E-12	NA	4.00E-01		7.28E-13
Aroclor-1254 Aroclor-1260	The state of the s	1.022 12	NA	NA		
Arocior-1200 Dieldrin		1.41E-13	NA	1.61E+01		2.26E-12
		1.311.13	NA	NA NA		
Endosulfan I			NA	NA		
Endosulfan II			NA NA	NA NA		
Endosulfan sulfate			NA NA	NA NA		
Endrin			NA NA	NA I		
Endrin aldehyde			NA NA	NA NA		
Endrin ketone		2.605.14	NA NA	4.55E+00		1.68E-13
Heptachlor		3.69E-14	NA NA	9.10E+00		6.58E-13
Heptachlor epoxide		7.24E-14	5.000	1.12E+00		4.14E-12
Foxaphene Foxaphene		3.69E-12	NA	NA		4.1415-12
alpha-Chlordane			NA	1.86E+00		1.32E-13
beta-BHC		7.11E-14	NA	1.86E+00 NA		1.32E-13
gamma-BHC (Lindane)			NA	800000		
gamma-Chlordane			NA	NA NA		
Nitroaromatics	114					
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			NA	NA		
Metals	1			- 12		
Antimony	AND		NA	NA		
Barium	1.58E-07		1.43E-04	NA	1.10E-03	
Copper			NA	NA		
Lead			NA	NA		
Mercury	4.04E-06		8.57E-05	NA	4.72E-02	
Selenium	VENT 1990/25951		NA	NA		
Thallium			NA	NA		
Zinc			NA	NA		
Herbicides						
			NA	NA		
2,4,5-T			2.755.5	NA NA		
MCPP			NA	NA		
Total HQ & CR					4.83E-02	9.72E-12

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration

Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

COMPOUND	SURFACE SOIL EPC Data mg/kg	AVERAGE TSP (ug/m³)	CONVERSION FACTOR (kg/ug)	AMBIENT AIR CALCULATED EPC (mg/m³)	MEASURED AIR SAMPLES (mg/m³)	AMBIENT AIR EPC (mg/m³)
Volatile Organics						
1,1,2,2-Tetrachloroethane	6.31E-03	3.80E+01	1.00E-09	2.40E-10		2.40E-10
Acetone	7.30E-03	3.80E+01	1.00E-09	2.78E-10		2.78E-10
Benzene	5.00E-03	3.80E+01	1.00E-09	2.78E-10		2.78E-10
Carbon Disulfide	2.00E-03	3.80E+01	1.00E-09	1.90E-10		1.90E-10
Chloroform	2.00E-03	3.80E+01	1.00E-09	7.60E-11		7.60E-11
Methylene Chloride	3.00E-03	3.80E+01	1.00E-09	7.60E-11		7.60E-11
Toluene	6.11E-03	3.80E+01	1.00E-09	1.14E-10		1.14E-10
Xylene (total)	4.25E-03	3.80E+01	1.00E-09	2.32E-10		2.32E-10
Semivolatile Organics			40			
2,4-Dinitrotoluene	4.02E+00	3.80E+01	1.00E-09	1.53E-07		1.53E-07
2,6-Dinitrotoluene	1.11E+00	3.80E+01	1.00E-09	4.20E-08		4.20E-08
2-Methylnaphthalene	1.11E+00	3.80E+01	1.00E-09	4.20E-08	7.84E-05 U	4.20E-08
3,3'-Dichlorobenzidine	7.44E-01	3.80E+01	1.00E-09	2.83E-08		2.83E-08
3-nitroaniline	1.81E+00	3.80E+01	1.00E-09	6.89E-08		6.89E-08
Acenaphthene	1.39E+00	3.80E+01	1.00E-09	5.26E-08	7.84E-05 U	5.26E-08
Acenaphthylene	2.94E-01	3.80E+01	1.00E-09	1.12E-08	44/600000000000000000000000000000000000	1.12E-08
Anthracene	1.44E+00	3.80E+01	1.00E-09	5.46E-08	7.84E-05 U	5.46E-08
Benzo(a)anthracene	2.57E+00	3.80E+01	1.00E-09	9.77E-08		9.77E-08
Benzo(a)pyrene	3.49E+00	3.80E+01	1.00E-09	1.32E-07		1.32E-07
Benzo(b)fluoranthene	3.56E+00	3.80E+01	1.00E-09	1.35E-07		1.35E-07
Benzo(g,h,i)perylene	2.82E+00	3.80E+01	1.00E-09	1.07E-07		1.07E-07
Benzo(k)fluoranthene	2.35E+00	3.80E+01	1.00E-09	8.95E-08		8.95E-08
Carbazole	1.41E+00	3.80E+01	1.00E-09	1.12E-07		1.12E-07
Chrysene	2.94E+00	3.80E+01	1.00E-09	5.95E-08		5.95E-08
Di-n-butylphthalate	1.57E+00	3.80E+01	1.00E-09	5.79E-08	7.84E-05 U	5.79E-08
Dibenz(a,h)anthracene	1.52E+00	3.80E+01	1.00E-09	4.63E-08		4.63E-08
Dibenzofuran	1.22E+00	3.80E+01	1.00E-09	ERR	7.84E-05 U	ERR
Diethylphthalate	1.90E-02	3.80E+01	1.00E-09	7.22E-10	7.84E-05 U	7.22E-10
Fluoranthene	3.92E+00	3.80E+01	1.00E-09	1.49E-07	Description NES	1.49E-07
Fluorene	1.26E+00	3.80E+01	1.00E-09	4.80E-08	7.84E-05 U	4.80E-08
ndeno(1,2,3-cd)pyrene	2.75E+00	3.80E+01	1.00E-09	1.04E-07		1.04E-07
N-Nitrosodiphenylamine (1)	1.65E+00	3.80E+01	1.00E-09	6.29E-08		6.29E-08
Naphthalene	1.40E+00	3.80E+01	1.00E-09	5.32E-08		5.32E-08
Pentachlorophenol	1.13E+00	3.80E+01	1.00E-09	4.30E-08		4.30E-08
Phenanthrene	2.86E+00	3.80E+01	1.00E-09	1.09E-07	7.84E-05 U	1.09E-07
Pyrene	3.98E+00	3.80E+01	1.00E-09	1.51E-07		1.51E-07
bis(2-Ethylhexyl)phthalate	1.85E+00	3.80E+01	1.00E-09	7.03E-08	7.84E-05 U	7.03E-08

TABLE 6-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

COMPOUND	SURFACE SOIL EPC Data mg/kg	AVERAGE TSP (ug/m³)	CONVERSION FACTOR (kg/ug)	AMBIENT AIR CALCULATED EPC (mg/m³)	MEASURED AIR SAMPLES (mg/m³)	AMBIENT AIR EPC (mg/m³)
esticides						
4'-DDD	5.35E-03	3.80E+01	1.00E-09	2.03E-10		2.03E-10
4'-DDE	8.90E-02	3.80E+01	1.00E-09	3.38E-09	The Control of the Control	3.38E-09
4'-DDT	4.30E-02	3.80E+01	1.00E-09	1.63E-09		1.63E-09
ldrin	2.26E-03	3.80E+01	1.00E-09	8.59E-11		8.59E-11
roclor-1254	6.12E-02	3.80E+01	1.00E-09	2.33E-09	Service .	2.33E-09
roclor-1260	6.64E-02	3.80E+01	1.00E-09	2.52E-09		2.52E-09
ieldrin	4.72E-03	3.80E+01	1.00E-09	1.80E-10	No. if I	1.80E-10
ndosulfan I	8.94E-03	3.80E+01	1.00E-09	3.40E-10		3.40E-10
ndosulfan II	4.40E-03	3.80E+01	1.00E-09	1.67E-10		1.67E-10
ndosulfan sulfate	4.28E-03	3.80E+01	1.00E-09	1.63E-10		1.63E-10
ndrin	5.32E-03	3.80E+01	1.00E-09	2.02E-10	The second second	2.02E-10
ndrin aldehyde	4.86E-03	3.80E+01	1.00E-09	1.85E-10		1.85E-10
ndrin ketone	5.04E-03	3.80E+01	1.00E-09	1.91E-10		1.91E-10
eptachlor	1.24E-03	3.80E+01	1.00E-09	4.72E-11		4.72E-11
eptachlor epoxide	2.43E-03	3.80E+01	1.00E-09	9.24E-11		9.24E-11
oxaphene	1.24E-01	3.80E+01	1.00E-09	4.72E-09		4.72E-09
oha-Chlordane	5.72E-03	3.80E+01	1.00E-09	2.17E-10		2.17E-10
ta-BHC	2.39E-03	3.80E+01	1.00E-09	9.08E-11		9.08E-11
mma-BHC (Lindane)	2.24E-03	3.80E+01	1.00E-09	8.50E-11	2.5	8.50E-11
mma-Chlordane	5.73E-03	3.80E+01	1.00E-09	2.18E-10		2.18E-10
itroaromatics						
amino-4,6-Dinitrotoluene	8.86E-02	3.80E+01	1.00E-09	3.36E-09		3.36E-09
etryl	8.50E-02	3.80E+01	1.00E-09	3.23E-09		3.23E-09
letals			PATES -			
					Annual Control of the	
ntimony	5.18E+01	3.80E+01	1.00E-09	1.97E-06	9.80E-06 U	1.97E-06
arium	3.79E+02	3.80E+01	1.00E-09	1.44E-05	1.44E-05	1.44E-05
opper	5.47E+02	3.80E+01	1.00E-09	2.08E-05	3.42E-04	3.42E-04
ad	7.45E+03	3.80E+01	1.00E-09	2.83E-04	1.31E-05	1.31E-05
ercury	1.34E+00	3.80E+01	1.00E-09	5.10E-08	3.69E-04	3.69E-04
elenium	6.38E-01	3.80E+01	1.00E-09	2.42E-08	4.62E-06	4.62E-06
nallium	1.36E+00	3.80E+01	1.00E-09	5.17E-08	6.50E-06 U	5.17E-08
nc	3.61E+02	3.80E+01	1.00E-09	1.37E-05	6.52E-05 U	1.37E-05
erbicides						
4,5-T	4.03E-03	3.80E+01	1.00E-09	1.53E-10		1.53E-10
CPP	4.33E+00	3.80E+01	1.00E-09	1.65E-07		1.65E-07
QUATION:	Calculated Air EPC (mg/m3) = Soil F	EPC x TSP x CF	,		
	Variables:		Assumptions:			

CF = Conversion Factor

10-9 kg/ug

U = Compound was not detected above the detection limit shown

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T (d	raging ime ays)
Volatile Organics	-							Nc	Car
Volatile Organics									
1,1,2,2-Tetrachloroethane		1.34E-12	2.40E-10	20	20	25	70	9,125	25,550
Acetone		100000000000000000000000000000000000000	2.78E-10	20	20	25	70	9,125	25,550
Benzene		1.55E-12	2.78E-10	20	20	25	70	9,125	25,550
Carbon Disulfide	2.97E-12		1.90E-10	20	20	25	70	9,125	25,550
Chloroform		4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Methylene Chloride	1.19E-12	4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Toluene	1.78E-12	Streethers .	1.14E-10	20	20	25	70	9,125	25,550
Xylene (total)	120000000000000000000000000000000000000		2.32E-10	20	20	25	70	9,125	25,550
CONTRACTOR AND							636)	7,123	23,330
Semivolatile Organics									
2,4-Dinitrotoluene			1.53E-07	20	20	25	70	9,125	25,550
2,6-Dinitrotoluene			4.20E-08	20	20	25	70	9,125	25,550
2-Methylnaphthalene			4.20E-08	20	20	25	70	9,125	25,550
3,3'-Dichlorobenzidine			2.83E-08	20	20	25	70	9,125	25,550
3-nitroaniline			6.89E-08	20	20	25	70	9,125	25,550
Acenaphthene			5.26E-08	20	20	25	70	9,125	25,550
Acenaphthylene			1.12E-08	20	20	25	70	9,125	25,550
Anthracene			5.46E-08	20	20	25	70	9,125	25,550
Benzo(a)anthracene			9.77E-08	20	20	25	70	9,125	25,550
Benzo(a)pyrene			1.32E-07	20	20	25	70	9,125	25,550
Benzo(b)fluoranthene			1.35E-07	20	20	25	70	9,125	25,550
Benzo(g,h,i)perylene			1.07E-07	20	20	25	70	9,125	25,550
Benzo(k)fluoranthene			8.95E-08	20	20	25	70	9,125	25,550
Carbazole			1.12E-07	20	20	25	70	9,125	25,550
Chrysene			5.95E-08	20	20	25	70	9,125	25,550
Di-n-butylphthalate			5.79E-08	20	20	25	70	9,125	25,550
Dibenz(a,h)anthracene			4.63E-08	20	20	25	70	9,125	25,550
Dibenzofuran			ERR	20	20	25	70	9,125	25,550
Diethylphthalate			7.22E-10	20	20	25	70	9,125	25,550
Fluoranthene			1.49E-07	20	20	25	70	9,125	25,550
Fluorene			4.80E-08	20	20	25	70	9,125	25,550
ndeno(1,2,3-cd)pyrene			1.04E-07	20	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			6.29E-08	20	20	25	70	9,125	25,550
Naphthalene			5.32E-08	20	20	25	70	9,125	25,550
Pentachlorophenol			4.30E-08	20	20	25	70	9,125	25,550
Phenanthrene			1.09E-07	20	20	25	70	9,125	25,550
Pyrene			1.51E-07	20	20	25	70	9,125	25,550
ois(2-Ethylhexyl)phthalate	F 1		7.03E-08	20	20	25	70	9,125	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

BASE CASE

SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
	(887)	(, ,					Nc	Car
'esticides								8	
,4'-DDD			2.03E-10	20	20	25	70	9,125	25,550
,4'-DDE			3.38E-09	20	20	25	70	9,125	25,550
,4'-DDT		9.13E-12	1.63E-09	20	20	25	70	9,125	25,550
Aldrin	1.35E-12	4.80E-13	8.59E-11	20	20	25	70	9,125	25,550
Aroclor-1254		1.30E-11	2.33E-09	20	20	25	70	9,125	25,550
Aroclor-1260		51907.00.11307	2.52E-09	20	20	25	70	9,125	25,550
Dieldrin		1.00E-12	1.80E-10	20	20	25	70	9,125	25,550
Endosulfan I		110,000,100	3.40E-10	20	20	25	70	9,125	25,550
Endosulfan II			1.67E-10	20	20	25	70	9,125	25,550
Endosulfan sulfate			1.63E-10	20	20	25	70	9,125	25,550
Endrin			2.02E-10	20	20	25	70	9,125	25,550
Endrin aldehyde			1.85E-10	20	20	25	70	9,125	25,550
Endrin ketone	_ / _ /		1.91E-10	20	20	25	70	9,125	25,550
Heptachlor		2.64E-13	4.72E-11	20	20	25	70	9,125	25,550
Teptachlor epoxide		5.17E-13	9.24E-11	20	20	25	70	9,125	25,550
Toxaphene		2.64E-11	4.72E-09	20	20	25	70	9,125	25,550
lpha-Chlordane		2.042-11	2.17E-10	20	20	25	70	9,125	25,550
npna-Chlordane peta-BHC		5.08E-13	9.08E-11	20	20	25	70	9,125	25,550
gamma-BHC (Lindane)	10	2.5022-15	8.50E-11	20	20	25	70	9,125	25,550
amma-Chlordane			2.18E-10	20	20	25	70	9,125	25,550
litroaromatics				76					40.50.50
-amino-4,6-Dinitrotoluene			3.36E-09	20	20	25	70	9,125	25,550
etryl			3.23E-09	20	20	25	70	9,125	25,550
Metals									
Antimony			1.97E-06	20	20	25	70	9,125	25,550
Barium	2.25E-07		1.44E-05	20	20	25	70	9,125	25,550
Copper			3.42E-04	20	20	25	70	9,125	25,550
ead			1.31E-05	20	20	25	70	9,125	25,550
Mercury	5.78E-06		3.69E-04	20	20	25	70	9,125	25,550
Selenium	(20) (60)		4.62E-06	20	20	25	70	9,125	25,550
Thallium	= - 1		5.17E-08	20	20	25	70	9,125	25,550
Zinc			1.37E-05	20	20	25	70	9,125	25,550
0. 1000000									
lerbicides	4 4						200		E CONTROL PROPERTY AND A
2,4,5-T			1.53E-10	20	20	25	70	9,125	25,550
ИСРР			1.65E-07	20	20	25	70	9,125	25,550
EQUATION:	Intake (mg/kg	-day) =	CA x IR x E BW x AT						
	Variables:					Assumptions:			
	CA = Chemical Concentration in Air (mg/m³) IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)					Calculated Air EPC Data - RME 20 (RME All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc), 70 x 365 (Car)			

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

BASE CASE
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		1.34E-12	NA	2.03E-01		2.72E-13
Acetone			NA	NA		
Benzene		1.55E-12	NA	2.91E-02		4.51E-14
Carbon Disulfide	2.97E-12		2.86E-03	NA	1.04E-09	(30000000000000000000000000000000000000
Chloroform		4.25E-13	NA	8.05E-02		3.42E-14
Methylene Chloride	1.19E-12	4.25E-13	8.57E-01	1.65E-03	1.39E-12	7.01E-16
Toluene	1.78E-12		1.14E-01	NA	1.56E-11	
Xylene (total)			NA	NA		
Semivolatile Organics						
		(
2,4-Dinitrotoluene		ř	NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine		- 7	NA	NA		
3-nitroaniline			NA	NA		
Acenaphthene		1	NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Diethylphthalate			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		
ois(2-Ethylhexyl)phthalate			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAJOR OLOT BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD			NA	NA		
4,4'-DDE			NA	NA		
		9.13E-12	NA	3.40E-01		3.10E-12
4,4'-DDT	1.35E-12	4.80E-13	1.70E+01	1.72E+01	7.91E-14	8.24E-12
Aldrin	1.5515-12	1.30E-11	NA	4.00E-01		5.20E-12
Aroclor-1254		1.502-11	NA NA	NA NA		
Aroclor-1260		1.00E-12	NA NA	1.61E+01		1.62E-11
Dieldrin		1.00E-12	NA NA	NA NA		1.022
Endosulfan I	AND I		NA NA	NA NA		
Endosulfan II			100000000000000000000000000000000000000	NA NA		5
Endosulfan sulfate			NA	NA NA		
Endrin			NA	7.05.0		
Endrin aldehyde			NA	NA NA		
Endrin ketone		AND AND DO NOT THE	NA	NA		1.20E-12
Heptachlor		2.64E-13	NA	4.55E+00		The second second second
Heptachlor epoxide		5.17E-13	NA	9.10E+00		4.70E-12
Toxaphene		2.64E-11	NA	1.12E+00		2.95E-11
alpha-Chlordane		200000000000000000000000000000000000000	NA	NA		#567764545027451 <u>2</u> 7
beta-BHC		5.08E-13	NA	1.86E+00		9.42E-13
gamma-BHC (Lindane)		10000120000000	NA	NA		
gamma-Chlordane			NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene	100		NA	NA		
Tetryl	100		NA	NA		
Web.*2	400		0.000	520.		
Metals	12		22.2945			
Antimony	i i i i i i i i i i i i i i i i i i i		NA	NA		
Barium	2.25E-07		1.43E-04	NA	1.58E-03	
Copper	JANUAR CONTRACTOR		NA	NA		
Lead			NA	NA		
Mercury	5.78E-06		8.57E-05	NA	6.74E-02	
Selenium	20055555		NA	NA		
Thallium			NA	NA		
Zinc			NA	NA		
Ziiic			5.05.5	17985		
Herbicides	W 4					
2,4,5-T			NA	NA		
2,4,3-1 MCPP			NA	NA		
WICFF	100		.57.5			
Total HQ & CR					6.90E-02	6.94E-11

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE SEAD-16 Remedial Investigation

Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging Time Tays)
								Nc	Car
Volatile Organics									
1,1,2,2-Tetrachloroethane		6.70E-13	2.40E-10	20	250	1	70	365	25,550
Acetone		Entractives.	2.78E-10	20	250	1	70	365	25,550
Benzene		7.76E-13	2.78E-10	20	250	1	70	365	25,550
Carbon Disulfide	3.72E-11	900000000000000000000000000000000000000	1.90E-10	20	250	1	70	365	25,550
Chloroform		2.12E-13	7.60E-11	20	250	1	70	365	25,550
Methylene Chloride	1.49E-11	2.12E-13	7.60E-11	20	250	1	70	365	25,550
Toluene	2.23E-11	EVER AL	1.14E-10	20	250	1	70	365	25,550
Xylene (total)	7779977,530		2.32E-10	20	250	1	70	365	25,550
Semivolatile Organics									
2,4-Dinitrotoluene			1.53E-07	20	250	1	70	365	25,550
2.6-Dinitrotoluene			4.20E-08	20	250	1	70	365	25,550
2-Methylnaphthalene			4.20E-08	20	250	1	70	365	25,550
3,3'-Dichlorobenzidine			2.83E-08	20	250	1	70	365	25,550
3-nitroaniline			6.89E-08	20	250	1	70	365	25,550
Acenaphthene	1		5.26E-08	20	250	1	70	365	25,550
Acenaphthylene			1.12E-08	20	250	i	70	365	25,550
Anthracene			5.46E-08	20	250	1	70	365	25,550
Benzo(a)anthracene			9.77E-08	20	250	1	70	365	25,550
Benzo(a)pyrene			1.32E-07	20	250	1	70	365	25,550
Benzo(b)fluoranthene			1.35E-07	20	250	1	70	365	25,550
Benzo(g,h,i)perylene			1.07E-07	20	250	1	70	365	25,550
Benzo(k)fluoranthene			8.95E-08	20	250	î l	70	365	25,550
Carbazole			1.12E-07	20	250	1	70	365	25,550
Chrysene			5.95E-08	20	250	1	70	365	25,550
Di-n-butylphthalate			5.79E-08	20	250	i	70	365	25,550
Dibenz(a,h)anthracene			4.63E-08	20	250	i	70	365	25,550
Dibenzofuran			ERR	20	250	î	70	365	25,550
Diethylphthalate			7.22E-10	20	250	i l	70	365	25,550
Fluoranthene			1.49E-07	20	250	1	70	365	25,550
Fluorene			4.80E-08	20	250	i	70	365	25,550
ndeno(1,2,3-cd)pyrene			1.04E-07	20	250	i	70	365	25,550
N-Nitrosodiphenylamine (1)			6.29E-08	20	250	î	70	365	25,550
Naphthalene			5.32E-08	20	250	i	70	365	25,550
Pentachlorophenol			4.30E-08	20	250	i	70	365	25,550
Phenanthrene			1.09E-07	20	250	i	70	365	25,550
Pyrene			1.51E-07	20	250	i	70	365	25,550
ois(2-Ethylhexyl)phthalate	1		7.03E-08	20	250	i l	70	365	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE SEAD-16 Remedial Investigation

Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime ays)
	(mg/kg-day)	(Ilig/Kg-day)	(mg/m)	(iii /day)	(00)00,000	O.serez		Nc	Car
'esticides									
# PPP			2.03E-10	20	250	1	70	365	25,550
,4'-DDD			3.38E-09	20	250	i	70	365	25,550
1,4'-DDE		1.5CF 10		20	250	i	70	365	25,550
,4'-DDT	100000000000000000000000000000000000000	4.56E-12	1.63E-09		120000000	0 1	70	365	25,550
Aldrin	1.68E-11	2.40E-13	8.59E-11	20	250	1	a 992-99		25,550
Aroclor-1254		6.50E-12	2.33E-09	20	250	1	70	365	
Aroclor-1260			2.52E-09	20	250	1	70	365	25,550
Dieldrin		5.02E-13	1.80E-10	20	250	1	70	365	25,550
Endosulfan I		XXXXXX 02.03	3.40E-10	20	250	1	70	365	25,550
Endosulfan II			1.67E-10	20	250	1	70	365	25,550
			1.63E-10	20	250	1	70	365	25,550
Endosulfan sulfate			2.02E-10	20	250	1	70	365	25,550
Endrin			1.85E-10	20	250	i	70	365	25,550
Endrin aldehyde				20	250	1	70	365	25,550
Endrin ketone			1.91E-10			1 1	70	365	25,550
Heptachlor		1.32E-13	4.72E-11	20	250			365	25,550
Heptachlor epoxide		2.58E-13	9.24E-11	20	250	1	70		
Гохарhene		1.32E-11	4.72E-09	20	250	1	70	365	25,550
alpha-Chlordane			2.17E-10	20	250	1	70	365	25,550
peta-BHC		2.54E-13	9.08E-11	20	250	1	70	365	25,550
gamma-BHC (Lindane)		7503037704734	8.50E-11	20	250	1	70	365	25,550
gamma-Chlordane		5	2.18E-10	20	250	1	70	365	25,550
Nitroaromatics				13/1					
2-amino-4,6-Dinitrotoluene			3.36E-09	20	250	1	70	365	25,550
Fetryl			3.23E-09	20	250	1	70	365	25,550
renyi			2.22.2	7.8	100000				
Metals			14				1		
Antimony			1.97E-06	20	250	1	70	365	25,550
	2.82E-06		1.44E-05	20	250	1	70	365	25,550
Barium	2.0215-00		3.42E-04	20	250	1	70	365	25,550
Copper			1.31E-05	20	250	i	70	365	25,550
Lead				20	250	i	70	365	25,550
Mercury	7.22E-05		3.69E-04			i	70	365	25,550
Selenium		25.1	4.62E-06	20	250	1.0	70	365	25,550
Thallium			5.17E-08	20	250	1			
Zinc			1.37E-05	20	250	1	70	365	25,550
Herbicides				1991 h					
2,4,5-T			1.53E-10	20	250	1	70	365	25,550
2,4,5-1 MCPP			1.65E-07	20	250	1	70	365	25,550
EQUATION:	Intake (mg/kş	g-day) =	CA x IR x E BW x A	F x ED					
	Variables:					Assumptions:			
	CA = Chemical Concentration in Air (mg/m³) IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)					Calculated Air EPC Data - RME 20 (all receptors) 250 (RME Construction Workers) 1 (Upper bound period of Construction Worker) 70 (Adult Male) 1 x 365 (Nc) 70 x 365 (Car)			

BW = Bodyweight (kg)

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

BASE CASE
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Acetone Benzene Carbon Disulfide Carbon Disulfide Chloroform Methylene Chloride Toluene 2.23E-11 Xylene (total) Semivolatile Organics 2.4-Dinitrotoluene 2.5-Dinitrotoluene 2.4-Dinitrotoluene 2.4-Dinitrotoluene 2.4-Dinitrotoluene 2.5-Dinitrotoluene 2.4-Dinitrotoluene 2.4-Dinitr	Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Acetone Benzene Carbon Disulfide Carbon Disulfide Chloroform Methylene Chloride 1.49E-11 Clutene 2.23E-11 Xylene (total) Semivolatile Organics 2.4-Dinitrotoluene 2.	Volatile Organics						
Semirolatile	1,1,2,2-Tetrachloroethane		6.70E-13	NA	2.03E-01		1.36E-13
Carbon Disulfide	Acetone		5	NA	NA		
2.12E-13	Benzene		7.76E-13	NA	2.91E-02		2.25E-14
Methylene Chloride 1.49E-11 2.12E-13 8.57E-01 1.65E-03 1.74E-11 3.51E-1 Toluene 2.23E-11	Carbon Disulfide	3.72E-11		2.86E-03	NA	1.30E-08	
Toluene Xylene (total) Xylene (tot	Chloroform	The state of the s	2.12E-13	NA	8.05E-02		1.71E-14
NA	Methylene Chloride	1.49E-11	2.12E-13	8.57E-01	1.65E-03	1.74E-11	3.51E-16
Semivolatile Organics	Toluene	2.23E-11		1.14E-01	NA	1.95E-10	
2,4-Dinitrotoluene	Xylene (total)			NA	NA -		
2,4-Dinitrotoluene	3 1 160						
2,6-Dinitrotoluene NA NA 2-Methylnaphthalene NA NA 3,3'-Dichlorobenzidine NA NA 3,a'-Dichlorobenzidine NA NA 3,a'-Dichlorobenzidine NA NA Acenaphthene NA NA Acenaphthene NA NA Acenaphthene NA NA Acenaphthylene NA NA Anthracene NA NA Benzo(a)anthracene NA NA Benzo(a)pyrene NA NA Benzo(b)fluoranthene NA NA Benzo(b)fluoranthene NA NA Benzo(k)fluoranthene NA NA Chrysene NA NA NA NA NA Di-n-butylphthalate NA NA Di-n-butylphthalate NA NA Piuoranthene NA NA NA NA NA NA NA NA NA							
2-Methylnaphthalene NA NA <td></td> <td></td> <td></td> <td>0.793737</td> <td>5/01/76/0</td> <td></td> <td></td>				0.793737	5/01/76/0		
NA				120000	1623322		
3-nitroaniline				10000000	100000		
Acenaphthene NA NA Acenaphthylene NA NA Anthracene NA NA Benzo(a)anthracene NA NA Benzo(b)pyrene NA NA Benzo(b)fluoranthene NA NA Benzo(g,h,i)perylene NA NA Benzo(k)fluoranthene NA NA Carbazole NA NA Chrysene NA NA Di-n-butylphthalate NA NA Dibenz(a,h)anthracene NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA NA NA NA NAPhylphthalene NA NA NA NA NA NA NA NA NA NA NA NA NA NA				50.00.0	2000		
Acenaphthylene NA NA Anthracene NA NA Benzo(a)anthracene NA NA Benzo(a)pyrene NA NA Benzo(b)fluoranthene NA NA Benzo(g,h,i)perylene NA NA Benzo(k)fluoranthene NA NA Carbazole NA NA Chrysene NA NA Di-n-butylphthalate NA NA Dibenz(a,h)anthracene NA NA Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				2000/9000000	02/09/9		
Anthracene NA NA Benzo(a)anthracene NA NA Benzo(a)pyrene NA NA Benzo(b)fluoranthene NA NA Benzo(g,h,i)perylene NA NA Benzo(k)fluoranthene NA NA Carbazole NA NA Chrysene NA NA Di-n-butylphthalate NA NA Dibenzo(a,h)anthracene NA NA Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				11/30/2012	570715		
Benzo(a)anthracene NA				1.00.000,017	525333		
Benzo(a)pyrene NA				20000000	10000000		
Benzo(b)fluoranthene NA NA Benzo(g,h,i)perylene NA NA Benzo(k)fluoranthene NA NA Carbazole NA NA Chrysene NA NA Di-n-butylphthalate NA NA Dibenz(a,h)anthracene NA NA Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				0.0000000000000000000000000000000000000	35257		
Benzo(g,h,i)perylene NA NA Benzo(k)fluoranthene NA NA Carbazole NA NA Chrysene NA NA Di-n-butylphthalate NA NA Dibenzo(a,h)anthracene NA NA Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				15005	3520915		
Benzo(k)fluoranthene					070707		
Carbazole NA NA Chrysene NA NA Di-n-butylphthalate NA NA Dibenzofu, h)anthracene NA NA Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				1000000000	120,250		
Chrysene NA NA Di-n-butylphthalate NA NA Dibenzofuran NA NA Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA	2018 TO TO THE STATE OF THE STA			12V2/24	10.00		
Di-n-butylphthalate NA NA Dibenz(a,h)anthracene NA NA Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				C 45, C20CP^*	1253500		
Dibenz(a,h)anthracene NA NA Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				V 20 12 12 1	10,000		
Dibenzofuran NA NA Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				100.0000	1250513		
Diethylphthalate NA NA Fluoranthene NA NA Fluorene NA NA Indeno(1,2,3-cd)pyrene NA NA N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				1000000000	(2000)		
Fluoranthene				5470077700	500000		
Fluorene				10000000	17/07/2		
Indeno(1,2,3-cd)pyrene				100000000000000000000000000000000000000	575-557		
N-Nitrosodiphenylamine (1) NA NA Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA					357777		
Naphthalene NA NA Pentachlorophenol NA NA Phenanthrene NA NA				0.000.00	122(0)3		
Pentachlorophenol NA NA Phenanthrene NA NA				25,000,000,000,000	35337.7		
Phenanthrene NA NA				2500000	100000		
	3000 100 100 100 100 100 100 100 100 100			3,535,545	123232		
Pyrene NA NA				200,000	202222		
bis(2-Ethylhexyl)phthalate NA NA				F-25-5-2-1	0.000		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) BASE CASE

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD		The state of	NA	NA		
4,4'-DDE			NA	NA		
4,4'-DDT		4.56E-12	NA	3.40E-01		1.55E-12
Aldrin	1.68E-11	2.40E-13	1.70E+01	1.72E+01	9.89E-13	4.12E-12
Aroclor-1254	1,002 17	6.50E-12	NA	4.00E-01		2.60E-12
Aroclor-1260	1 1000	1000000	NA	NA		
Dieldrin		5.02E-13	NA	1.61E+01		8.08E-12
Endosulfan I		0.020 10	NA	NA		
Endosulfan II			NA	NA		
Endosulfan fil			NA	NA		
Endosuiran surrate Endrin			NA	NA		
Endrin aldehyde			NA.	NA		
Endrin aldenyde Endrin ketone			NA.	NA		
Heptachlor		1.32E-13	NA	4.55E+00		6.00E-13
Heptachlor epoxide		2.58E-13	NA	9.10E+00		2.35E-12
Toxaphene		1.32E-11	NA	1.12E+00		1.48E-11
alpha-Chlordane		1.525-11	NA.	NA		
beta-BHC		2.54E-13	NA	1.86E+00		4.71E-13
gamma-BHC (Lindane)		2.546-15	NA.	NA		
gamma-BHC (Lindane)	147		NA NA	NA		
gamma-Chiordane			100			
Nitroaromatics	11			110		
2-amino-4,6-Dinitrotoluene		100	NA	NA		
Tetryl	- 1		NA	NA		
· ·	7.00					
Metals						
Antimony			NA	NA		
Barium	2.82E-06		1.43E-04	NA	1.97E-02	
Copper	(100 A 100 A		NA	NA		
Lead	1 387		NA	NA		1
Mercury	7.22E-05		8.57E-05	NA	8.42E-01	
Selenium			NA	NA		
Thallium	100		NA	NA		
Zinc	104		NA	NA		
			0.5000	400021		
Herbicides						
2 4 5 T			NA	NA		
2,4,5-T	1		NA.	NA NA		
MCPP			liv.	, AA		
Total HQ & CR					8.62E-01	3.47E-11

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration

Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Child Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
	200		10000000000000000000000000000000000000	Jan 1979	80000000			377	30	Nc	Car
Volatile Organics											
1 1 2 2 - Tetrachloroethane		4.94E-10	631E-03	200	1.00E-06	-	50	5	25	1.825	25.550
Acetone	8.00E-09		7.30E-03	200	1.00E-06	-	50	8	25	1,825	25,550
Benzene		3.91E-10	5.00E-03	200	1.00E-06	-	20	\$	25	1,825	25,550
Carbon Disulfide	2.19E-09	1	2.00E-03	200	1.00E-06	-	50	\$	25	1,825	25,550
Chloroform	2.19E-09	1.57E-10	2.00E-03	200	1.00E-06	-	20	s	25	1,825	25,550
Methylene Chloride	3.29E-09	2.35E-10	3.00E-03	200	1.00E-06	-	50	vo v	52	1,825	25,550
Toluene Xylene (total)	6.70E-09 4.66E-09		6.11E-03 4.25E-03	200	1 00E-06		20	n v1	ឧឧ	1,825	25,550
Semivolatile Organics											
2,4-Dinitrotoluene	4.41E-06		4.02E+00	200	1.00E-06	•••	90	8	25	1,825	25,550
2,6-Dinitrotoluene	1.21E-06		1.11E+00	200	1.00E-06		20	٠,	52 5	1,825	25,550
2-methylnaphthalene			1.11E+00	200	1.00E-06		20	9	52	1,825	25,550
3,3'-Dichlorobenzidine			7.44E-01	200	1.00E-06	#	50	8	25	1,825	25,550
3-nitroaniline	1.99E-06		1.81E+00	200	1.00E-06	-	20	· ·	2 2	1,825	25,550
Acenaphthene	3 22E.07		7 94F-01	200	1 00F-06		20 05	n v	3 %	1,825	25 550
Anthracene		1.12E-07	1.44E+00	200	1.00E-06		50	~	52	1,825	25.550
Benzo(a)anthracene		2.01E-07	2.57E+00	200	1.00E-06	-	50	s	22	1,825	25,550
Benzo(a)pyrene		2.73E-07	3.49E+00	200	1.00E-06	-	20	٠,	52	1,825	25,550
Benzo(b)fluoranthene		-	3.56E+00	200	1.00E-06		20	vo ·	22	1,825	25,550
Benzo(g,h,i)perylene		2.21E-07	2.82E+00	200	1.00E-06		2 2	n ×	3 %	1,825	25,550
Carbazole		1.11E-07	1.41E+00	200	1.00E-06	-	20	. ~	22	1.825	25,550
Chrysene	3.23E-06	TO STATE OF THE PARTY OF THE PA	2.94E+00	200	1.00E-06	-	50	5	22	1,825	25,550
Di-n-butylphthalate		1.23E-07	1.57E+00	200	1.00E-06	-	20	8	52	1,825	25,550
Dibenz(a,h)anthracene			1.52E+00	200	1.00E-06		20	vo v	22	1,825	25,550
Dibenzoturan	1.345-06		1.225+00	200	1.00E-06		20	n •	9 %	276.1	000,02
Diemyiphinalate	4 30E 06		3 075-02	200	1.00E-06		20	۰ ۲	1 %	1 825	25 550
Fluorene	200	9 89E-08	1 26F+00	200	1.00E-06		20	, 41	25	1.825	25.550
Indeno(1.2.3-cd)pyrene		2.15E-07	2.75E+00	200	1.00E-06	-	50	2	22	1,825	25,550
N-Nitrosodiphenylamine (1)		The second	1.65E+00	200	1.00E-06	-	20	\$	25	1,825	25,550
Naphthalene	1.54E-06	1.10E-07	1.40E+00	200	1.00E-06	-	20	2	25	1,825	25,550
Pentachlorophenol	The state of the s		1.13E+00	200	1.00E-06	-	20	9	52	1,825	25,550
Phenanthrene	3.13E-06		2.86E+00	200	1.00E-06		20	•	25	1,825	25,550
Pyrene	4.36E-06	3.11E-07	3.98E+00	200	1.005-06		00	0.4	2 2	578,1	055,550
hie(7-Fihelhevel)nhthalate	2.03E-06	1.45E-07	1.85E+00	200	00E-06	-	20	•	57	1.823	75.550

CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Sencea Army Depot Activity

Metals 56E-05 518E+01 200 1.00E-06 1 50 5 Barium 4.15E-04 3.75E+02 200 1.00E-06 1 50 5 Copper 8.16E-03 7.45E+02 200 1.00E-06 1 50 5 Copper 8.16E-03 7.45E+02 200 1.00E-06 1 50 5 Mercust 1.47E-06 1.35E+03 200 1.00E-06 1 50 5 Acceleration 6.99E-07 6.38E-01 200 1.00E-06 1 50 5 Annilium 1.96E-04 2.83E-05 3.61E+02 200 1.00E-06 1 50 5 Inchicides 1.00E-06 1 50 5 5 MCPP 2.37E-08 1.60E-06 1 00E-06 1 50 5	\$ 5.68E-03 5.18E-01 200 1.00E-06 1 50 5 5 5 4.15E-04 5.77E+02 2.00 1.00E-06 1 50 5 5 8.16E-03 7.47E+02 2.00 1.00E-06 1 50 5 5 1.47E-06 1.44E-07 2.00 1.00E-06 1 50 5 1.47E-06 1.44E-07 2.00 1.00E-06 1 50 5 1.47E-07 1.36E-07 2.83E-01 2.00 1.00E-06 1 50 5 2.31E-08 1.69E-06 4.33E+00 2.00 1.00E-06 1 2.50 5 2.37E-08 2.83E-08 2.83E-08 2.83E-08 1.00E-06 1 2.50 5 8 \$	Pesticides 4,4-DDD 4,4-DDD 4,4-DDD 4,4-DDD Advin Arcifor-124 Arcifor-124 Arcifor-126 Bedrin Bedrin Bedroulfin II Endouglin	(mg/kg-day) 9.75E-08 4.71E-08 4.71E-08 4.71E-09 4.82E-09 4.82E-09 4.70E-09 2.26E-09 2.26E-09	(Car) (697E-09 3.36E-09 1.77E-10 4.79E-10 9.72E-11 1.90E-10 9.72E-11 1.90E-10 4.48E-10 4.48E-10	Soil (mg/kg) (Rate (mg soil/day) 200 200 200 200 200 200 200 200 200 20	Factor (kg/mg) 100E-06	Ingested (unidess)	Frequence (days/ear) (489/ear) (489/	Exposure Exposure (years) (Weigh Same wanner war wanner w	deg	Metaphic Averaging Metaphic Averaging Metaphic Averaging Metaphic Averaging Metaphic Averaging Metaphic Averaging Averaging
4.9E-03 7.47E-03 2.00 1.00E-06 1 50 1.00E-06	4316E-03	she ynor m	5.68E-05 4.15E-04		5.18E+01 3.79E+02	200	1.00E-06 1.00E-06		20 20			ងង	25 1,825 25 1,825
idea 221E-08 4.03E-03 200 1.00E-06 1 250 5 2.37E-05 1.69E-06 1 1.00E-06 1 250 5	ides 2.21E-08 4.03E-03 200 1.00E-06 1 250 5 1 200 1.00E-06 1 250 5 1 1 200 5 1 1 200 5	der de creary centum ce	8.16E-03 1.47E-06 6.99E-07 1.49E-06 3.96E-04	2.83E-05	5.47E+02 7.45E+03 1.34E+00 6.38E-01 1.36E+00 3.61E+02	200 200 200 200 200	1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06		222222	****		ลลลลลล	
	100	erbicides 4,5-T CPP	2.21E-08 2.37E-05	1.69E-06	4.03E-03 4.33E+00	200	1.00E-06 1.00E-06		250	~ ~ ~ ~		នន	25 1,825 25 1,825

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane		4.94E-10	NA	2.00E-01		9.87E-11
Acetone	8.00E-09		1.00E-01	NA	8.00E-08	W.S. A.P. SOVETER
Benzene		3.91E-10	NA	2.90E-02		1.14E-11
Carbon Disulfide	2.19E-09		1.00E-01	NA	2.19E-08	
Chloroform	2.19E-09	1.57E-10	1.00E-02	6.10E-03	2.19E-07	9.55E-13
Methylene Chloride	3.29E-09	2.35E-10	6.00E-02	7.50E-03	5.48E-08	1.76E-12
Toluene	6.70E-09		2.00E-01	NA	3.35E-08	E50027/37
Xylene (total)	4.66E-09		2.00E+00	NA	2.33E-09	
Semivolatile Organics						
2,4-Dinitrotoluene	4.41E-06		2.00E-03	NA	2.20E-03	
2,6-Dinitrotoluene	1.21E-06	1	1.00E-03	NA	1.21E-03	
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline	1.99E-06		NA	NA		
Acenaphthene	120000000000000000000000000000000000000		6.00E-02	NA NA		
Acenaphthylene	3.22E-07		NA	NA		
Anthracene	(00.040000.00	1.12E-07	3.00E-01	NA	81	
Benzo(a)anthracene		2.01E-07	NA	7.30E-01		1.47E-07
Benzo(a)pyrene		2.73E-07	NA	7.30E+00		1.99E-06
Benzo(b)fluoranthene		-11.6-0.51	NA	7.30E-01		1.5515-00
Benzo(g,h,i)perylene		2.21E-07	NA	NA NA		
Benzo(k)fluoranthene		1.84E-07	NA	7.30E-01		1.35E-07
Carbazole		1.11E-07	NA	2.00E-02		2.21E-09
Chrysene	3.23E-06		NA	7.30E-02		2.2.12.07
Di-n-butylphthalate		1.23E-07	1.00E-01	NA		
Dibenz(a,h)anthracene			NA	7.30E+00		
Dibenzofuran	1.34E-06		NA	NA		
Diethylphthalate	2.08E-08		8.00E+00	NA NA	2.60E-09	
Fluoranthene	4.29E-06		4.00E-02	NA	1.07E-04	
Fluorene		9.89E-08	4.00E-02	NA		
ndeno(1,2,3-cd)pyrene		2.15E-07	NA	7.30E-01		1.57E-07
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene	1.54E-06	1.10E-07	NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene	3.13E-06		NA	NA		
Pyrene	4.36E-06	3.11E-07	3.00E-02	NA	1.45E-04	
ois(2-Ethylhexyl)phthalate	2.03E-06	1.45E-07	2.00E-02	1.40E-02	1.01E-04	2.03E-09

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Pesticides		100 D 300				
4,4'-DDD	1 2 1		5.00E-04	2.40E-01		
4,4'-DDE	9.75E-08	6.97E-09	NA	NA		
4,4'-DDT	4.71E-08	3.36E-09	5.00E-04	3.40E-01	9.41E-05	1.14E-09
Aldrin	2.48E-09	1.77E-10	3.00E-05	1.70E+01	8.26E-05	3.01E-09
Aroclor-1254	2.402 0	4.79E-09	2.00E-05	2.00E+00		9.58E-09
Aroclor-1260	7.28E-08	5.20E-09	NA	7.70E+00		4.00E-08
Dieldrin	5.18E-09	5,202	5.00E-05	1.60E+01	1.04E-04	
Endosulfan I	5.102-07		6.00E-03	NA		
Endosulfan II	4.82E-09		NA	NA		
	4.70E-09		5.00E-05	NA	9.39E-05	
Endosulfan sulfate	4.7015-07		3.00E-04	NA		
Endrin			NA NA	NA		
Endrin aldehyde	5.52E-09	3.94E-10	NA	NA		
Endrin ketone	1.36E-09	9.72E-11	5.00E-04	4.50E+00	2.72E-06	4.37E-10
Heptachlor	1.30E-09	1.90E-10	1.30E-05	9.10E+00	(F20/F2000)	1.73E-09
Heptachlor epoxide	1.36E-07	9.72E-09	NA	1.10E+00		1.07E-08
Toxaphene	1.30E-07	4.48E-10	6.00E-05	1.30E+00		5.82E-10
alpha-Chlordane	2.62E-09	4.40E-10	NA	1.80E+00		
beta-BHC	2.02E-09		3.00E-04	NA NA		
gamma-BHC (Lindane)			NA	NA		
gamma-Chlordane	2.26E-09	1.61E-10	NA	NA NA		
delta-BHC	2.20E-09	1.01E-10	NA	, NA	1	
Nitroaromatics			7.34			
2-amino-4,6-Dinitrotoluene	9.70E-08		NA	NA	nos conservada	
Tetryl	9.31E-08	6.65E-09	1.00E-02	NA	9.31E-06	
Metals		No.		and I		
			4.00E-04	NA	1.42E-01	
Antimony	5.68E-05		7.00E-02	NA NA	5.93E-03	
Barium	4.15E-04		4.00E-02 4.00E-02	NA NA	3,331,-03	
Copper	0.1/2.03) A 07-07-97-1-11(7)	NA NA		
Lead	8.16E-03		NA 3.00E-04	NA NA	4.90E-03	
Mercury	1.47E-06		5.00E-04 5.00E-03	NA NA	1.40E-04	
Selenium	6.99E-07		7.00E-05	NA NA	2.13E-02	
Thallium	1.49E-06	2 025 05	7,00E-05 3,00E-01	NA NA	1.32E-03	
Zinc	3.96E-04	2.83E-05	3,00E-01	INA	1,5215-05	
Herbicides				test .		
2,4,5-T	2.21E-08		1.00E-02	NA	2.21E-06	
MCPP	2.37E-05	1.69E-06	1.00E-03	NA	2.37E-02	
MCFF	2.57.505		.5800/F650	200100	THE TRANSPORT	
Totals - HQ & CR					2.03E-01	2.50E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

11/01/97

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL. REASONABLE MAXIMUM EXPOSITE (RME) SEAD-16 Remedial invertigation Series Army Depot Activity

Analyte		Volutile Organics 1.1.2.2Tetrachlorochane Acetone Benzene Carbon Disulfide Carbon Disulfide Chloroform Methylene Chloride To loluene Yylene (total)	Semivolatile Organics	2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-methylnaphthalene	3.3-Dichlorobenzidine 3-nitroaniline Acemaphthene Acemaphthylene Anthracene Berzol anthracene	Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(g,horanthene	Chrysene Di-n-butylphthalate Dibenz(a,h)anthracene Dibenzofurna	Diethylphthalate Fluoranthene Fluorene	Indexed (1.23-cd.pyrene N-Nitrosodiphenylamine (1) Naphthalene Pentachlorophenol Phenanthrene Pyrene	Pesticides	4,4-DDD 4,4-DDT 4,4-DDT Adrin Amelor-125 Amelor-126 Misclet-126 Distance	Endosulfan I Endosulfan II Endosulfan sulfate	Endrin Endrin aldehyde Endrin ketone Heptachlor	Heptachior spoude Toxuphene alpha-Chlordane	beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC	Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetral
Child Absorbed Doxe (Nc) (mg/kg-day)											4.63E-08		t			
Child Absorbed Dose (Car) (mg/kg-dav)											3.31E-09 3.59E-09		1			
EPC Soil (mg/kg)		6.31E-03 7.30E-03 5.00E-03 2.00E-03 3.00E-03 6.11E-03 4.25E-03		4.02E+00 1.11E+00 1.11E+00	7,44E-01 1,81E+00 1,39E+00 2,94E-01 1,44E+00 2,57E+00	3.49E+00 3.56E+00 2.82E+00 2.35E+00	1.57E+00 1.57E+00 1.52E+00	1.90E-02 3.92E+00 1.26E+00	2.75E+00 1.65E+00 1.13E+00 2.86E+00 3.98E+00	2001	5.35E-03 8.90E-02 4.30E-02 2.26E-03 6.12E-02 6.64E-02	8.94E-03 4.40E-03 4.28E-03	5.32E-03 4.86E-03 5.04E-03 1.24E-03	2.43E-03 1.24E-01 5.72E-03	2.39E-03 2.24E-03 5.73E-03 2.06E-03	8.86E-02 8.50E-02
Conv. Factor (kg/mg)		1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06		1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06 1.00E-06	ALTON I	1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06
Child Skin Surface Area Contact (cm²/event)		2,300 2,300 2,300 2,300 2,300 2,300		2,300 2,300 2,300	2300 2300 2300 2300 2300	2,300 2,300 2,300 2,300	2,300 2,300 2,300	2,300	1,130 1,300	200	2300 2300 2300 2300 2300 2300	2300 2300 2300	2,300 2,300 2,300	2,300	2,300 2,300 1,300	2,300
Adherence Factor (mg soil/cm²)		9999999		0.1	22222	00000	2222	1999	22222	2	000000	000	0000	000	9999	0.0
Absorption Factor (unitless)											9000					
Exposure Frequency (events/year)		88888888		888	888888	8888	2222	888	888888	3	888888	888	8888	2 2 2 3	2888	9, 99
Child Exposure Duration (vents)				~ ~ ~	*****	w w w w		. w. w. w.	vo vo vo vo vo v	55	*****	. w w w	w w w w	n vn vn 1		Vs. Vs
Child Body Weight (kg)		กลกลกลก		ឧឧឧ	กลหลหล	กลลล	រងងងន	នេងន	ลลลลลล	3	หหหหหห	នេងន	ឧឧឧឧ	ន្តន	ឧឧឧឧ	nn
Averaging Time (days)	ž	<u> </u>		1,825	1825 1825 1825 1835 1835 1835 1835 1835 1835 1835 183	8888	28888	28.23		6.1	£ 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	8888	282 283	333	9999	1,825
zing e s)	Car	25.550 25.550 25.550 25.550 25.550 25.550 25.550 25.550		25,550 25,550 25,550	25.550 25.550 25.550 25.550 25.550	25.55 25.55	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	25.550 25.550 25.550	88888888	OF COLOR	25.55 25.55	25.550 25.550 25.550	25,550 25,550 25,550 25,550	25,550	25.55 25.55 25.55 25.55 25.55	25,550

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL PUTURE TRESSFASSER (Child) REASONALLE MAXIMUM EXPOSURE (RME) SLAD-16 Remedial investigation Seneca Army Depat Activity

Child Child EPC Conv. State Atherstock Absorption Exposure Epc Analyte Conv. State		tetals	1.00E-06 2,300 1.0	3.79E+02 1.00E-06 2,300 1.0	1.00E-06 2,300	7.45E+03 1.00E-06 2,300 1.0	1.00E-06 2,300 1.0	6.38E-01 1.00E-06 2,300 1.0	1.00E-06 2,300 1.0		erbiddes	4.5-T 1.00E-06 2.300 1.0 2.50	2,300 1.0 250	QUATION: Absorbed Dose (mg/kg-dsy) = CSACEISAAAFABSIEFIED BWAAT	Yarlablez, Yarlablez,	CS = Chemical Concentration in Soil (mg soil/kg) EPC Soil Data - RME EF = Expoure Prequency (events/year) 50 (RME) CF = Concentration (very) 54 = Surface Area Constact (cm²) 7,200 (RME Capin) 1,200 (RME Capin)
child Exposure requency Duration cents/years) (years)			50 5	50 8	50 9	50 2	50 5	20	20	20		250 5	-			requency (events/year) uration (years) t (Ag)
Child Body Weight (kg)	_		22	52	25	22	25	22	22	n		22	33		Assumptions:) 50 (RME) 5 (RME) 25 kg (child) 5 x 365 (Ne), 70 x 365 (Car)
Averaging Time (days)	Nc		1.825	1,825	1,825	1,825	1,825	1,825	1,825	1,825	Ĭ.	1,825	1,825		4) ,70 x 365 (C
¥	Car		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		25,550	25,550			5

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics	(mg ng nay)	(mg ng say)	(mg ng my)	(mg ng say) i		
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA NA		
Xylene (total)			2.00E+00	NA NA		
Semivolatile Organics						
2.4-Dinitrotoluene			2.00E-03	NA		
2,4-Dinitrotoluene 2,6-Dinitrotoluene			1.00E-03	23332		
				NA		
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA	3.60	
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene	44		4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1254	4.63E-08	3.31E-09	1.90E-05	2.11E+00	2.44E-03	6.98E-09
Aroclor-1260	110020	3.59E-09	NA	8.11E+00		2.91E-08
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I	Al-		6.00E-03	NA		die Lie
Endosulfan II	4	100	NA	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin aldenyde Endrin ketone	in the same	land to the	NA	NA		- 111-1
Heptachlor		W-	5.00E-04	4.50E+00		
Heptachlor epoxide			1.30E-05	9.10E+00		
Toxaphene			NA NA	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		4.1
			NA	1.80E+00		
beta-BHC	No.	trivia in the	3.00E-04	NA NA		
gamma-BHC (Lindane)			NA NA	NA NA		
gamma-Chlordane			NA NA	NA	3	
delta-BHC	4-		NA.	l NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene	- 78		NA	NA		
Tetryl			1.00E-02	NA		
Metals						
			4.00E-04	NA		
Antimony			7.00E-03	NA NA		
Barium		100	2.00E-03	NA NA		
Copper			NA	NA NA		
Lead			4.50E-05	NA NA		
Mercury			4.50E-03 3.00E-03	NA NA		
Selenium			7.00E-05	NA NA		
Thallium			1.50E-05	NA NA		
Zinc			1.50E-01	NA		3
Herbicides		0.0	- 1			The same
2,4,5-T	+		1.00E-02	NA		THE ST
MCPP			1.00E-03	NA		
Totals - HQ & CR					2.44E-03	3.61E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

Toxicity Values Soil Medium REASONABLE MAXIMUM EXPOSURE (RME) Seneca Army Depot, Romulus, New York - SEAD 16

Analyte	Oral RfD mg/kg/day	Carc. Slope Oral (mg/kg-day)-1	Dermal RfD mg/kg/day	Carc. Slope Dermal (mg/kg-day)-
Volatile Organics				
1.1.2.2 -Tetrachlomethane	NA	2.00E-01	NA	2.00E-01
Acetone Benzene	1.00E-01	NA	1.00E-01	NA
Benzene	NA	2.90E-02	NA	2.90E-02
Carbon Disulfide	1.00E-01	NA	1.00E-01	6 10F-03
Chloroform	1.00E-02	6.10E-03 7.50E-03	1.00E-02 6.00E-02	6.10E-03 6.00E-02
Methylene Chloride Foluene	6.00E-02 2.00E-01	7.50E-03 NA	1.20E-01	NA
(ylene (total)	2.00E+00	NA	2.00E+00	NA.
Semivolatile Organics		733.00		
2,4-Dinitrotoluene	2.00E-03	NA	2 00F-01	NA.
2,4-Dinitrotoluene	1.00E-03	NA	1.00E-03	NA.
-methylnaphthalene	NA	NA	NA	NA
3.3'-Dichlorobenzidine	NA.	4.50E-01	NA	4.50E-01
3-nitroaniline	NA NA	NA NA	NA	NA.
Acenanhthene	6.00E-02	NA	6.00E-02	NA.
Acenaphthene Acenaphthylene	NA	NA	NA	NA
Anthracene	3,00E-01	NA	3.00E-01	NA
Benzo(a)anthracene	NA	7.30E-01	NA	1.46E+00
Benzo(a)pyrene	NA	7.30E+00	NA	1.46E+01
Benzo(b)fluoranthene	NA NA	7.30E-01	NA	1.46E+00 NA
Benzo(g,h,i)perylene	NA NA	NA 7.30E-01	NA NA	1.46E+00
Benzo(k)fluoranthene Carbazole	NA NA	7.30E-01 2.00E-02	NA NA	2.00E-02
Chrysene	NA NA	7 30F-02	NA	1.46E-01
Di-n-butylphthalate	1.00E-01	NA	8.50E-02	NA
Dibenz(a,h)anthracene	NA	7.30E+00	NA	1.46E+01
Dibenzofuran	NA	NA	NA	NA
Diethylphthalate	8.00E+00	NA	8.00E+00	NA
luoranthene	4.00E-02	NA	4.00E-02	NA
Fluorene	4.00E-02	NA NA	4.00E-02	NA
ndeno(1,2,3-cd)pyrene	NA NA	7.30E-01 4.90E-03	NA NA	1.46E+00 4.90E-03
N-Nitrosodiphenylamine (1) Naphthalene	NA NA	NA NA	NA	NA NA
Pentachlorophenol	3.00E-02	1.20F-01	3.00F-02	1.20F-01
Phenanthrene	NA	NA NA	NA	NA
Рутеле	3.00E-02	NA	3.00E-02	NA
ois(2-Ethylhexyl)phthalate	2.00E-02	1.40E-02	2.00E-02	1.40E-02
Pesticides				2
4,4'-DDD	5.00E-04	2.40E-01	5.00E-04	2.40E-01
4.4'-DDE	NA .	NA 3.40E-01	NA 5.00E-04	NA 3.40E-01
4,4'-DDT Aldrin	5,00E-04 3,00E-05	1.70E+01	3.00E-04 3.00E-05	1.70E+01
Aroclor-1254	2.00E-05	2.00E+00	1.90E-05	2.11E+00
Amelor-1260	NA.	7.70E+00	NA	8.11E+00
Dieldrin	5.00E-05	1.60E+01	5.00E-05	1.60E+01
Endosulfan I	6.00E-03	NA NA	6.00E-03	NA
Endosulfan II	NA .	NA NA	NA	NA.
Endosulfan sulfate	5.00E-05	NA	5.00E-05	NA
Endrin	3.00E-04	NA.	3.00E-04	NA
Endrin aldehyde Endrin ketone	NA NA	NA NA	NA NA	NA NA
Heptachlor	5.00E-04	4.50E+00	5.00E-04	4.50E+00
Heptachlor epoxide	1.30E-05	9.10E+00	1.30E-05	9.10E+00
Toxaphene	NA	1.10E+00	NA	1.10E+00
lpha-Chlordane	6.00E-05	1.30E+00	6.00E-05	1.30E+00
neta-BHC	NA NA	1.80E+00	NA	1.80E+00
gamma-BHC (Lindane)	3.00E-04	NA	3.00E-04	NA
gamma-Chlordane Jelta-BHC	NA NA	NA NA	NA NA	NA NA
Nitroaromatics				
2-arnino-4,6-Dinitrotoluene	NA.	NA	NA	NA.
Tetryl	1.00E-02	NA	1.00E-02	NA
Metals				
Antimony	4.00E-04	NA	4.00E-04	NA.
Barium	7.00E-02	NA.	7.00E-03	NA
Copper	4.00E-02	NA	2.00E-02	NA
end	NA	NA	NA	NA
Mercury Selenium	3.00E-04 5.00E-03	NA NA	4.50E-05 3.00E-03	NA NA
Selenium Phallium	5.00E-03 7.00E-05	NA NA	7.00E-03	NA NA
Zinc	3.00E-01	NA NA	1.50E-01	NA.
Herbicides	-000000 (# J			
2.4,5-T	1.00E-02	NA NA	1.00E-02	NA.
2,4,5-1 MCPP	1.00E-02 1.00E-03	NA NA	1.00E-02 1.00E-03	NA NA
295-14	£.00E-03	1474	1 TANKENIA	13/1

TABLE 6-16 CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

11/01/97

Analyte Vaistle Organics Vaistle Organics Action Action Cacho Distulface Cacho Distulface Cacho Distulface Cacho Distulface Cacho Distulface Cacho Distulface Methylene Chloride Xylene (total)	Intake (Nc) (mg/kg-day) 5.77E-10 1.57E-10 2.33E-10 4.78E-10 3.33E-10	(mg/kg-day) (mg/kg-day) 1,76E-10 1,40E-10 5,59E-11 8,39E-11	Soil (mg/kg) (mg/kg) (mg/kg) (2.00E-03 2.00E-03 3.00E-03 3.00E-03 4.25E-03 4.25E-03	Rate Rate	Conv. Factor (kg/mg) 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06	Fraction Ingested (unidess)	Exposure Frequency (days/year) 20 20 20 20 20 20 20 20 20 20 20 20 20	Exposure Duration (years) 25 25 25 25 25 25 25 25 25 2	Weight (kg) 75 25 25 25 25 25 25 25 25 25 25 25 25 25		Averaging (days) Ne (days) Ne (days) No (days)
Semivolatile Organics 2.4-Dinitrotoluene 2.6-Dinitrotoluene 2.enethylmaphthalene	3.15E-07 8.66E-08		4.02E+00 1.11E+00	888	1.00E-06 1.00E-06 1.00E-06		222	หหห		888	70 9,125 70 9,125 70 9,125
3.3°-Dichlorobenzidine 3-nitrounline Accumphtheme Accumphthylene Anthracene Berzzo a puthracene	1.08E-07	2.08E-08 7.19E-08	7.44E-01 1.81E+00 1.39E+00 2.94E-01 1.44E+00 2.57E+00	8888888	1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06		222222	ппппппппппппппппппппппппппппппппппппппп		222222	51.9 51.5 51.6 51.6 60 61.5 61.6 61.6 61.6 61.6 61.6 61.6 61.6
Benzof By Junearthene Benzof Biltomanthene Benzof Biltomanthene Carbazole Chrysene Chrysene	1.23E-07	6.58E-08 3.95E-08 8.23E-08	1.5E+00 1.5E+00 1.41E+00 1.57E+00		1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06		******	******		222222	
Diseard, an innurseence Disearcolumn Distriction of Distriction of Distriction Fluorence Fluorence Fluorence Fluorence Fluorence Fluorence Morphidace Pentachiorophenol Pentanthrence Pentanthrence	1.49E-09 3.06E-07 9.89E-08 8.86E-08	7.68E-08 4.63E-08 3.16E-08	1.22E+00 1.90E+02 3.92E+00 1.26E+00 2.75E+00 1.65E+00 1.13E+00 2.86E+00	8888888888	1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06		288888888	**********		222222222	
bis(2-Ethylhexyl)phthalate Pesticides	1.45E-07	5.17E-08	1.85E+00		1.00E-06		8	រង		2	
4,4°.DDD 4,4°.DDT 4,4°.DDT Abrin Arceler-124 Arceler-126 Dieldrin Endoanlfran I	4.19E-10 3.36E-09 1.77E-10 4.79E-09 3.70E-10 7.00E-10	1.50E-10 1.20E-09 6.32E-11 1.71E-09 1.86E-09 1.32E-10	5.35E-03 8.90E-02 1.30E-02 6.12E-02 6.64E-03 8.94E-03 4.40E-03		1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06		222222222	ппппппппппппппппппппппппппппппппппппппп		22222222	521.9 521.9
Endosulfin and face Endorin alsekyde Endorin alsekyde Endorin eternee Heptender opsyalet (Toophene opsyalet Toophene alsekyde opsyalet Toophene alsekyde opsyalet Toophene alsekyde opsyalet page 18 opsyalet opsyalet gamma-BHC (Lindane) gamma-Chiordane gamma-Chiordane gamma-Chiordane	3.35E-10 4.16E-10 9.72E-11 1.90E-10 4.48E-10	3.47E-11 6.80E-11 3.47E-09 1.60E-10 6.68E-11	4.28E-03 5.31E-03 5.31E-03 5.04E-03 1.24E-03 1.24E-03 2.24E-03 2.22E-03 2.2	88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06		22222222222	***********		222222222222	
Nitroaromatica 2-amino-4,6-Dinitrotoluene Tetryl	6.65E-09		8.86E-02 8.50E-02	88	1.00E-06 1.00E-06		88	22.23		88	70 9,125 9,125

CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Ne) (mg/kg-day)	Intake (Car) (mg/kg-day)	Soll (mg/kg)	Ingestion Rate (mg soil/day)	Cour. Factor (kg/mg)	Fraction Ingested (unidess)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Time (days)
Metals		39	91							N	Car
Antimone	4 DKE-DK		107281 5	901	1 000 06		ş	7.	F	91.10	26 660
Daring (3 078.06		3 705403	3 5	1 000 000	25	3 6	3 7	2.5	27,10	26,550
	4 7915.05		6 47E-67	3 5	1 000 00		9 6	3 2	2 2	2,12	200
Copper	4.405-473		7.45E+02	3 5	100E-06		25	4 %	2 5	271.6	3,4
Mercury	1.05E-07		1.34E+00	901	1.00F-06		20	3 %	2 2	9175	25.550
Scienium	4.99E-08		6 18F-01	100	1 00F-06	-	20	34	92	0 126	35.5
Thallium	1.07E-07		1.36E+00	100	1.00E-06		30	25	2	9.125	25.5
Zinc	2.83E-05		3.61E+02	100	1.00E-06	7	20	25	2	9,125	25.5
Herbicides							į			1	
2,4,5-T	3.16E-10		4.03E-03	100	1.00E-06	-	20	25	20	9.125	25.5
MCPP	3.39E-07		4.33E+00	100	1.00E-06	-	20	22	70	9,125	25,550
EQUATION:	Intake (mg/kg-day) =	-day) =	CSIRIC	CSIBICFIFIEFIED BWIAT	a						
	Variables:					Assumptions:	,				
	CS = Chemical Concen IR = Ingestion Rate (m) CF = Conversion Facto FT = Fraction Ingested EF = Exposure Freque ED = Exposure Duratio BW = Bodyweight (kg)	CS = Chemical Concentration in Soil (mg toilMg) RB = Ingestion Rate (mg oulday) CG = Conversion Factor (18-6 kg/mg) F1 = Fraction Ingested (unitless) F2 = Exponente Frequency (days/sears) F3 = Factour Duration (years) F3 = Bodyweight (kg)	in Soil (mg ay) kg/mg) is) iya/years) s)	coll/kg)		EPC Soil Data - RME 100 (RME Site Worker) 10-6 11 (All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult male)	EPC Soil Data - RME 100 (RME Site Worker) 10-6 (All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 10 (Adult male)				

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics				- 184		
1,1,2,2,-Tetrachloroethane		1.76E-10	NA	2.00E-01		3.53E-11
Acetone	5.72E-10	PUNKTINE PRODUCT	1.00E-01	NA	5.72E-09	
Benzene		1.40E-10	NA	2.90E-02		4.05E-12
Carbon Disulfide	1.57E-10		1.00E-01	NA	1.57E-09	
Chloroform	1.57E-10	5.59E-11	1.00E-02	6.10E-03	1.57E-08	3.41E-13
Methylene Chloride	2.35E-10	8.39E-11	6.00E-02	7.50E-03	3.91E-09	6.29E-13
Toluene	4.78E-10	AMERICAN.	2.00E-01	NA	2.39E-09	
Xylene (total)	3.33E-10		2.00E+00	NA	1.66E-10	ME
Semivolatile Organics		100	46.00			
2.4-Dinitrotoluene	3.15E-07	11:41	2.00E-03	NA	1.57E-04	11111
2,6-Dinitrotoluene	8.66E-08	73.88	1.00E-03	NA	8.66E-05	
2-methylnaphthalene	377177553	1317	NA	NA		
3,3'-Dichlorobenzidine		2.08E-08	NA	4.50E-01		9.36E-09
3-nitroaniline			NA	NA		
Acenaphthene	1.08E-07		6.00E-02	NA	1.81E-06	
Acenaphthylene		COLUMN TO THE	NA	NA		
Anthracene	1.12E-07	1217-22-24-2	3.00E-01	NA	3.75E-07	
Benzo(a)anthracene	ACTION COLOR	7.19E-08	NA	7.30E-01		5.25E-08
Benzo(a)pyrene		9.75E-08	NA	7.30E+00		7.12E-07
Benzo(b)fluoranthene		9.94E-08	NA	7.30E-01		7.26E-08
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		6.58E-08	NA	7.30E-01		4.80E-08
Carbazole		3.95E-08	NA	2.00E-02		7.90E-10
Chrysene	1.00000000000	8.23E-08	NA	7.30E-02		6.01E-09
Di-n-butylphthalate	1.23E-07		1.00E-01	NA	1.23E-06	2 117 25
Dibenz(a,h)anthracene		4.26E-08	NA	7.30E+00		3.11E-07
Dibenzofuran			NA	NA	1 0CF 10	
Diethylphthalate	1.49E-09		8.00E+00	NA	1.86E-10	
Fluoranthene	3.06E-07	1 1 1 1 1 1 1	4.00E-02	NA	7.66E-06	
Fluorene	9.89E-08		4.00E-02	NA TARE	2.47E-06	5.61E-08
Indeno(1,2,3-cd)pyrene		7.68E-08	NA	7.30E-01		5.61E-08 2.27E-10
N-Nitrosodiphenylamine (1)		4.63E-08	NA	4.90E-03		2.2/E-10
Naphthalene			NA	NA 1 20F 01	2.055.06	3.80E-09
Pentachlorophenol	8.86E-08	3.16E-08	3.00E-02	1.20E-01	2.95E-06	3.80E-09
Phenanthrene	0.12.2.2.2.2.2.2.2	11.1	NA T COPT OF	NA NA	1.045.05	
Pyrene	3.11E-07		3.00E-02	NA 1 40F 02	1.04E-05	7.24E-10
bis(2-Ethylhexyl)phthalate	1.45E-07	5.17E-08	2.00E-02	1.40E-02	7.24E-06	7.24E-10

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD	4.19E-10	1.50E-10	5.00E-04	2.40E-01	8.38E-07	3.59E-11
4,4'-DDE	1799900000000	SAME ACTIONS	NA	NA		PRINTER CONTROL
4,4'-DDT	3.36E-09	1.20E-09	5.00E-04	3.40E-01	6.72E-06	4.08E-10
Aldrin	1.77E-10	6.32E-11	3.00E-05	1.70E+01	5.90E-06	1.07E-09
Aroclor-1254	4.79E-09	1.71E-09	2.00E-05	2.00E+00	2.40E-04	3.42E-09
Aroclor-1260		1.86E-09	NA	7.70E+00		1.43E-08
Dieldrin	3.70E-10	1.32E-10	5.00E-05	1.60E+01	7.40E-06	2.11E-09
Endosulfan I	7.00E-10	10000000400000	6.00E-03	NA	1.17E-07	AVOID EXPERIENCE
Endosulfan II	10 DESCRIPTION OF THE PARTY.		NA	NA		
Endosulfan sulfate	3.35E-10		5.00E-05	NA	6.71E-06	
Endrin	4.16E-10	8 1	3.00E-04	NA	1.39E-06	
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA		
Heptachlor	9.72E-11	3.47E-11	5.00E-04	4.50E+00	1.94E-07	1.56E-10
Heptachlor epoxide	1.90E-10	6.80E-11	1.30E-05	9.10E+00	1.46E-05	6.19E-10
Toxaphene	The state of the s	3.47E-09	NA	1.10E+00		3.82E-09
alpha-Chlordane	4.48E-10	1.60E-10	6.00E-05	1.30E+00	7.46E-06	2.08E-10
beta-BHC		6.68E-11	NA	1.80E+00		1.20E-10
gamma-BHC (Lindane)	1.75E-10		3.00E-04	NA	5.83E-07	
gamma-Chlordane			NA	NA		
delta-BHC			NA	NA	193	
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	6.65E-09		1.00E-02	NA NA	6.65E-07	
Metals						
victais						
Antimony	4.06E-06		4.00E-04	NA	1.01E-02	
Barium	2.97E-05		7.00E-02	NA NA	4.24E-04	
Copper	4.28E-05		4.00E-02	NA	1.07E-03	
Lead	. votostovozedšív		NA	NA	AAND TO A PO	
Mercury	1.05E-07		3.00E-04	NA	3.50E-04	
Selenium	4.99E-08		5.00E-03	NA	9.99E-06	
Thallium	1.07E-07		7.00E-05	NA	1.52E-03	
Zinc	2.83E-05		3.00E-01	NA	9.43E-05	
Herbicides						
2,4,5-T	3.16E-10		1.00E-02	NA	3.16E-08	
MCPP	3.39E-07	J. jib T.	1.00E-03	NA NA	3.39E-04	
Totals - HQ & CR					1.45E-02	1.30E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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ghig se S) Car	25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550	25,550 25,550 25,550	25.55 25.55	25.58 25.58	88888888888888888888888888888888888888	25.550
Averaging Time (days)	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	9,125 9,125 9,125	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125		111111111111111111111111111111111111111	9,125
Body Weight (kg)	2222222	888	22222222222	222222222222222222222222222222222222222	222222222222222222222222222222222222222	22
Exposure Duration (years)	ппппппппппппппппппппппппппппппппппппппп	ппп	<u> </u>	***********	***************************************	ងង
Exposure Frequency (events/year)	2222222	888	222222222222	2222222222222	****************	2,2
Absorption Factor (unitless)		-U-			900	
Adherence Factor (mg soil/cm²)	00000000	000	22222222222	999999999999	99999999999999999999	012
Skin Surface Area Contact (cm³/event)	5,800 5,800 5,800 5,800 5,800 5,800 6,800	5,800 5,800 5,800	5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800	5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800	\$ 800 \$ 500 \$ 500	5,800
Conv. Factor (kg/mg)	1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06	1.00E-06 1.00E-06 1.00E-06	1,00E-06 1,0	1,00E-06 1,0	100E-06 100E-0	1.00E-06
EPC Soll (mg/kg)	631E-03 7.30E-03 5.00E-03 2.00E-03 3.00E-03 6.11E-03 4.25E-03	4.02E+00 1.11E+00 1.11E+00	7.44E-01 1.38E-00 1.39E-00 2.94E-01 1.44E-00 2.45E-00 3.45E-00 3.45E-00 2.35E-00 2.35E-00 1.41E-00 2.35E-00 1.41E-00 2.35E-00 2.41E-00 2.4	1.57E+00 1.52E+00 1.52E+00 1.90E-02 3.92E+00 2.72E+00 1.65E+00 1.40E+00 1.13E+00 3.96E+00 3.96E+00	5.55E-03 4.50E-07 4.50E-07 5.25E-05 6.75E-07 6.75E-07 8.50E-07 8.5	8.86E-02 8.50E-02
Dose (Car) (mg/kg-day)	1,500				5.50E-09 6.46E-09	
Dose (Nc) (mg/kg-day)		Ŕ		io para in si	1.67E-08	
Analyte	tile Organica 2Terachlorochane erie erie na Disulfide na Disulfide riem Colom eriem (viene Chleride eriem (viene Chleride	volatile Organica haitrotolucae haitrotolucae thylnaphthalcae	Dichlerokenzidine voruniline voruniline upuhlune upuhlune upuhluj (ene upuhlin) (ene ene ene ene ene ene ene ene ene en	chary, phthalaise motal, hanthaneene motal, hanthaneene motal, hanthaneene motal, hanthalaise rene rene rene rene rene rene rene re	DDD DDD DDD DDD DDD DDD DDD DDD DDD DD	roaromatics mino-4,6-Dinitrotoluene

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TABLE 6-22 CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CHERENT LAND USE) REASON BLE MAXIMUM EXPOSURE (RME) SE.D. 16 Remedial Invertigation Serica Army Depat Activity

Analyte	Dose (Nc) (mg/kg-dav)	Dose (Car) (mg/kg-day)	EPC Soll (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm³/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Aven Th (da	Averaging Time (days)
										27.72	Nc	Car
Metals												
Ambien			5 18F+01	1.00F.06	\$ 800	1.0		20	25	92	9.125	25.550
Barium			3.79E+02	1.00E-06	5.800	1.0		20	25	20	9,125	25,550
Copper			5.47E+02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Lend			7.45E+03	1.00E-06	5,800	0.0		30	\$ 53	2,5	9,125	25,550
Mercury			6 18F-01	1.005-06	5 800	0.01		200	3.5	2,2	9.125	25.550
Thallism			1.36E+00	1.00E-06	5,800	0.1		20.	121	20	9,125	25,550
Zinc			3.61E+02	1.00E-06	5.800	1.0		20	25	92	9,125	25,550
Herbicides												
245.1			4.03E-03	1.00E-06	5,800	1.0		20	25	20	9,125	25,550
MCPP			4.33E+00	1.00E-06	5,800	1.0		50	25	20	9.125	25,550
EQUATION:												
	Absorbed don	Absorbed dose (mg/kg-day) = CSICKISAIAKIABSIEKIED BW x AT	CSICKINA	BWIAT	THE STATE OF							
Variables:			Assumptions:				Variables;			Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) Sa Surface Area Contact (mm) AF = Soil to Skin Adherence Factor (mg/cm²) ABS = Abnorption Factor (unitless)	ion in Soil (mg soil 0-6 kg/mg) (cm²) e Factor (mg/cm²) unitless)	(Ng)	EPC Soil Data - RME 19-6 5.800 cm* (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd	- RME E Site Worker ceptors)	and Cd		EF = Exposure Frequency (e ED = Exposure Duration (yes BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure Frequency (events)vest) ED = Exposure Durstion (years) BW = Bodyweight (kg) AT = Averuging Time (days)	to/year)	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	Vorker) Vorker)) 10 x 365 Adult (Carr)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics				1 1 1		
1,1,2,2,-Tetrachloroethane		190	NA	2.00E-01		
Acetone			1.00E-01	NA	E-days	
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		3.0
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics				-	600	
75.			2.00E-03	NA		
2,4-Dinitrotoluene			1.00E-03	NA NA		
2,6-Dinitrotoluene			NA	NA NA		
2-methylnaphthalene			INA	IVA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline	1		NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		- 1
Anthracene			3.00E-01	NA NA		10.00
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		-77
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene		1963	NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate		12 13 1	8.50E-02	NA I		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran		1	NA	NA NA		
Diethylphthalate			8.00E+00	NA NA		
Fluoranthene			4.00E-02	NA NA		
Fluorene			4.00E-02	NA 1.46E+00		
Indeno(1,2,3-cd)pyrene		8 1 4	NA	1.46E+00 4.90E-03		
N-Nitrosodiphenylamine (1)			NA	4.90E-03 NA		
Naphthalene			NA 2 00F 02	1.20E-01		
Pentachlorophenol			3.00E-02	1.20E-01 NA		
Phenanthrene			NA 2 00F 02	NA NA		
Pyrene			3.00E-02	1.40E-02		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides	1.0.0					
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA NA	NA NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1254	1.67E-08	5.96E-09	1.90E-05	2.11E+00	8.78E-04	1.26E-08
Aroclor-1260	1.072 00	6.46E-09	NA	8.11E+00	0.702 01	5.24E-08
Dieldrin		0.702 07	5.00E-05	1.60E+01		5.242-00
Endosulfan I			6.00E-03	NA NA		
Endosulfan II			NA	NA		
Endosulfan sulfate			5.00E-05	NA NA		
Endrin			3.00E-04	NA NA		
Endrin aldehyde			NA	NA NA		
Endrin ketone	1		NA	NA		
Heptachlor	1		5.00E-04	4.50E+00		
Heptachlor epoxide			1.30E-05	9.10E+00		
Toxaphene			NA	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA		
gamma-Chlordane			NA	NA		
delta-BHC			NA	NA	*	
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			1.00E-02	NA		
Metals						
Antimony			4.00E-04	NA		
Barium			7.00E-03	NA NA		
Copper			2.00E-02	NA NA		
Lead			NA	NA NA		
Mercury		1	4.50E-05	NA		
Selenium			3.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			1.50E-01	NA		
Herbicides						
2,4,5-T			1.00E-02	NA		
MCPP			1.00E-03	NA		
Γotals - HQ & CR					8.78E-04	6.50E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE RROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASON/BALE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

11/01/97

Analyte	Intake (Ne) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days) NC C	reraging Time (days) Car
Volatile Organics											
1,1,2,2,-Tetrachloroethane	S 72E-10	1.76E-10	6.31E-03	001	1.00E-06		20	22 22	5 6	9,125	25,550
Benzene	1 676-10	1.40E-10	\$.00E-03	9 9	1.00E-06		20	22 22	55	9,125	25,550
Chloroform Mathelane Chlorida	1.57E-10	5.59E-11	2.00E-03	9 9	1.00E-06		200	ងង	5 5	9,125	25,550
Toluche Xylene (total)	4.78E-10 3.33E-10		6.11E-03 4.25E-03	000	1.00E-06		20	22 23	5 5	9,125	25,550
Semivolatile Organics											
2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-methylmaphthalene	3.15E-07 8.66E-08		4.02E+00 1.11E+00 1.11E+00	001 100	1.00E-06 1.00E-06 1.00E-06		200	กกก	05 05 05	9,125 9,125 9,125	25,550 25,550 25,550
3,3'-Dichlorobenzidine		2.08E-08	7.44E-01	001	1.00E-06		0,5	n	0,5	9,125	25,550
3-nitroaniline Acenaphthene	1.08E-07		1.81E+00 1.39E+00	8 8	1.00E-06		20 20	2 22	5 6	9,125	25,550
Acenaphthylene	1175-07	IIIA LA	2.94E-01	esting.	1.00E-06		20	នន	5 6	9,125	25,550
Benzo(a)anthracene		7.19E-08	2.57E+00	hiteshir.	1.00E-06		50	22 22	6 6	9,125	25,550
Benzo(b)fluoranthene		9.94E-08	3.56E+00	25770	1.00E-06		20 2	n	6 6	9,125	25,550
Benzo(g,h,i)perylene Benzo(k)fluoranthene		6.58E-08	2.35E+00	8 00	1.00E-06		20.2	3 23	2 2	9,125	25,550
Carbazole		3,95E-08 8,23E-08	1.41E+00 2.94E+00	9 20	1.00E-06		2 2	នន	6 6	9,125	25,550
Di-n-butylphthalate	1.23E-07	1.76F_08	1.57E+00	9 9	1.00E-06		2 20	ងង	5 5	9,125	25,550
Dibenzofuran		00-707-	1.22E+00	90	1.00E-06	-	20	2	21	9,125	25.55
Diethylphthalate Fluoranthene	1.49E-09 3.06E-07		1.90E-02 3.92E+00	8 8	1.00E-06		2 22	2 23	22	9,125	25,55
Fluorene	9.89E-08	7.687.08	1.26E+00	88	1.00E-06		20 20	ងង	8 8	9,125	25.55
N-Nitrosodiphenylamine (1)		4.63E-08	1.65E+00	001	1.00E-06		2 50	zi z	5 5	9,125	25.55
Naphthalene Pentachlorophenol	8.86E-08	3.16E-08	1.13E+00	- 1 - 1 - 1	1.00E-06		3 8 8	ממנ	2 2 2	9,125	25.55
Phenanthrene	3.11E-07		3.98E+00		1.00E-06		20 20	22	2 2	9,125	25,5
bis(2-Ethylhexyl)phthalate	1.45E-07	5.17E-08	1.85E+00	-1172	1.00E-06	-	20	£1	02	9,125	25,55
Pesticides				*							
4,4-DDD	4,19E-10	1.50E-10	\$.35E-03	2071	1.00E-06		20	25	0.00	9,125	25.5
4,4-DDT	3.36E-09	1.20E-09	4.30E-02	100	1.00E-06		02	z :	70	9,125	25.5
Aldrin	1.77E-10	6.32E-11	2.26E-03	8 8	1.00E-06		20 20	2 22	2 2	9.125	25.5
Aroclor-1254	4,196409	1.86E-09	6.64E-02	100	1.00E-06	-	20	22	2	9,125	25.5
Dieldrin	3.70E-10	1.32E-10	4.72E-03	8 8	1.00E-06		20	20 20	2 2	9,125	25.5
Endosulfan II	01-700''		4.40E-03	00	1.00E-06	-	20	52	02	9,125	25,5
Endosulfan sulfate	3,35E-10		4.28E-03	9 2	1.00E-06		20 20	22 22	2 2	9,125	25.5
Endrin aldehyde			4.86E-03	001	1.00E-06		2 50	22 22	2 5	9,125	25.5
Endrin ketone Hentachlor	9.72E-11	3,47E-11	1.24E-03	8 9	1.00E-06		20,20	3 23	2 2	9,125	25.5
Heptachlor epoxide	1.90E-10	6.80E-11	2.43E-03		1.00E-06		2 2	£2 %	2 5	9,125	25,5
Toxaphene alpha-Chlordane	4.48E-10	1.60E-10	5.72E-03	8 8	1.00E-06		3 8 3	ងន	2 2 1	9,125	25,550
beta-BHC	1 75F-10	6.68E-11	2.24E-03	N DC	1.00E-06		20 20	2 23	5 6	9,125	2,52
gamma-Chlordane			5.73E-03		1.00E-06		20	25	70	9,125	25.5

TABLE 6-13
CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS
INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-dav)	Soil (mg/kg)	Ingestion Rate [mg soil/day]	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Aver Ti (ds	Averaging Time (davs)
	00/02/01/01/02/05	Paradoparation		25 T 20 K 20 W T 20		Carried Carrie		No Contraction	20.00	Nc	Car
Vitroaromatics											
2-amino-4,6-Dinitrotoluene	96.55		8.86E-02	100	1.00E-06		2 5	22 %	55	9,125	25,550
Victals											
Antimony	4.06E-06		5.18E+01	100	1.00E-06	-	20	25	70	9,125	25,550
Barium	2.97E-05		3.79E+02	100	1.00E-06	-	20	25	70	9,125	25,550
Copper	4.28E-05		5.47E+02	100	1.00E-06	-	20	22	70	9,125	25,550
pe			7.45E+03	100	1.00E-06	-	20	25	70	9,125	25,550
Mercury	1.05E-07		1.34E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Selenium	4.99E-08		6.38E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dallium	1.07E-07		1.36E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Zinc	2.83E-05		3.61E+02	100	1.00E-06	-	20	25	0/	9,125	25,550
Herbicides											
2,4,5-T	3.16E-10		4.03E-03	100	1.00E-06	-	20	25	0,	9,125	25,550
44.	3,39E-07		4,33E+00	100	1.00E-06	7.	20	25	6	9,125	25,550
EQUATION:	latake (mg/kg-day) = CS.1IR.1.CF.1.FIX.EF.1.ED BW x.AT	CSIRICFIF	LEERED								
	Variables:				-	Assumptions:					
	CS = Chemical Concentration in Soil (mg soil/kg) R = Ingestion Rate (mg soil/day) CT = Conversion Factor (1d-6 kg/mg) FI = Fraction ingested (unittes) FI = Expouser Frequency (day/vearn) ED = Expouser Duration (years) BW = Bodyweight (kg)	centration in Soil ((mg soil/day) ctor (10-6 kg/mg) ced (unitless) quency (days/yearr ation (years)	mg soil/kg)			EPC Soil Data - RME 100 (RME Site Worker) 10-6 11 (All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult male)	RME Vorker) orker) orker)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-44 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cance Risk
Volatile Organics						
		1.775.10		2.005.01		3.53E-1
1,1,2,2,-Tetrachloroethane	4 mar: 10	1.76E-10	NA LOOF OL	2.00E-01	5.72E-09	3.33E-1
Acetone	5.72E-10	1 405 10	1.00E-01	NA 2.90E-02	3.72E-09	4.05E-1
Benzene		1.40E-10	NA LOOF OL		1.57E-09	4.03E-1
Carbon Disulfide	1.57E-10		1.00E-01	NA C 10E 02	100000000000000000000000000000000000000	3.41E-1
Chloroform	1.57E-10	5.59E-11	1.00E-02	6.10E-03	1.57E-08	150000000000000000000000000000000000000
Methylene Chloride	2.35E-10	8.39E-11	6.00E-02	7.50E-03	3.91E-09	6.29E-1
l'Oluene	4.78E-10		2.00E-01	NA	2.39E-09	
Xylene (total)	3.33E-10		2.00E+00	NA	1.66E-10	
Semivolatile Organics	-					
2,4-Dinitrotoluene	3.15E-07		2.00E-03	NA	1.57E-04	
2,6-Dinitrotoluene	8.66E-08		1.00E-03	NA	8.66E-05	
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine		2.08E-08	NA	4.50E-01		9.36E-0
3-nitroaniline		2.00	NA	NA		1000
Acenaphthene	1.08E-07		6.00E-02	NA	1.81E-06	
	1.00E-07		NA NA	NA	1	
Acenaphthylene	1.12E-07		3.00E-01	NA	3.75E-07	
Anthracene	1.126-07	7.19E-08	NA NA	7.30E-01	5.7.515	5.25E-0
Benzo(a)anthracene		9.75E-08	NA NA	7.30E+00	1	7.12E-0
Benzo(a)pyrene			NA NA	7.30E-01		7.26E-0
Benzo(b)fluoranthene		9.94E-08	NA NA	NA		7.202-0
Benzo(g,h,i)perylene		C 50F 00	(232.2	7.30E-01		4.80E-0
Benzo(k)fluoranthene		6.58E-08	NA		har fi	7.90E-1
Carbazole		3.95E-08	NA	2.00E-02		
Chrysene	1	8.23E-08	NA .	7.30E-02	1 225 04	6.01E-0
Di-n-butylphthalate	1.23E-07	14.00	1.00E-01	NA Table on	1.23E-06	21150
Dibenz(a,h)anthracene		4.26E-08	NA	7.30E+00		3.11E-0
Dibenzofuran			NA	NA		
Diethylphthalate	1.49E-09		8.00E+00	NA	1.86E-10	
Fluoranthene	3.06E-07		4.00E-02	NA	7.66E-06	
Fluorene	9.89E-08		4.00E-02	NA	2.47E-06	1
ndeno(1,2,3-cd)pyrene		7.68E-08	NA	7.30E-01		5.61E-0
N-Nitrosodiphenylamine (1)		4.63E-08	NA	4.90E-03		2.27E-1
Naphthalene			NA	NA		
Pentachlorophenol	8.86E-08	3.16E-08	3.00E-02	1.20E-01	2.95E-06	3.80E-0
Phenanthrene			NA	NA	Andread State of the State of t	a consecution.
Pyrene	3.11E-07	35.0	3.00E-02	NA	1.04E-05	
pis(2-Ethylhexyl)phthalate	1.45E-07	5.17E-08	2.00E-02	1.40E-02	7.24E-06	7.24E-1
Pesticides						
I II DDD	4.19E-10	1.50E-10	5.00E-04	2.40E-01	8.38E-07	3.59E-1
1,4'-DDD	4.196-10	1,502-10	NA NA	NA NA	5.555	
1,4'-DDE	2 265 00	1.20E-09	5.00E-04	3.40E-01	6.72E-06	4.08E-1
1,4'-DDT	3.36E-09		19339633563554	1.70E+01	5.90E-06	1.07E-0
Aldrin	1.77E-10	6.32E-11	3.00E-05		2.40E-04	3.42E-0
Aroclor-1254	4.79E-09	1.71E-09	2.00E-05	2.00E+00	2.40E-04	1.43E-0
Aroclor-1260		1.86E-09	NA	7.70E+00	7 405 06	100000000000000000000000000000000000000
Dieldrin	3.70E-10	1.32E-10	5.00E-05	1.60E+01	7.40E-06	2.11E-0
Endosulfan I	7,00E-10		6.00E-03	NA	1.17E-07	
Endosulfan II	202000000		NA	NA	(715.00	
Endosulfan sulfate	3.35E-10		5.00E-05	NA	6.71E-06	
Endrin	4.16E-10		3.00E-04	NA	1.39E-06	
Endrin aldehyde			NA	NA		
Endrin ketone	3503050000000	0200222000	NA	NA 1.50E.000	1.045.07	1.670 .
Heptachlor	9.72E-11	3.47E-11	5.00E-04	4.50E+00	1.94E-07	1.56E-1
Heptachlor epoxide	1.90E-10	6.80E-11	1.30E-05	9.10E+00	1.46E-05	6.19E-1
Toxaphene	104202000 14000	3.47E-09	NA	1.10E+00		3.82E-0
alpha-Chlordane	4.48E-10	1.60E-10	6.00E-05	1.30E+00	7.46E-06	2.08E-1
beta-BHC	71776	6.68E-11	NA	1.80E+00	no openiowe	1.20E-1
gamma-BHC (Lindane)	1.75E-10		3.00E-04	NA	5.83E-07	
gamma-Chlordane	100000000000000000000000000000000000000		NA	NA		
	1	1	NA	NA	1	1

TABLE 6-44 CALCULATION OF NONCARCINGGENIC AND CARCINGGENIC RISKS FROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	6.65E-09		1.00E-02	NA	6.65E-07	
Metals					-	
Antimony	4.06E-06		4.00E-04	NA	1.01E-02	
Barium	2.97E-05		7.00E-02	NA	4.24E-04	
Copper	4.28E-05		4.00E-02	NA	1.07E-03	
Lead			NA	NA		
Mercury	1.05E-07		3.00E-04	NA	3.50E-04	
Selenium	4.99E-08		5.00E-03	NA	9.99E-06	
Thallium	1.07E-07		7.00E-05	NA	1.52E-03	
Zinc	2.83E-05		3.00E-01	NA	9.43E-05	
Herbicides						
2,4,5-T	3.16E-10		1.00E-02	NA	3.16E-08	
MCPP	3.39E-07		1.00E-03	NA	3.39E-04	
Totals - HQ & CR					1.45E-02	1.30E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose (Oral)

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor (Oral)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED DIOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

11/01/97

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days) Nc C
Volatile Organics 1,1,2,2,-Tetrachlorochane			6.31E-03 7.30E-03	1.00E-06 1.00E-06	5,800	1.0	114	20	ងង	55	
Benzene Carbon Disulfide Chloroform			5.00E-03 2.00E-03 2.00E-03	1.00E-06 1.00E-06 1.00E-06	5,800	222		2222	ឯឯឯ	2225	9,123 9,123 5,124 5,125
Methylene Chloride Toluene Xylene (total)			3.00E-03 6.11E-03 4.25E-03	1.00E-06 1.00E-06	5,800	222		888	ลหล	5 6 5	9,125
Semivolatile Organics			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-methylnaphthalene			4.02E+00 1.11E+00 1.11E+00	1.00E-06 1.00E-06 1.00E-06	5,800 5,800 5,800	999		2 2 2	ឯឯឯ	555	9,125 9,125 9,125
3,3'-Dichlorobenzidine			7,44E-01	1.00E-06	5,800	0.1		20	22	0.00	9,125
3-nitroaniline Acenzphthene			1.39E+00	1.005-06	5,800	07		202	2 22 2	0.0	9,125
Acemphthylene Anthroene			2.94E-01 1.44E+00	1.00E-06 1.00E-06	5,800	0.01		2 02	9 23	2 2	9,125
Benzo(a)anthracene			2.57E+00	1.00E-06	5,800	1.0		20 20	ងង	5 6	9,125
Benzo(a)pyrene Benzo(b)fluoranthene			3.56E+00	1.00E-06	5,800	1.0		8 8	22 %	0 0 0 0 0	9,125
Benzo(g,h,i)perylene Benzo(k)fluoranthene			2.35E+00	1.00E-06	5,800	0.7		2 2	1 % 1	2 2 2	9,125
Carbazole			1,41E+00 2,94E+00	1.00E-06	5,800	1.0		2 2	ឧឧ	2 2	9,125
Di-n-butyfphthalate			1.57E+00	1.00E-06	5,800	1.0		20	ដ ដ	6 6 6	9,125
Dibenz(a,h)anthracene Dibenzofuran			1.22E+00	1.00E-06	5,800	07		22	n	2 5	9,125
Diethylphthalate Fluoranthene			3.92E+00	1.00E-06 1.00E-06	5,800	0.0.1		20 20	ឧង	2 0	9,125
Fluorene			1.26E+00	1.00E-06	5,800	0.1		20 20	22 22	6 6	9,125
Indeno(1,2,3-cd)pyrene N-Nitrosodiphenylamine (1)			1.65E+00	1.00E-06	5,800	0.0		20 50	22 22	5 5	9,125
Naphthalene			1,10E+00	1.00E-06	5,800	1.0		2 02	2 23	2 6	9,125
Pheumthrene			2.86E+00	1.00E-06	5,800	1.0		20	22 22	2 2	9,125
Pyrene bis(2-Ethylhexyl)phthalate			1.85E+00	1.00E-06	5,800	07		30	×	02	9,125
Pesticides					ă						
4,4-DDD			5.35E-03 8.90E-02	1.00E-06 1.00E-06	5,800	1.0		2 2	ងង	0.7	9,125
4.4-DDT			4,30E-02	1.00E-06	5,800	1.0		2 2	ກກ	0 02	9,125
Andrin Aroclor-1254	1.67E-08	5.96E-09	6.12E-02	1.00E-06	5,800	07	90.0	2 2 2	22.2	2 2	9,125
Aroclor-1260		6.46E-09	6.64E-02	1,005-06	5,800	0.01	0.00	20 20	3 23	0,00	9,125
Dieldrin Endosulfan I			8.94E-03	1.00E-06	5,800	0.1		50	22 %	5 5	9,125
Endosulfan II Endosulfan sulfate			4.40E-03 4.28E-03	1.00E-06	5,800	10		20 20	3 23	5 6	9,125
Endrin			5.32E-03	1.00E-06	5,800	0.0		20	22 22	5 5	9,125
Endrin aldehyde			5.04E-03	1.00E-06	5,800	1.0		30	22	70	9,125
Heptachlor			1.24E-03	1.00E-06	5,800	1.0		20	25	0,00	9,125
Heptachlor epoxide		4 5 1	1.45E-03	1.00E-06	5,800	01	_	20	25	0,0	9,125
alpha-Chlordane			5.72E-03	1.00E-06	5,800	1.0		200	22 %	5 5	9,125
beta-BHC			2.24E-03	1.00E-06	5,800	1.0		202	3 23	0,0	9,125
gamma-Chlordane			5.73E-03	1.00E-06	5,800	1.0		20	25	70	9,125

11/01/97

Analyte	Dose (Nc) (mg/kg-dav)	Dose (Car) (mg/kg-dav)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Aven Tir (da	Averaging Time (days)
											Nc	Car
Nitroaromatics			onedens.	Second		100			,	,		
!-amino-4,6-Dinitrotoluene Fetryl			8.86E-02 8.50E-02	1.00E-06 1.00E-06	5,800	10		20	នង	2 2	9,125	25,550
Metals												
Antimony			5.18E+01	1.00E-06	5,800	1.0		20	n	70	9,125	25,550
Barium			3.79E+02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Copper			5.47E+02	1.00E-06	5,800	1.0		20	25	02	9,125	25.550
read			7,45E+03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Mercury			1.34E+00	1.00E-06	5,800	1.0		20	2 2	2 9	9,175	066,62
Selenium			6.38E-01	1.00E-06	5,800	1.0		20	0 7	2 2	9,175	26,530
Thallium			1.36E+00	1.00E-06	5,800	10.0		20 20	9 22	2 02	9.125	25.550
anc.			20000	200								
Herbicides												
4,5-T			4.03E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
MCPP			4.33E+00	1.00E-06	5,800	1.0		20	ກ	70	9,125	25,550
EQUATION:	Absorbed dose (mg/kg-day) =	(mg/kg-day) =	CSICEISAL	CSICEISAIAEIABSIEFIED	- E							
Variables			Assumptions:			Variables:			7	Assumptions		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) CF = A = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unifees)	ation in Soil (mg soi (10-6 kg/mg) et (cm³) ice Factor (mg/cm³) (unitless)	ilAgi	EPC Soil Data - RME 10-6 5,800 cm? (RME Site Worker) 1.10 (RME all receptors) Compound Specific for PCBs and Cd	EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.10 (RME all receptors) Compound Specific for PCBs and Cd	P	EF = Exposure Frequency (events/rear) ED = Exposure Duration (years) BW = Bodyweight (tg) AT = Averaging Time (days)	: Frequency (e Duration (yea ght (kg) g Time (days)	vents/year) irs)	anca	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	orker) orker) x 365 Adult ((Car)

TABLE 6-46 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics		170		The Life		
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide		100	1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
As June (total)						
Semivolatile Organics				24,00		136
2,4-Dinitrotoluene			2.00E-03	NA		7.5
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
z-mearymapharanene	4			1200		
3,3'-Dichlorobenzidine	T	1117	NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene		1115 4	6.00E-02	NA		
Acenaphthylene		14	NA	NA		
Anthracene		7 1 4 7	3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00	13	
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene	1 3		NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA	1	
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		1.74
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

TABLE 6-46 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1254	1.67E-08	5.96E-09	1.90E-05	2.11E+00	8.78E-04	1.26E-08
Aroclor-1260	61874.5541.57	6.46E-09	NA	8.11E+00	35075000	5.24E-08
Dieldrin		LASS ESTEDEN	5.00E-05	1.60E+01		32,000
Endosulfan I			6.00E-03	NA		
Endosulfan II			NA	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA		
Heptachlor			5.00E-04	4.50E+00		
Heptachlor epoxide			1.30E-05	9.10E+00		
Toxaphene			NA	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC	1		NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA		
gamma-Chlordane			NA	NA		
delta-BHC			NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			1.00E-02	NA		
Metals						
Antimony			4.00E-04	NA		
Barium			7.00E-03	NA		
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			1.50E-01	NA		
Herbicides						
2,4,5-T			1.00E-02	NA		
MCPP			1.00E-03	NA		
Totals - HQ & CR					8.78E-04	6.50E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose (Oral) Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor (Oral)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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			No. of No. of Valid	No. of Rejected No. of	No. of						Lognormal 95th UCL of	95th UC	Lof	
Class	Parameter	Units	Analyses !	SQLs	Hits	Freq. (%) Mean		Std. Dev.	Max. Hit	Normal?	6	Mean		EPC
VOLATILE ORGANICS	1,1,2,2-Tetrachloroethane	UG/KG	99	0	_	1.8%	6.049	2.917	7.750	FALSE	FALSE		6.305	6.305
VOLATILE ORGANICS	2-Butanone	UG/KG	54	2	_	1.9%	5.449	0.803	5.000	FALSE	FALSE		5.842	5.000
VOLATILE ORGANICS	Acetone	UG/KG	99	0	4	7.1%	6.915	6.289	46.000	FALSE	FALSE		7.304	7.304
VOLATILE ORGANICS	Benzene	UG/KG	54	2	7	13.0%	5.181	1.237	5.000	FALSE	FALSE		5.691	5.000
VOLATILE ORGANICS	Carbon disulfide	UG/KG	54	2	3	2.6%	5.333	1.032	2.000	FALSE	FALSE		5.834	2.000
VOLATILE ORGANICS	Chloroform	UG/KG	53	33	7	3.8%	4.127	1.451	2.000	FALSE	FALSE		4.558	2.000
VOLATILE ORGANICS	Methylene chloride	UG/KG	54	2	33	2.6%	5.384	0.845	3.000	FALSE	FALSE		5.660	3.000
VOLATILE ORGANICS	Toluene	UG/KG	99	0	23	41.1%	5.223	3.575	10.000	FALSE	FALSE		6.110	6.110
VOLATILE ORGANICS	Total Xylenes	UG/KG	54	2		1.9%	5.523	0.537	4.250	FALSE	FALSE		5.656	4.250
SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	99	0	20	35.7%	3709.179	12855.584	85000.000	FALSE	FALSE	40.	4022.334	4022.334
SEMIVOLATILE ORGANIC	2,6-Dinitrotoluene	UG/KG	99	0	=	%9.61	1492.714	6156.951	8000.000	FALSE	FALSE	11	1106.520	1106.520
SEMIVOLATILE ORGANIC	2-Methylnaphthalene	UG/KG	99	0	Ξ	%9.61	989.929	2796.613	19000.000	FALSE	FALSE	11	1106.051	1106.051
SEMIVOLATILE ORGANIC	3,3'-Dichlorobenzidine	UG/KG	55	_		1.8%	693.455	1351.647	850.000	FALSE	FALSE	7	744.377	744.377
SEMIVOLATILE ORGANIC	3-Nitroaniline	UG/KG	55	_	П	1.8%	1694.727	3336.224	2100.000	FALSE	FALSE	18	1811.851	1811.851
SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	99	0	Ξ	%9.61	1927.107	9629.674	72000.000	FALSE	FALSE	133	1385.519	1385.519
SEMIVOLATILE ORGANIC	Acenaphthylene	UG/KG	44	12	10	22.7%	216.977	140.483	310.000	FALSE	FALSE	2	293.571	293.571
SEMIVOLATILE ORGANIC	Anthracene	UG/KG	99	0	17	30.4%	2791.964	16005.507	120000.000	FALSE	FALSE	14.	1436.881	1436.881
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	99	0	30	53.6%	4640.357	29332.373	220000.000	FALSE	FALSE	25.	2571.989	2571.989
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	26	0	33		4368.036	26654.500	200000.000	FALSE	TRUE	34	3486.601	3486.601
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	99	0	32	57.1%	4416.071	26648.605	200000.000	FALSE	TRUE	35	3556.043	3556.043
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	26	0	25		2814.554	13390.161		FALSE	FALSE	28	2818.185	2818.185
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	26	0	29		3718.339	22660.158	17	FALSE	FALSE	23.	2354.159	2354.159
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate		26	0	12	21.4%	1502.134	6139.030	2100.000	FALSE	FALSE	18	1850.607	1850.607
SEMIVOLATILE ORGANIC	Butylbenzylphthalate	UG/KG	34	22		2.9%	184.059	34.961	18.000	FALSE	FALSE	2	218.738	18.000
SEMIVOLATILE ORGANIC	Carbazole	UG/KG	99	0	14	25.0%	2225.429	11883.693	89000.000	FALSE	FALSE	14	1413.426	1413.426
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	26	0	38	9	4629.625	29335.747	220	FALSE	TRUE	29	2944.084	2944.084
SEMIVOLATILE ORGANIC	Cresols (-o)	UG/KG	34	22	П	2.9%	186.029	22.353		FALSE	FALSE	1	192.955	120.000
SEMIVOLATILE ORGANIC	Di-n-butylphthalate	UG/KG	26	0	20		1691.464	6393.990	16000.000	FALSE	FALSE	15	1566.136	1566.136
SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG	26	0	17	30.4%	1454.652	6557.910	49000.000	FALSE	FALSE	15	1522.538	1522.538
SEMIVOLATILE ORGANIC	Dibenzofuran	UG/KG	99	0	12	21.4%	1518.161	6733.791	50000.000	FALSE	FALSE	12	1218.485	1218.485
SEMIVOLATILE ORGANIC	Diethyl phthalate	UG/KG	34	22	2	2.9%	178.382	44.883	19.000	FALSE	FALSE	2	234.682	19.000
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	99	0	39	%9.69	10372.196	70729.168	530000.000	FALSE	FALSE	39	3915.112	3915.112
SEMIVOLATILE ORGANIC	Fluorene	UG/KG	99	0	7	12.5%	2048.875	10421.132	78000.000	FALSE	FALSE	12	1263.767	1263.767
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	99	0	22	, Car	2712.589	13348.287	100000.000	FALSE	FALSE	27.	2748.480	2748.480
SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	99	0	20	35.7%	1831.768	6857.734	25000.000	FALSE	FALSE	16	1654.969	1654.969
SEMIVOLATILE ORGANIC	Naphthalene	UG/KG	26	0	10	17.9%	1827.625	8834.729	000.00099	FALSE	FALSE	14	1400.836	1400.836
SEMIVOLATILE ORGANIC	Pentachlorophenol	UG/KG	52	4	7	3.8%	940.962	820.090		FALSE	FALSE	11	1131.904	1131.904
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	26	0	33	28.9%	9431.054	65401.770	490000.000	FALSE	FALSE	28	2860.425	2860.425

		7	No. of 1	No. of Rejected No. of	No. of						Lognormal	Lognormal 95th UCL of	
Class	Parameter	Units /	Analyses !	SQLs	Hits	Freq. (%) Mean		Std. Dev.	Max. Hit	Normal?	~	Mean	EPC
SEMIVOLATILE ORGANIC	Pyrene	UG/KG	56	0	4	71.4%	7299.857	48022.040	48022.040 360000.000	FALSE	TRUE	3979.219	3979.219
PESTICIDES/PCB	4,4'-DDD	UG/KG	26	0		3 14.3%	4.700	5.902	23.000	FALSE	FALSE	5.352	5.352
PESTICIDES/PCB	4,4'-DDE	UG/KG	56	0	'n	7 66.1%	57.245	191.515	1400.000	FALSE	TRUE	89.001	89.001
PESTICIDES/PCB	4,4'-DDT	UG/KG	56	0	ÿ	7 66.1%	32.082	77.568	340.000	FALSE	FALSE	42.950	42.950
PESTICIDES/PCB	Aldrin	UG/KG	56	0		3.6%	2.075	2.661	5.000	FALSE	FALSE	2.261	2.261
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	56	0	-	4 25.0%	6.242	22.625	170.000	FALSE	FALSE	5.717	5.717
PESTICIDES/PCB	Aroclor-1254	UG/KG	56	0	, statu	3.6%	63.116	153.358	1100.000	FALSE	FALSE	61.211	61.211
PESTICIDES/PCB	Aroclor-1260	UG/KG	99	0		9 16.1%	56.330	74.975	340.000	FALSE	FALSE	66.397	66.397
PESTICIDES/PCB	Beta-BHC	UG/KG	56	_	2393	3 5.4%	2.261	3.456	20.000	FALSE	FALSE	2.390	2.390
PESTICIDES/PCB	Delta-BHC	UG/KG	55			1.8%	1.903	2.446	2.200	FALSE	FALSE	2.059	2.059
PESTICIDES/PCB	Dieldrin	UG/KG	56			4 7.1%	4.239	5.464	26.000	FALSE	FALSE	4.724	4.724
PESTICIDES/PCB	Endosulfan I	UG/KG	99		1 2	2 39.3%	12.057	57.230	430.000	FALSE	FALSE	8.939	8.939
PESTICIDES/PCB	Endosulfan II	UG/KG	99	_		8.9%	4.023	5.027	5.000	FALSE	FALSE	4.401	4.401
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	99	_		2 3.6%	3.971	5.230	20.000	FALSE	FALSE	4.285	4.285
PESTICIDES/PCB	Endrin	UG/KG	26		_	7 12.5%	4.797	7.110	43.000	FALSE	FALSE	5.316	5.316
PESTICIDES/PCB	Endrin aldehyde	UG/KG	56	J		%2.01 9	4.311	5.220	14.000	FALSE	FALSE	4.861	4.861
PESTICIDES/PCB	Endrin ketone	UG/KG	99		_	6 10.7%	5.020	10.146	71.000	FALSE	FALSE	5.036	5.036
PESTICIDES/PCB	Gamma-BHC/Lindane	UG/KG	56		_	1.8%	2.059	2.649	2.300	FALSE	FALSE	2.236	2.236
PESTICIDES/PCB	Gamma-Chlordane	UG/KG	99			3 23.2%	6.744	26.588	200.000	FALSE	FALSE	5.730	5.730
PESTICIDES/PCB	Heptachlor	UG/KG	50			1 2.0%	1.167	0.761	1.350	FALSE	FALSE	1.242	1.242
PESTICIDES/PCB	Heptachlorepoxide	UG/KG	99		_	6 10.7%	2.185	2.708	6.700	FALSE	FALSE	2.432	2.432
PESTICIDES/PCB	Toxaphene	UG/KG	20			1 2.0%	116.700	76.108	135.000	FALSE	FALSE	124.152	124.152
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	99		5	5 98.2%	0.363	0.712	4.800	FALSE	TRUE	0.593	0.593
OTHER ANALYSES	Total Organic Carbon	MG/KG	2		_	5 100.0%	15265.600	23371.008	56400.000	FALSE	TRUE	62102742.802	56400.000
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	26) 2	8 50.0%	2018.839	9919.629	74000.000	FALSE	FALSE	1568.636	1568.636
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	26		_	4 7.1%		194.609	900.000	FALSE	FALSE	101.711	101.711
NITROAROMATICS	2-amino-4,6-Dinitrotoluene	: UG/KG	26		0	1 1.8%		165.430	430.000	FALSE	FALSE	88.551	88.551
NITROAROMATICS	Tetryl	UG/KG	26		0	1.8%		159.919	220.000	FALSE	FALSE	84.963	84.963
METALS	Aluminum	MG/KG	56		0	8 85.7%	86	3319.115	17200.000	TRUE	TRUE	10638.372	10638.372
METALS	Antimony	MG/KG	99		3	6 64.3%	45.899	257.641	1930.000	FALSE	TRUE	51.811	51.811
METALS	Arsenic	MG/KG	99		0 5	6 100.0%	6.885	5.303	32.200	FALSE	FALSE	7.512	7.512
METALS	Barium	MG/KG	99		0	5 98.2%	43	1405.293	9340.000	FALSE	FALSE	378.785	378.785
METALS	Beryllium	MG/KG	99		0	5 98.2%	0.409	0.160	0.910	TRUE	FALSE	0.445	0.445
METALS	Cadmium	MG/KG	99		0	%6.79 8		2.454	16.600		FALSE	1.097	1.097
METALS	Calcium	MG/KG	99		0	90:001 9	6 52970.714	54382.684	260000.000	FALSE	TRUE	76967.114	76967.114
METALS	Chromium	MG/KG	99		0	5 98.2%	6 21.024	8.666	47.500	FALSE	TRUE	23.248	23.248
METALS	Cobalt	MG/KG	99		0	%0.001 99	6 10.227	2.959	17.800	TRUE	TRUE	10.889	10.889
METALS	Copper	MG/KG	26		0	%0.001 99	6 904.905	5058.042	37900.000	FALSE	FALSE	546.768	546.768

			No. of	No. of									
			Valid	Rejected	No. of						Lognormal	95th UCL of	
Pa	rameter	Units	Analyses	SQLs	Hits	Freq. (%)	Mean	Std. Dev.	Max. Hit	Normal?	6	Mean	EPC
S	/anide	MG/KG	56			3.6%	0.303	0.169	1.500	FALSE	FALSE	0.316	0.316
Ir	uc	MG/KG	99) 56	2 100.0%	, 22653.214	5683.665	36500.000	TRUE	FALSE	23924.333	23924.333
Le	ad	MG/KG	56) 56	2 100.0%	4105.800	19172.840	140000.000	FALSE	TRUE	7449.772	7449.772
Σ	agnesium	MG/KG	56) 56	2 100.0%	9757.411	8642.033	56000.000	FALSE	FALSE	10856.316	10856.316
M	anganese	MG/KG	56) 56	2 100.0%	505.625	521.145	4140.000	FALSE	FALSE	537.853	537.853
X	ercury	MG/KG	56		44	4 78.6%	0.654	1.653	11.400	FALSE	TRUE	1.341	1.341
Z	ckel	MG/KG	56	_) 56	2 100.0%	33.113	18.455	148.000	FALSE	FALSE	35.864	35.864
Po	ıtassium	MG/KG	26) 56	5 100.0%	1326.804	400.972	2300.000		TRUE	1416.479	1416.479
Se	lenium	MG/KG	56	0	30	53.6%	0.540	0.439	1.600		TRUE	0.638	0.638
Si	lver	MG/KG	56) 15	33.9%	0.547	1.467	11.100	FALSE	FALSE	0.538	0.538
So	dium	MG/KG	56	_	43	3 76.8%	129.401	242.135	1830.000	FALSE	FALSE	145.172	145.172
Ė	allium	MG/KG	26	_	17	7 30.4%	1.594	6.182	16.600	FALSE	FALSE	1.361	1.361
N	anadium	MG/KG	99) 56	2 100.0%	22.121	8.388	61.900	FALSE	FALSE	23.919	23.919
Zi	nc	MG/KG	26) 56	2 100.0%	483.144	1950.545	14600.000	FALSE	FALSE	361.371	361.371
2,	2,4,5-T	UG/KG	16	_		2 12.5%	3.425	1.711	8.300	FALSE	FALSE	4.033	4.033
M	CPP	UG/KG	16		_	1 6.3%	3640.625	3301.576	16000.000	FALSE	FALSE	4329.209	4329.209

No. of

No. of

		Valid	Reject	Rejected No. of	Jc					Т	Lognormal 95th UCL	95th UCL	
Class	Parameter	Units Analyses		Hits		Freq. (%) Mean		Std. Dev. M	Max. Hit	Normal? ?	,		EPC
VOLATILE ORGANICS	2-Butanone	UG/KG	10	0	1	10.0%	000.6	2.000	12.000	TRUE	TRUE	10.146	10.146
VOLATILE ORGANICS	Acetone	UG/KG	10	0	5 5	20.0%	18.050	10.073	36.000	TRUE	TRUE	23.822	23.822
SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	10	0	3 3	30.0% 8	824.050	1620.145	5400.000	FALSE	TRUE	3040.437	3040.437
SEMIVOLATILE ORGANIC	2-Methylnaphthalene	UG/KG	10	0	2 2	20.0% 2	242.250	120.269	55.000	TRUE	FALSE	311.164	55.000
SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	10	0	1	10.0% 2	267.450	106.385	32.000	TRUE	FALSE	328.409	32.000
SEMIVOLATILE ORGANIC	Acenaphthylene	UG/KG	10	0	3	30.0% 2	203.950	117.576	54.000	TRUE	FALSE	271.321	54.000
SEMIVOLATILE ORGANIC	Anthracene	UG/KG	10	0	4 4	40.0%	189.550	107.408	100.000	TRUE	TRUE	251.095	100.000
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	10	0	7 7	70.0% 2	247.650	158.596	570.000	TRUE	TRUE	338.526	338.526
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	10	0	9 9	60.0% 2	294.750	150.215	600.000	TRUE	TRUE	380.824	380.824
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	10	0	9 9	60.0% 4	418.750	322.618	1200.000	FALSE	TRUE	742.850	742.850
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	10	0	7 7	70.0% 2	251.850	149.277	530.000	TRUE	TRUE	337.387	337.387
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	10	0	9 9	60.0%	328.750	198.743	780.000	TRUE	TRUE	442.631	442.631
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate	UG/KG	10	0	7 7	70.0%	174.750	96.923	270.000	TRUE	TRUE	230.287	230.287
SEMIVOLATILE ORGANIC	Carbazole	UG/KG	10	0	3	30.0%	217.350	112.159	110.000	TRUE	FALSE	281.617	110.000
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	10	0	7 7	70.0%	390.850	334.147	1200.000	FALSE	TRUE	1161.799	1161.799
SEMIVOLATILE ORGANIC	Di-n-butylphthalate	UG/KG	10	0	4	40.0%	247.250	70.044	250.000	TRUE	TRUE	287.386	250.000
SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG	10	0	5 5	50.0%	191.250	113.404	170.000	TRUE	TRUE	256.231	170.000
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	10	0	8 8	7 %0.08	427.650	453.585	1600.000	FALSE	TRUE	2081.192	1600.000
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	10	0	7 7	70.0%	240.550	143.186	500.000	TRUE	TRUE	322.596	322.596
SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	10	0	1		312.750	112.290	000.009	FALSE	TRUE	380.633	380.633
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	10	0	8	%0.08	207.750	140.660	420.000	TRUE	TRUE	288.349	288.349
SEMIVOLATILE ORGANIC		UG/KG	10	0	8	%0.08	426.350	407.249	1400.000	TRUE	TRUE	659.706	902.659
PESTICIDES/PCB	4,4'-DDD	UG/KG	10	0	8	%0.08	93.613	225.952	730.000	FALSE	TRUE	2478.491	730.000
PESTICIDES/PCB	4,4'-DDE	UG/KG	10	0	10 10	%0.001	112.730	170.475	570.000	FALSE	TRUE	1360.140	570.000
PESTICIDES/PCB	4,4'-DDT	UG/KG	10	0	8	%0.08	67.193	128.064	420.000	FALSE	TRUE	1831.268	420.000
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	10	0	3	30.0%	3.635	4.041	12.100	FALSE	FALSE	8.436	8.436
PESTICIDES/PCB	Aroclor-1254	UG/KG	10	0	7	%0.07	121.525	196.527	670.000	FALSE	TRUE	299.777	299.777
PESTICIDES/PCB	Aroclor-1260	UG/KG	10	0	5	20.0%	48.975	33.503	130.000	FALSE	TRUE	80.047	80.047
PESTICIDES/PCB	Endosulfan I	UG/KG	10	0	1	%0.07	7.415	7.671	26.000	FALSE	TRUE	25.904	25.904
PESTICIDES/PCB	Endosulfan II	UG/KG	10	0	2 2	20.0%	3.355	1.357	6.300	FALSE	TRUE	4.310	4.310
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	10	0	2 2	20.0%	4.268	4.929	18.000	FALSE	TRUE	7.576	7.576
PESTICIDES/PCB	Endrin aldehyde	UG/KG	10	0	_	10.0%	2.928	0.784	3.200	TRUE	TRUE	3.377	3.200
PESTICIDES/PCB	Gamma-Chlordane	UG/KG	10	0	2 2	20.0%	1.845	0.928	3.800	TRUE	TRUE	2.377	2.377
PESTICIDES/PCB	Heptachlorepoxide	UG/KG	10	0	1	10.0%	1.600	0.542	2.800	FALSE	TRUE	1.956	1.956
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	10	0	8	%0.08	0.156	0.197	0.670	FALSE	TRUE	1.781	0.670
OTHER ANALYSES	Total Organic Carbon	MG/KG	6	0	9 10	00.0% 37	37475.556	20738.862	62500.000	TRUE	FALSE	50147.000	50147.000
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	10	0	2	20.0%	158.000	267.366	910.000	FALSE	FALSE	313.259	313.259
METALS	Aluminum	MG/KG	10	0	10 10	100.0% 13	13925.500	5129.580	22900.000	TRUE	TRUE	16864.774	16864.774

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16 - sed. Kls

		EPC	50.300	7.385	2529.397	0.695	4.549	51408.013	33.932	11.849	14047.074	33806.859	2224.245	10160.721	331.057	2.500	40.352	2630.544	1.975	0.269	473.179	0.931	31.400	501.832
	95th UCL	of Mean E	114.635	7.385	2529.397	0.695	4.549	51408.013	33.932	11.849	14047.074	33806.859	2224.245	10160.721	331.057	3.471	40.352	2630.544	1.975	0.269	473.179	0.931	31.400	501.832
	Lognormal	~	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE
		Normal?	FALSE	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE	FALSE	TRUE	TRUE	TRUE	TRUE				1	TRUE	FALSE	TRUE	TRUE	TRUE
		Max. Hit	50.300	009.6	3980.000	0.930	7.600	75700.000	43.500	15.600	17500.000	46400.000	4480.000	15100.000	447.000	2.500	50.900	3870.000	4.900	0.350	782.000	1.600	39.800	952.000
		Std. Dev.	15.961	2.321	1200.139	0.196	2.200	23551.313	9.995	2.939	5466.879	9479.605	1334.535	3393.900	91.984	0.885	9.881	850.245	1.357	0.082	215.806	0.383	9.268	268.064
			13.264	6.055	605.350	0.583	1.543	37913.000	28.205	10.165	1948.170	28375.000	1459.550	8216.000	278.350	909.0	34.690	2143.350	1.125	0.223	253.965	0.712	26.090	348.230
		Freq. (%) Mean	%0.06	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	20.0%	10.0%	100.0%	20.0%	100.0%	100.0%
	No. of	Hits 1	6	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	7	1	10	7	10	10
34000		H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of	Rejected	SQLs																						
No. of	Valid	Analyses	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	65	- 5																						
		Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
																							Vanadium MG/KG	

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CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

1.01E-02 1.00E-06 2,170 2.38E-02 1.00E-06 2,170 2.38E-02 1.00E-06 2,170 3.04E+00 1.00E-06 2,170 3.20E-02 1.00E-06 2,170 3.30E-01 1.00E-06 2,170 3.30E-01 1.00E-06 2,170 3.30E-01 1.00E-06 2,170 3.30E-01 1.00E-06 2,170 4.43E-01 1.00E-06 2,170 4.43E-01 1.00E-06 2,170 1.10E-01 1.00E-06 2,170 1.10E-01 1.00E-06 2,170 1.10E-01 1.00E-06 2,170 1.20E-01 1.00E-06 2,170 1.30E-01 1.00E-06 2,170 2.30E-01 1.00E-06 2,170 2.30E-01 1.00E-06 2,170 2.30E-01 1.00E-06 2,170 4.31E-03 1.00E-06 2,170 3.20E-03 1.00E-06 2,170 4.31E-03 1.00E-06 2,170 4.31E-03 1.00E-06 2,170 4.31E-03 1.00E-06 2,170 3.20E-03 1.00E-06 2,170 4.31E-03 1.00E-06 2,170 3.20E-03 1.00E-06 2,170 3.20E-03 1.00E-06 2,170 3.20E-03 1.00E-06 2,170 3.20E-03 1.00E-06 2,170 3.30E-03 1.00E-06 2,170 3.30E-	nnics nne ene ene ene ene ene hne hthalate 1.07E-07 7.64E-09 e	Analyte	Child Absorbed Dose (Nc) (mg/kg-day)	Child Absorbed Dose (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Conv. Factor (kg/mg)	Child Skin Surface Area Contact (cm²/event)	Adherence Factor (mg sed/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averagir Time (days)	Averaging Time (days)
nuiss 1.01E-02 1.00E-06 2.170 1.0 2.38E-02 1.00E-06 2.170 1.0 8.50E-00 1.00E-06 2.170 1.0 8.50E-02 1.00E-06 2.170 1.0 8.50E-03 1.00E-03 1.00E-06 2.170 1.0 8.50E-03 1.00E-06 2.170 1.0	nnics ne ene ene ene ene ene hthalate 1.07E-07 7.64E-09 e												Nc	Car
101E-02 100E-06 2,170 1.0	nnics nne ene ene ene ene ene hne hthalate 1.07E-07 7.64E-09 e	rganics				į								
me 5.50E-02 1.00E-06 2.170 1.0 5.50E-03 1.00E-06 2.170 1.0 5.50E-03 1.00E-06 2.170 1.0 6.50E-03 1.00	nne en e				1.01E-02 2.38E-02	1.00E-06 1.00E-06	2,170 2,170	1.0		25	2.5	25	1,825	25,550 25,550
a. 3.04E-00 1.00E-06 2,170 1.0 5.50E-02 1.00E-06 2,170 1.0 5.40E-02 1.00E-06 2,170 1.0 5.40E-02 1.00E-06 2,170 1.0 2.30E-01 2.30E-01 1.00E-06 2,170 1.0 2.30E-01 3.30E-01 1.00E-06 2,170 1.0	eene ene ene ene ene ene ene ene ene en	le Organics												
2.50E-02 1.00E-06 2.170 1.0 3.20E-02 1.00E-06 2.170 1.0 3.30E-01 1.00E-06 2.170 1.0 3.38E-01 1.00E-06 2.170 1.0 3.	alate 1.07E-07 7.64E-09 2.04E-09	toluene			3.04E+00	1.00E-06	2,170	0.1		25	50	25	1,825	25,550
s 40E-02 1,00E-06 2,170 1,0 3.3E-01 1,00E-06 2,170 1,0 3.3E-01 1,00E-06 2,170 1,0 3.3E-01 1,00E-06 2,170 1,0 4.43E-01 1,00E-06 2,170 1,0 1,10E-01 1,00E-06 2,170 1,0 1,10E-01 1,00E-06 2,170 1,0 1,10E-01 1,00E-06 2,170 1,0 2.5GE-01 1,00E-06 2,170 1,0 1,00E-06 2,170 1,0 1,00E-06 2,170 1,0 2.3E-01 1,00E-06 2,170 1,0 2.3E-01 1,00E-06 2,170 1,0 6.6GE-01 1,00E-06 2,170 1,0 6.6GE-03 1,00E-06 2,170 1,0 7.3E-03 1,00E-06 2,170 1,0 8.44E-03 1,00E-06 2,170 1,0 8.44E-03 1,00E-06 2,170 1,0 9.3E-03 1,00E-03 1,00E-03 1,00E-03 1,00E-03 1,00E-03 1,0	alate 1.07E-07 7.64E-09 2.04E-09	phthalene			5.50E-02 3.20E-02	1.00E-06 1.00E-06	2,170	2 2		25	v v	22	1,825	25,550
and the control of th	alate 1.07E-07 7.64E-09 2.04E-09	ylene			5.40E-02	1.00E-06	2,170	0.1		25	5	25	1,825	25,550
3.81E-01 1.00E-06 2,170 1.0 3.81E-01 1.00E-06 2,170 1.0 4.43E-01 1.00E-06 2,170 1.0 1.10E-01 1.00E-06 2,170 1.0 1.10E+00 1.00E-06 2,170 1.0 1.10E+00 1.00E-06 2,170 1.0 1.10E+00 1.00E-06 2,170 1.0 1.10E+00 1.00E-06 2,170 1.0 3.81E-01 1.00E-06 2,170 1.0 2.88E-01 1.00E-06 2,170 1.0 2.88E-01 1.00E-06 2,170 1.0 3.81E-01 1.00E-06 2,170 1.0 2.80E-01 1.00E-06 2,170 1.0 3.00E-01 1.00E-06 2,170 1.0 3.00E-03 1.00E-00 2,170 1.0 3.00E-03 1.00E-0	alate 1.07E-07 7.64E-09 2.04E-09	thracene			3.39F-01	1.00E-06	2,170	0.0		25	v v	25	1,825	25,550
3.37E-01 1.00E-06 2,170 1.0 3.37E-01 1.00E-06 2,170 1.0 1.10E-01 1.00E-06 2,170 1.0 1.10E-01 1.00E-06 2,170 1.0 1.10E+00 1.00E-06 2,170 1.0 1.10E+00 1.00E-06 2,170 1.0 1.10E+00 1.00E-06 2,170 1.0 1.10E+00 1.00E-06 2,170 1.0 2.38E-01 1.00E-06 2,170 1.0 2.38E-01 1.00E-06 2,170 1.0 2.30E-01 1.00E-06 2,170 1.0 3.30E-01 1.00E-06 2,170 1.0 3.30E-03 1.00E-0	alate 1.07E-07 7.64E-09 2.04E-09	rene			3.81E-01	1.00E-06	2,170	1.0		25	. 2	25	1,825	25,550
1.07E-01 1.00E-06 2,170 1.00 1.10E-01 1.00E-06 2,170 1.0 1.10E-01 1.00E-06 2,170 1.0 1.50E+00 1.00E-06 2,170 1.0 1.50E+00 1.00E-06 2,170 1.0 1.50E+01 1.00E-06 2,170 1.0 2.30E-01 1.00E-06 2,170 1.0 2.30E-03 1.00E-06 2,170 1.0	alate 1.07E-07 7.64E-09 2.04E-09	noranthene			7.43E-01	1.00E-06	2,170	0.7		25	50 4	25	1,825	25,550
1.10E-01 1.00E-06 2,170 1.0 1.16E+00 1.00E-06 2,170 1.0 1.50E-01 1.00E-06 2,170 1.0 1.50E-01 1.00E-06 2,170 1.0 1.50E-01 1.00E-06 2,170 1.0 2.32E-01 1.00E-06 2,170 1.0 2.381E-01 1.00E-06 2,170 1.0 2.381E-01 1.00E-06 2,170 1.0 2.30E-01 1.00E-06 2,170 1.0 3.30E-02 1.00E-06 2,170 1.0 3.30E-03 1.00E-06 2,170 1.0	alate 1.07E-07 7.64E-09 2.04E-09	1)perylene toranthene			3.37E-01 4.43E-01	1.00E-06	2,170	1.0		25	o •o	25	1,825	25,550
1.16E+00 1.00E-06 2,170 1.0 1.0 1.50E+01 1.00E-06 2,170 1.0 1.50E+01 1.00E-06 2,170 1.0 1.50E+01 1.00E-06 2,170 1.0 1.50E+01 1.00E-06 2,170 1.0 2.38E-01 1.00E-06 2,170 1.0 2.38E-01 1.00E-06 2,170 1.0 2.30E-01 1.00E-06 2,170 1.0 2.30E-01 1.00E-06 2,170 1.0 2.30E-01 1.00E-06 2,170 1.0 3.70E-01 1.00E-06 2,170 1.0 4.20E-01 1.00E-06 2,170 1.0 5.70E-01 1.00E-06 2,170 1.0 4.31E-03 1.00E-06 2,	acene yyene ylamine (1) phthalate 1.07E-07				1.10E-01	1.00E-06	2,170	1.0		25	5	25	1,825	25,550
phthalate 1.07E-07 1.00E-06 2.170 2.04E-09 3.00E-01 2.06E-03 2.06E-03 2.06E-03 2.06E-03 2.06E-03 2.06E-04 2.170 2.06E-03 2.06E-03 2.06E-04 2.170 2.06E-04 2.06E-05 2.06E-06 2.170 2.06E-06 2	acene yyrene ylamine (1) phthalate 1.07E-07 7.64E-09 de de				1.16E+00	1.00E-06	2,170	0.1		25	5	25	1,825	25,550
1.60E+00 1.00E-06 2,170 1.0 3.23E-01 1.00E-06 2,170 1.0 3.81E-01 1.00E-06 2,170 1.0 6.60E-01 1.00E-06 2,170 1.0 6.60E-01 1.00E-06 2,170 1.0 7.30E-01 1.00E-06 2,170 1.0 7.30E-01 1.00E-06 2,170 1.0 7.30E-01 1.00E-06 2,170 1.0 8.60E-01 1.00E-06 2,170 1.0 7.30E-01 1.00E-06 2,170 1.0 8.70E-01 1.00E-06 2,170 1.0 8.80E-02 1.00E-06 2,170 1.0 8.80E-03 1.00E-06 2,170 1.0 8.84E-03 1.00E-06 2,170 1.0 9.00E-06 2,170 1.0 9	yyene (1) phthalate (2.04E-09 (2.04E	onthalate			2.50E-01	1.00E-06	2,170	0.01		52	o v	2,5	1,825	25,550
ytamine (1) 3.23E-01 1.00E-06 2.170 1.0 5.88E-01 1.00E-06 2.170 1.0 6.60E-01 1.00E-06 2.170 1.0 1.0 2.30E-01 1.00E-06 2.170 1.0 1.0 2.30E-01 1.00E-06 2.170 1.0 1.0 4.20E-01 1.00E-06 2.170 1.0 4.20E-01 1.00E-06 2.170 1.0 4.20E-01 1.00E-06 2.170 1.0 4.20E-01 1.00E-06 2.170 1.0 4.30E-01 1.00E-06 2.170 1.0 4.31E-01 1.00E-06 2.170 1.0 4.31E-09 3.00E-01 1.00E-06 2.170 1.0 4.31E-09 3.00E-01 1.00E-06 2.170 1.0 4.31E-09 3.20E-03 1.00E-06 2.170 1.0 4.31E-09 3.20E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 3.30E-03 1.00E-06 2.170 1.0 3.30E-03 1.00E-06 2.170 1.0 3.30E-03 3.00E-06 2.170 1.0 3.30E-03 3.00E-06 2.170 1.0 3.30E-03 3.30E-03 3.00E-06 2.170 1.0 3.30E-03 3.30E-	ylamine (1) phthalate 1.07E-07 2.04E-09 de	Jenning Cent			1.60E+00	1.00E-06	2,170	1.0		25	. 5	25	1,825	25,550
ylamine (1) 3.8 E-01 1.00E-06 2.170 1.0 2.88E-01 1.00E-06 2.170 1.0 1.0 2.30E-01 1.00E-06 2.170 1.0 1.0 7.30E-01 1.00E-06 2.170 1.0 4.20E-01 1.00E-06 2.170 1.0 4.31E-09 3.00E-01 1.00E-06 2.170 1.0 4.31E-09 3.20E-03 1.00E-06 2.170 1.0 4.31E-03 1.00E-06 2.170 1.0 4.31E-03 1.00E-06 2.170 1.0 4.31E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 3.32E-03 1.00E-06 2.170 1.0 3.32E-03 1.00E-06 2.170 1.0 3.32E-03 1.00E-06 2.170 1.0 3.32E-03 3.30E-03 3.3	ylamine (1) phthalate 1.07E-07 7.64E-09 2.04E-09 de	3-cd)pyrene			3.23E-01	1.00E-06	2,170	1.0		25	2	25	1,825	25,550
phthalate	phthalate 1.07E-07 2.04E-09 de	liphenylamine (1)			3.81E-01	1.00E-06	2,170	1.0		25	5 (25	1,825	25,550
phthalate 2.30E-01 1.00E-06 2,170 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	phthalate 1.07E-07 7.64E-09 2.04E-09 de	ne			2.88E-01	1.00E-06	2,170	0.01		5,5	n 4	3 %	1,825	25,550
7.30E-01 1.00E-06 2.170 1.0 5.70E-01 1.00E-06 2.170 1.0 4.20E-01 1.00E-06 2.170 1.0 7.64E-09 3.00E-01 1.00E-06 2.170 1.0 2.04E-09 8.00E-02 1.00E-06 2.170 1.0 7.58E-03 1.00E-06 2.170 1.0 4.31E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 7.58E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0 3.30E-03 1.00E-06 2.170 1.0 3.30E-03 1.00E-06 2.170 1.0	1.07E-07 7.64E-09 2.04E-09 de	hexyl)phthalate			2.30E-01	1.00E-06	2,170	1.0		25	. 2	25	1,825	25,550
7.30E-01 1.00E-06 2.170 1.0 5.70E-01 1.00E-06 2.170 1.0 4.20E-01 1.00E-06 2.170 1.0 4.20E-01 1.00E-06 2.170 1.0 2.04E-09 3.00E-01 1.00E-06 2.170 1.0 2.59E-02 1.00E-06 2.170 1.0 4.31E-03 1.00E-06 2.170 1.0 4.31E-03 1.00E-06 2.170 1.0 3.20E-03 1.00E-06 2.170 1.0	1.07E-07 7.64E-09 2.04E-09 de													
1.07E-07 7.64E-09 3.00E-01 1.00E-06 2.170 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	1.07E-07 7.64E-09 2.04E-09 de				.0	2000.	0			ć		00		0.00
1.07E-07 7.64E-09 3.00E-01 1.00E-06 2,170 1.0 0.06 1.0 0.06 2.04E-09 8.00E-01 1.00E-06 2,170 1.0 0.06 1.0 0.06 2.04E-09 8.00E-02 1.00E-06 2,170 1.0 0.06 4.31E-03 1.00E-06 2,170 1.0 1.0 0.06 4.31E-03 1.00E-06 2,170 1.0 1.0 3.20E-03 1.00E-06 2,170 1.0 1.0 3.20E-03 1.00E-06 2,170 1.0 1.0 0.06 0.06 0.00E-06 0.00	1.07E-07 7.64E-09 2.04E-09 de			v-u	5.70E-01	1.00E-06	2,170	0.1		52	n v	25 25	1,825	25,550
1.07E-07 7.64E-09 3.00E-01 1.00E-06 2,170 1.0 0.06 2.04E-09 8.00E-02 1.00E-06 2,170 1.0 0.06 2.04E-09 8.00E-02 1.00E-06 2,170 1.0 0.06 2.06 2.00E-06 2,170 1.0 0.06 2.06 2.00E-06 2,170 1.0 0.06 3.20E-03 1.00E-06 2,170 1.0 1.0 3.20E-03 1.00E-06 2,170 1.0 1.0 3.20E-03 1.00E-06 2,170 1.0 1.0 2.0E-03 1.00E-06 2,170 1.0 1.0 2.0E-03 1.00E-06 2,170 1.0 1.0 1.0 2.0E-03 1.00E-06 2,170 1.0 1.0 1.0 1.0 2.0E-03 1.00E-06 2,170 1.0 1.0 1.0 1.0 2.0E-03 1.00E-06 2,170 1.0 2.0E-03 1.00E-03 1.00E	1.07E-07 7.64E-09 2.04E-09 de				4.20E-01	1.00E-06	2,170	1.0		25	5	25	1,825	25,550
ce 2.04E-09 8.00E-02 1.00E-06 2,170 1.0 0.06 2.59E-02 1.00E-06 2,170 1.0 0.06 4.31E-03 1.00E-06 2,170 1.0 1.0 0.06 3.20E-03 1.00E-06 2,170 1.0 1.0 0.06 0.06 0.06 0.06 0.06 0.06	2.04E-09 de	54	1.07E-07	7.64E-09	3.00E-01	1.00E-06	2,170	1.0	90.0	25	5	25	1,825	25,550
ce 2.59E-02 1.00E-06 2,170 1.0 4.31E-03 1.00E-06 2,170 1.0 7.58E-03 1.00E-06 2,170 1.0 3.20E-03 1.00E-06 2,170 1.0 1.96E-03 1.00E-06 2,170 1.0 8.44E-03 1.00E-06 2,170 1.0 7.38E-03 1.00E-06 2,170 1.0	9 9	09		2.04E-09	8.00E-02	1.00E-06	2,170	1.0	90.0	25	5	25	1,825	25,550
te 4.31E-03 1.00E-06 2,170 1.0 7.58E-03 1.00E-06 2,170 1.0 3.20E-03 1.00E-06 2,170 1.0 1.96E-03 1.00E-06 2,170 1.0 8.44E-03 1.00E-06 2,170 1.0 7.38E-03 1.00E-06 2,170 1.0	9 9				2.59E-02	1.00E-06	2,170	1.0		25	\$	25	1,825	25,550
te 7.58E-03 1.00E-06 2.170 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	9 0	п			4.31E-03	1.00E-06	2,170	1.0		25	5	25	1,825	25,550
de 3.20E-05 1.00E-06 2,170 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	de	sulfate			7.58E-03	1.00E-06	2,170	0.7		25	ν.	25	1,825	25,550
Ge 8.44E-03 1.00E-06 2,170 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	ap ap	chyde			3.20E-03	1.00E-06	2,170	0.0		2 %	n 4	52	1,825	25,550
2 38E-03 100E-06 2 170 10		epoxide			8 44F-03	1.00E-00	2,170	0.1		25) v	56	1.875	25,550
0.1		lordane			2.38E-03	1.00E-06	2,170	1.0		25	'n	25	1.825	25.550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc) (mg/kg-dav)	Child Absorbed Dose (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Conv. Factor (kg/mg)	Child Skin Surface Area Contact (cm²/event)	Adherence Factor (mg sed/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averaging Time (days)	iging ne vs)
											Nc	Car
Metals												
Aluminum			1.69E+04	1.00E-06	2,170	1.0		25	5	25	1,825	25,550
Antimony			5.03E+01	1.00E-06	2,170	1.0		25	5	25	1,825	25,550
Arsenic			7.39E+00	1.00E-06	2,170	1.0		25	v.	25	1,825	25,550
Barium			2.53E+03	1.00E-06	2,170	0.1		25	'n,	25	1,825	25,550
Beryllium	2 20E 02		6.95E-01	1.00E-06	2,170	0.01	100	25	n v	25	1,825	25,550
Cadmium	7.70E-07		\$ 14F+04	1.00E-06	2,170	0.1	10.0	25	۷ ر	2 2	1,825	25,530
Chromium			3.39E+01	1.00E-06	2,170	1.0		25	· v	25	1.825	25,550
Cobalt			1.18E+01	1.00E-06	2,170	1.0		25	5	25	1,825	25,550
Copper			1.40E+04	1.00E-06	2,170	1.0		25	2	25	1,825	25,550
Iron			3.38E+04	1.00E-06	2,170	1.0		25	S	25	1,825	25,550
Lead			2.22E+03	1.00E-06	2,170	0.1		25	v v	25	1,825	25,550
Magnesium			1.02E+04	1.00E-06	2,170	0		62.5	0 4	9 %	1,625	25,550
Manganese			3.31E+02	1.00E-06	2,170	0.0		9 6	n v	3 %	1,825	055,550
Nickel			4.04E+01	1.00E-06	2,170	1.0		25	, 40	25	1.825	25.550
Potassium			2.63E+03	1.00E-06	2,170	1.0		25	2	25	1,825	25,550
Selenium			1.98E+00	1.00E-06	2,170	1.0		25	2	25	1,825	25,550
Silver			2.69E-01	1.00E-06	2,170	1.0		25	2	25	1,825	25,550
Sodium			4.73E+02	1.00E-06	2,170	1.0		25	2	25	1,825	25,550
Thallium			9.31E-01	1.00E-06	2,170	1.0		25	S	25	1,825	25,550
Vanadium Zinc			3.14E+01 5.02E+02	1.00E-06 1.00E-06	2,170	1.0		25 25	s s	25	1,825	25,550 25,550
EQUATION:												
Absorbed Dose (mg/kg-day) = $CS \times CF \times SA \times AF \times ABS \times EF \times ED$ BW x AT	- CSxCFxSA	XAF XABS X EI BW X A T	FXED									
Variables:			Assumptions:				Variables:			Assumptions:	us:	
CS = Chemical Concentration in Sediment (mg soil/fe)	Went (mg soil/le	(6)	FPC - Sediment Data - CT	t Data - CT			FF = Fynosii	FR = Fynasura Framiancy (avants/vaar)	(acoate/coar)	15 (PMF I	75 (PMF Ilnner Bound)	Ę
CF = Conversion Factor (10-6 kg/mg)	(mg 30m/n)	Įģ.	10-6	n Dana			ED = Exposur	ED = Exposure Duration (years)	rs)	5 (Miller)	inoa radd	(n
SA = Surface Area Contact (cm²) AF = Sediment to Skin Adherence Factor (mg/cm²)	ctor (mg/cm²)		2,170 (RME Child) 1.0 (RME)	hild)			BW = Bodyweight (kg) AT = Averaging Time	BW = Bodyweight (kg) AT = Averaging Time (days)		25 kg (child) 5 x 365 (Nc),	25 kg (child) 5 x 365 (Nc), 70 x 365 (Car)	(Car)
ABS = Absorption Factor (unitless)			Compound Specific PCBs and (Default Assumption 0% = 0.0)	ecific PCBs a	Compound Specific PCBs and Cd, (EPA, 1992b) Opfault Assumption 0% = 0.0)	(92)						
Note: Cells in this table were intentionally left blank due to a lack of toxicity data	ally left blank due	o to a lack of toxic	city data									

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
2-Butanone			6.00E-01	NA		
Acetone	ATTENDED		1.00E-01	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2-Methylnaphthalene			NA	NA NA		
Acenaphthene			6.00E-02	NA NA		
Acenaphthylene		1	NA	NA NA		
Anthracene		1 1	3.00E-01	NA NA		
Benzo(a)anthracene			NA NA	1.46E+00		
Benzo(a)pyrene		1	NA	1.46E+01		
Benzo(b)fluoranthene	1 1 1 1 1 1	1	NA	1.46E+00		
Benzo(g,h,i)perylene		1	NA	NA NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole		1 1	NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA NA		
Dibenz(a,h)anthracene	UCS		NA	1.46E+01		
Fluoranthene	April 1		4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)		1	NA	4.90E-03		
Phenanthrene		1	NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
Pesticides	et comment					
4.4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aroclor-1254	1.07E-07	7.64E-09	1.90E-05	2.11E+00	5.63E-03	1.61E-08
Aroclor-1260		2.04E-09	NA	8.11E+00	**************************************	1.65E-08
Endosulfan I			6.00E-03	NA		
Endosulfan II			NA	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin aldehyde			NA	NA		
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
gamma-Chlordane			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Metals						041.77
Aluminum			NA	NA		
Antimony	10 - 00 -1		4.00E-04	NA		
Arsenic	Harris I		2.94E-04	1.79E+00		
Barium			7.00E-03	NA		
Beryllium		1	5.00E-06	4.30E-03		
Cadmium	2.70E-07	1	3.00E-05	NA	9.02E-03	
Calcium			NA	NA		and a
Chromium			2.50E-04	NA		5564 13
Cobalt	10.770.0		NA	NA		
Copper	2.4	1	2.00E-02	NA		
Iron	15-7-6-7		NA	NA		
Lead	1000		NA	NA		South Control
Magnesium	1000		NA	NA		the state of the s
Manganese			5.00E-03	NA		- 192
Mercury	300		4.50E-05	NA		
Nickel	-2.6		1.00E-03	NA		et-3/1
Potassium	1 1 2 2 2 2 3		NA	NA		
Selenium			3.00E-03	NA		medical re-
Silver	VIOLET I		5.00E-03	NA		
Sodium			NA	NA		- Part I
Thallium	10 THE 11		7.00E-05	NA		
Vanadium			7.00E-03	NA		
Zinc	H. M. H		1.50E-01	NA		
Totals - HQ & CR	The state of the				1.46E-02	3.27E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

700 000 000 000 000 000 000 000 000 000		(mg sed/day)	Factor (kg/mg)	Ingested (unitless)	Frequency (days/year)	Duration (years)	Weight (kg)	Time (days)	Time (days)
5.56E-09 1.31E-08 1.51E-08 1.51E-08 1.52E-08 1.55E-09 1.75E-08 1.32E-08 1.32E-01 2.91E-08 1.32E-01 2.90 1.33E-01 2.90 1.35E-07 1.35E-08 1.35E-01 2.00 1.36E-08 1.35E-01 2.00 1.36E-08 1.35E-01 2.00 1.36E-07 1.36E-08 1.36E-07 1.36E-08 1.36E-01 2.30E-07 1.49E-08 1.32E-01 2.00 1.49E-08 3.32E-01 2.00 1.42E-07 1.45E-09 1.45E-09 1.75E-08 1.35E-03 2.00 1.45E-09 1.75E-09 1.75E-	1.01E-02							Nc	Car
5.56E-09 1.31E-08 1.67E-06 1.35E-02 1.67E-06 1.75E-08 1.30E-02 2.30E-02 2.00 1.75E-08 1.30E-02 2.00 2.91E-08 2.91E-08 2.91E-01 2.91E-08 3.37E-01 2.00E-10 2.91E-08 3.37E-01 2.00E-10 2.00 1.37E-07 4.31E-09 1.10E-01 2.00E-10 2.00 1.37E-07 4.31E-09 1.10E-01 2.00E-10 2.00 1.36E-09 1.10E-10 2.00E-10 2.00E-10 2.00E-10 2.00E-10 2.00E-10 2.00E-10 2.00E-10 2.30E-07 2.30E-01 2.00E-10 2.30E-07 2.30E-01 2.30E	1.01E-02							9 _	
ES 1.57E-08 1.57E-08 1.57E-08 1.32E-08 2.36E-02 2.36E-02 2.36E-02 2.36E-02 2.36E-02 2.36E-02 2.36E-02 2.36E-02 2.36E-03 2.31E-01 2.31E-01 2.31E-01 2.31E-01 2.30E-07 2.36E-09 2.31E-01 2.30E-01 2.30E-07 2.30E-07 2.30E-01 2.30E-07 2.30E-07 2.30E-01 2.30E-02 2.30E-03 2.30E-01 2.30E-03 2.30E-01 2.30E-03 2.	1.01E-02	000	1000		90	,	50	200.	00000
1.67E-06 3.04E+00 200 1.75E-08 1.32E-08 3.30E-01 200 1.00E-01 2.01E-02 200 1.00E-01 2.01E-02 200 1.00E-01 2.01E-08 3.31E-01 200 1.00E-01 2.01E-09 1.10E-01 200 1.00E-01 2.01E-09 1.10E-01 200 1.00E-01 2.00E-01 2.	2.38E-02	200	1.00E-06		2 22	0 50	2 23	1,825	25,550
1.67E-06 1.75E-08 1.75E-08 1.30E-02 2.00 1.75E-08 1.32E-08 2.40E-02 2.00 1.49E-08 3.31E-01 2.00 1.73E-08 3.37E-01 2.00 1.76E-09 1.76E-09 1.76E-09 1.76E-09 1.76E-09 1.76E-09 1.76E-01 2.00 1.76E-01 2.00 1.76E-07 2.30E-01 2.00 1.49E-08 3.31E-01 3.00 1.49E-08 3.31E-01 3.00 1.49E-08 3.00E-01 3.00									
1.67E-06 1.75E-08 1.32E-08 1.32E-08 1.32E-08 1.33E-01 1.00E-01 1.49E-08 1.33E-01 1.00E-01 1.37E-07 1.37E-08 1.33E-01 1.37E-01 1.37E-07 1.3			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
5.48E-08 1.32E-08 5.50E-02 2.00 1.49E-08 1.32E-08 3.39E-01 2.01E-08 1.43E-01 2.91E-08 3.39E-01 2.00 1.473E-08 3.37E-01 2.00 1.37E-07 1.37E-07 1.37E-07 1.26E-08 3.31E-01 2.00 1.36E-00 1.36E-00 1.37E-07 2.30E-01 2.30E-01 2.30E-07 2.30E-03 2.00 1.07E-09 2.30E-03 2.00 2.30E-03 2.00 2.00E-03 2.0	3.04E+00	200	1.00E-06	-	25	5	25	1,825	25,550
1.75E-08 1.32E-08 1.30E-02 2.00 1.49E-02 2.00 1.49E-08 1.30E-01 2.91E-08 3.31E-01 2.00 1.49E-08 3.31E-01 2.00 1.43E-08 3.31E-01 2.00 1.37E-07 4.55E-08 3.31E-01 2.00 1.40E-07 3.61E-07 4.00E-07 2.36E-09 1.40E-08 3.31E-01 2.00 1.40E-08 3.31E-09 2.30E-01 2.30E-01 2.30E-01 2.30E-01 3.31E-09 3.31E-09 3.30E-01 3.31E-09 3.30E-01 3.31E-09 3.30E-01 3.31E-09 3.30E-01 3.30E-03 3.30E-0	5.50E-02	200	1.00E-06	-	25	2	25	1,825	25,550
S.48E-08 1.32E-08 1.00E-01 2.91E-08 3.39E-01 2.91E-08 3.31E-01 2.91E-08 3.31E-01 2.91E-08 3.31E-01 2.91E-08 3.31E-01 2.90E-01 2.91E-08 3.31E-01 2.90E-01 2.90E-01 2.90E-01 2.90E-01 2.90E-01 2.90E-01 3.61E-07 3.61E-07 3.61E-07 4.00E-07 2.86E-08 2.30E-01 2.30E-	3.20E-02	200	1.00E-06	-	25	5	25	1,825	25,550
S.48E-08 1.32E-08 1.00E-01 200 randrene 1.49E-08 3.39E-01 200 arnthene 1.49E-08 3.37E-01 200 erylene 1.73E-08 7.43E-01 200 arnthene 1.73E-07 4.31E-09 1.10E-01 200 halate 1.37E-07 4.55E-08 1.16E-10 200 thracene 8.77E-07 6.65E-09 1.70E-01 200 cdpyrene 1.26E-07 1.49E-08 3.23E-01 200 syl)phthalate 1.26E-07 9.01E-09 2.30E-01 200 4.00E-07 2.86E-08 7.30E-01 200 1.64E-08 7.30E-01 200 1.64E-08 2.30E-01 200 1.45E-08 2.30E-01 200 1.45E-09 2.30E-01 200 1.64E-08 2.30E-01 200 1.64E-08 2.30E-01 200 1.64E-08 2.30E-01 200 1.64E-08 2.30E-01 200 </td <td>5.40E-02</td> <td>200</td> <td>1.00E-06</td> <td>-</td> <td>25</td> <td>2</td> <td>25</td> <td>1,825</td> <td>25,550</td>	5.40E-02	200	1.00E-06	-	25	2	25	1,825	25,550
anthene 1.37E-08 3.39E-01 200 11 anthene 2.91E-08 7.43E-01 200 11 anthene 1.75E-08 4.43E-01 200 11 anthene 1.75E-08 1.10E-01 200 11 anthene 1.37E-07 4.55E-08 1.10E-01 200 11 anthracene 8.77E-07 6.65E-09 1.70E-01 200 11 anthracene anthracene 1.26E-08 3.31E-01 200 11 anthracene anthracene 1.26E-07 9.01E-09 2.30E-01 200 11 anthracene anthracene 1.26E-07 9.01E-09 2.30E-01 200 11 anthracene anthracene 2.30E-01 200 11 anthracene 2.30E-07 2.86E-08 7.30E-01 200 11 anthracene 2.30E-07 1.64E-08 7.30E-01 200 11 anthracene 2.30E-07 1.64E-08 2.30E-01 200 11 anthracene 3.31E-03 200 11 anthracene 2.30E-07 1.64E-08 2.30E-01 200 11 anthracene 2.30E-07 1.64E-08 2.30E-01 200 11 anthracene 2.30E-07 1.64E-08 2.30E-01 200 11 anthracene 3.31E-03 200 11 anthracene 2.31E-03 200 11 anthracene 3.31E-03 200 11 anthracene 3.31E-03 200 11 anthracene 3.31E-03 200 11 anthracene 2.31E-03 200 11		200	1.00E-06	-	25	2	25	1,825	25,550
arithene carriers		200	1.00E-06	-	25	5	25	1,825	25,550
anthene 2.91E-08 7.43E-01 200 anthene 3.37E-01 200 anthene 3.37E-01 200 4.51E-08 1.10E-01 200 1.		200	1.00E-06	-	25	2	25	1,825	25,550
erylene		200	1.00E-06	_	25	2	25	1,825	25,550
authene 1.73E-08 4.43E-01 200 1.01E-09 1.10E-01 200 4.55E-08 1.10E-01 200 1.01E-00 200 1.01E-00 200 1.01E-00 200 1.00E-01	_	200	1.00E-06	-	25	5	25	1,825	25,550
halate 1.37E-07 4.31E-09 1.10E-01 200 1.10E-01 200 4.55E-08 1.16E+00 200 200 1.00E-01 200 1.00E-01 200 1.00E-01 200 1.00E-00 1.20E-08 3.23E-01 200 1.49E-08 3.81E-01 200 1.26E-07 2.88E-01 200 1.26E-07 2.30E-01 200 1.26E-07 2.30E-01 200 1.26E-07 2.30E-01 200 1.44E-08 2.30E-01 200 1.44E-08 3.00E-01 200 1.44E-08 2.25E-01 200 1.44E-08 2.25E-01 200 1.44E-08 2.25E-01 200 1.44E-0		200	1.00E-06	-	25	5	25	1,825	25,550
tenylamine (1) syl)phthalate (2.30E-07 (6.65E-09 (1.26E-08 (2.30E-01 (1.49E-08 (3.31E-01 (3.61E-07 (3.61E-07 (4.00E-07 (3.61E-07 (4.00E-07 (3.61E-08 (3.30E-01 (3.00E-01 (3		200	1.00E-06	-	25	5	25	1,825	25,550
thracene 8.77E-07 6.65E-09 1.70E-01 200 11 2		200	1.00E-06	-	25	5	25	1,825	25,550
tutracene 6.65E-09 1.70E-01 200 cd) cd)pyrene 1.26E-08 3.23E-01 200 1.00E-00 3.61E-07 2.08E-01 2.00 1.49E-08 3.81E-01 200 1.26E-07 2.88E-01 2.00 1.26E-07 2.88E-01 2.00 1.26E-07 2.30E-01 2.00 1.26E-07 2.30E-01 2.00 1.26E-07 2.30E-01 2.00 1.64E-08 4.20E-01 2.00 1.64E-08 1.42E-08 3.13E-09 2.59E-02 2.00 1.42E-08 4.15E-09 3.20E-03 2.00 1.00E-09 1.		200	1.00E-06	-	25	5	25	1,825	25,550
cd)pyrene		200	1.00E-06	-	25	5	25	1,825	25,550
cd)pyrene 1.26E-08 3.23E-01 200 11		200	1.00E-06	-	25	5	25	1,825	25,550
Action (1) 1.49E-08 3.81E-01 200 1 200 2.61E-07 2.88E-01 200 1 2.88E-01 200 1 2.88E-01 200 1 2.00 1 2.00 2.30E-01 200 1 2.00 2.30E-01 200 1 2.30E-01 200 1 2.30E-07 2.30E-01 200 1 2.30E-07 2.30E-07 2.30E-01 200 1 2.40E-07 1.17E-08 3.00E-01 200 1 2.40E-07 2.59E-02 200 1 2.40E-08 2.59E-02 200 1 2.40E-09 2.59E-03 200 1 2.60E-03 200 1 2.60		200	1.00E-06	-	25	2	25	1,825	25,550
xyl)phthalate 1.26E-07 9.01E-09 2.38E-01 200 1 1.26E-07 9.01E-09 2.30E-01 200 1 1.26E-07 2.86E-08 7.30E-01 200 1 2.30E-07 2.86E-08 7.30E-01 200 1 1.64E-07 1.17E-08 3.00E-01 200 1 1.44E-08 3.13E-09 8.00E-02 200 1 1.45E-08 4.15E-09 2.59E-02 200 1 2.30E-01 200 1 2	aw.	200	1.00E-06	-	25	2	25	1,825	25,550
3.61E-07 9.01E-09 2.30E-01 200 1.26E-07 9.01E-09 2.30E-01 200 1.26E-07 9.01E-09 2.30E-01 200 1.26E-07 2.30E-08 7.30E-01 200 1.64E-08 7.00E-01 200 1.64E-07 1.17E-08 8.00E-01 200 1.42E-08 7.55E-03 200 1.42E-09 7.65E-11 1.65E-03 200 1.07E-09 7.65E-11 1.95E-03 200 1.07E-09 7.65E-11 1.95E-03 200 1.00E-03 200	2.88E-01	200	1.00E-06	-	25	5	25	1,825	25,550
Ayl)phthalate 1.26E-07 9.01E-09 2.30E-01 200 1 4.00E-07 2.86E-08 7.30E-01 200 1 2.30E-07 1.64E-08 7.70E-01 200 1 1.64E-07 1.17E-08 8.00E-01 200 1 1.42E-08 3.13E-09 2.59E-02 200 1 1.42E-08 4.15E-09 2.59E-02 200 1 2.59E-02 200 1 2.59E-02 200 1 2.59E-03 200 1 2.59	=	200	1.00E-06	-	25	5	25	1,825	25,550
4.00E-07 2.86E-08 7.30E-01 200 1 2.30E-07 1.64E-08 4.20E-01 200 1 1.64E-07 1.17E-08 3.00E-01 200 1 1.42E-08 3.13E-09 2.59E-02 200 1 1.42E-09 4.15E-09 7.58E-03 200 1 1.07E-09 7.65E-11 1.96E-03 200 1 1.07E-09 7.05E-03 200 1 1.07E-09 7.05E-09 7.05E-		200	1.00E-06	-	25	2	25	1,825	25,550
4.00E-07 2.86E-08 7.30E-01 200 1 2.30E-07 1.64E-08 4.20E-01 200 1 1.64E-07 1.17E-08 3.00E-01 200 1 1.42E-08 3.13E-09 8.00E-02 200 1 1.42E-09 4.15E-09 7.58E-03 200 1 1.07E-09 7.65E-11 1.96E-03 200 1 1.07E-09 7.05E-03 200 1 1.07E-09 7.05E-09 7.05E-		4							
4,00E-07 2.86E-08 7,30E-01 200 1 2.30E-07 1.64E-08 4.20E-01 200 1 1.64E-07 1.17E-08 3.00E-01 200 1 1.42E-08 1.15E-09 2.59E-02 200 1 1.42E-08 4.15E-09 7.58E-03 200 1 1.07E-09 7.65E-11 1.96E-03 200 1 1.07E-09 7.05E-03 200 1 1.07E-09 7.05E-09 7.0									
1.64E-08 3.70E-01 200 1 1.64E-08 4.20E-01 200 1 1.64E-07 1.17E-08 3.00E-01 200 1 1.42E-08 3.13E-09 2.59E-02 200 1 1.42E-08 4.15E-09 7.58E-03 200 1 1.07E-09 1.07E-09 7.65E-11 1.96E-03 200 1 1.07E-09 1.07		200	1.00E-06	-	25	5	25	1.825	25.550
1.64E-07 1.64E-08 4.20E-01 200 1 1.64E-07 1.17E-08 3.00E-01 200 1 1.42E-08 3.13E-09 8.00E-02 200 1 1.42E-08 2.59E-02 200 1 1.42E-09 7.58E-03 200 1 1.07E-09 7.65E-11 1.96E-03 200 1 1.07E-09 7.65E-11 1.96E-03 200 1	_	200	1.00E-06	1	25	5	25	1.825	25,550
1.64E-07 1.17E-08 3.00E-01 200 11 1.42E-08 3.13E-09 8.00E-02 200 11 1.42E-08 2.59E-02 200 11 1.45E-09 7.58E-03 200 11 0.0xide 1.07E-09 7.65E-11 1.96E-03 200 11	- 2	200	1.00E-06	-	25	'n	25	1,825	25,550
3.13E-09 8.00E-02 200 1 1.42E-08 2.59E-02 200 1 4.31E-03 200 1 7.58E-03 200 1 7.58E-03 200 1 1.07E-09 7.65E-11 1.96E-03 200 1		200	1.00E-06	-	25	'n	25	1,825	25,550
1.42E-08 2.59E-02 200 1 4.31E-03 200 1 7.58E-03 200 1 1.07E-09 7.65E-11 1.96E-03 200 1		200	1.00E-06	-	25	8	25	1,825	25,550
4.15E-09 4.31E-03 200 1 7.58E-03 200 1 1.07E-09 7.65E-11 1.96E-03 200 1	2.59E-02	200	1.00E-06	-	25	5	25	1,825	25,550
4.15E-09 7.58E-03 200 1 3.20E-03 200 1 1.07E-09 7.65E-11 · 1.96E-03 200 1	4.31E-03	200	1.00E-06	-	25	v	25	1,825	25,550
3.20E-03 200 1 1.07E-09 7.65E-11 - 1.96E-03 200 1	7.58E-03	200	1.00E-06		25	S	25	1,825	25,550
1.07E-09 7.65E-11 · 1.96E-03 200 1	3.20E-03	200	1.00E-06	-	25	S	25	1,825	25,550
	26	200	1.00E-06	-	25	2	25	1,825	25,550
4.62E-09 3.30E-10 8.44E-03 200		200	1.00E-06	-	25	9	25	1,825	25,550
gamma-Chlordane 2.38E-03 200 1.0	2.38E-03	200	1.00E-06	1	25	5	25	1,825	25,550

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC Sediment	Child Ingestion Rate	Conv. Factor	Fraction Ingested	Exposure Frequency	Child Exposure Duration	Child Body Weight	Aver	Averaging Time
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg sed/day)	(kg/mg)	(unitless)	(days/year)	(years)	(kg)	Nc (da	(days)
Metals			TANK								
Aliminim			1.69E+04	200	1.00E-06	1	25	S	25	1.825	25,550
Antimony	2.76E-05		5.03E+01	200	1.00E-06	-	25	5	25	1,825	25,550
Arsenic	4.05E-06	2.89E-07	7.39E+00	200	1.00E-06	-	25	5	25	1,825	25,550
Barium	1.39E-03		2.53E+03	200	1.00E-06	-	25	5	25	1,825	25,550
Beryllium	3.81E-07	2.72E-08	6.95E-01	200	1.00E-06	-	25	5	25	1,825	25,550
Cadmium	2.49E-06		4.55E+00	200	1.00E-06	-	25	5	25	1,825	25,550
Calcium			5.14E+04	200	1.00E-06	-	25	2	25	1,825	25,550
Chromium	1.86E-05		3.39E+01	200	1.00E-06	-	25	5	25	1,825	25,550
Cobalt			1.18E+01	200	1.00E-06	-	25	2	25	1,825	25,550
Copper	7.70E-03		1.40E+04	200	1.00E-06	-	25	S	25	1,825	25,550
Iron			3.38E+04	200	1.00E-06	ı	25	2	25	1,825	25,550
Lead			2.22E+03	200	1.00E-06	-	25	2	25	1,825	25,550
Magnesium			1.02E+04	200	1.00E-06		25	S	25	1,825	25,550
Manganese	1.81E-04		3.31E+02	200	1.00E-06	-	25	5	25	1,825	25,550
Mercury	1.37E-06		2.50E+00	200	1.00E-06	_	25	2	25	1,825	25,550
Nickel	2.21E-05		4.04E+01	200	1.00E-06	1	25	2	25	1,825	25,550
Potassium			2.63E+03	200	1.00E-06	-	25	2	25	1,825	25,550
Selenium	1.08E-06		1.98E+00	200	1.00E-06	-	25	2	25	1,825	25,550
Silver	1.48E-07		2.69E-01	200	1.00E-06	-	25	2	25	1,825	25,550
Sodium			4.73E+02	200	1.00E-06	-	25	2	25	1,825	25,550
Thallium	5.10E-07		9.31E-01	200	1.00E-06	-	25	2	25	1,825	25,550
Vanadium	1.72E-05		3.14E+01	200	1.00E-06	_	25	5	25	1,825	25,550
Zinc	2.75E-04		5.02E+02	200	1.00E-06	-	25	2	25	1,825	25,550
EQUATION:											
	Intake $(mg/kg-day) = CSxIRxCFxFIxEFxED$ BWxAT	: CSxIRxCFxF BWxAT	TxEFxED								
	Variables:			(1)		Assumptions:	::				
	CS = Chemical	CS = Chemical Concentration in Sediment (mg sediment/kg)	sediment (mg se	diment/kg)		EPC - Sedin	EPC - Sediment Data - RME	3			
	IR = Ingestion F	IR = Ingestion Rate (mg sediment/day)	(day)			200 (RME Child)	(blid)				
	CF = Conversio	CF = Conversion Factor (10-6 kg/mg)	mg)			10-6					
	FI - FLACUOII II	gesteu (unitiess)				25 (DME) or	m oregon alone	041100000000000000000000000000000000000			
	$E\Gamma = Exposure$ FD = Exposure	Er = Exposure rrequency (days/years) ED = Exnosure Duration (years)	(cars)			5 (RME)	5 (RME)	aiei exposure			
	RW = Bodyweight (kg)	sht (kg)				25 (Child)					
	AT - American Time (done)	Time (days)				5 x 365 (Nc)	5 x 365 (Nc), 70 x 365 (C)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics			HI S			
2-Butanone	5.56E-09		6.00E-01	NA	9.27E-09	
Acetone	1.31E-08		1.00E-01	NA	1.31E-07	
Semivolatile Organics			10.00			
2.4-Dinitrotoluene	1.67E-06		2.00E-03	NA	8.33E-04	
2-Methylnaphthalene	1.07L-00		NA	NA NA	6.33E-04	
Acenaphthene	1.75E-08		6.00E-02	NA NA	2.92E-07	
Acenaphthylene	11.02 00		NA	NA NA	2.720 07	1
Anthracene	5.48E-08		3.00E-01	NA NA	1.83E-07	
Benzo(a)anthracene		1.32E-08	NA NA	7.30E-01		9.67E-09
Benzo(a)pyrene		1.49E-08	NA	7.30E+00		1.09E-07
Benzo(b)fluoranthene		2.91E-08	NA	7.30E-01		2.12E-08
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		1.73E-08	NA	7.30E-01		1.26E-08
Carbazole		4.31E-09	NA	2.00E-02		8.61E-11
Chrysene		4.55E-08	NA	7.30E-02		3.32E-09
Di-n-butylphthalate	1.37E-07		1.00E-01	NA	1.37E-06	0.000
Dibenz(a,h)anthracene		6.65E-09	NA	7.30E+00		4.86E-08
Fluoranthene	8.77E-07		4.00E-02	NA	2.19E-05	
Indeno(1,2,3-cd)pyrene	V51.24.9 SetW. 1128 V5.1	1.26E-08	NA	7.30E-01		9.22E-09
N-Nitrosodiphenylamine (1)	1000	1.49E-08	NA	4.90E-03		7.30E-11
Phenanthrene			NA	NA		1137/07/27
Pyrene	3.61E-07		3.00E-02	NA	1.20E-05	
bis(2-Ethylhexyl)phthalate	1.26E-07	9.01E-09	2.00E-02	1.40E-02	6.31E-06	1.26E-10
Pesticides						
4,4'-DDD	4.00E-07	2.86E-08	5.00E-04	2.40E-01	8.00E-04	6.86E-09
4,4'-DDE		Welcon Removery N.	NA	NA		5-4-5
4,4'-DDT	2.30E-07	1.64E-08	5.00E-04	3.40E-01	4.60E-04	5.59E-09
Aroclor-1254	1.64E-07	1.17E-08	2.00E-05	2.00E+00	8.21E-03	2.35E-08
Aroclor-1260		3.13E-09	NA	7.70E+00		2.41E-08
Endosulfan I	1.42E-08		6.00E-03	NA	2.37E-06	
Endosulfan II			NA	NA		
Endosulfan sulfate	4.15E-09		5.00E-05	NA	8.30E-05	
Endrin aldehyde		(S) AND SOME AND SOME	NA	NA		
Heptachlor epoxide	1.07E-09	7.65E-11	1.30E-05	9.10E+00	8.24E-05	6.97E-10
alpha-Chlordane	4.62E-09	3.30E-10	6.00E-05	1.30E+00	7.70E-05	4.29E-10
gamma-Chlordane		The state of the s	NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Metals						
A1			NA	NA		
Aluminum	2.76E-05		4.00E-04	NA NA	6.89E-02	
Antimony Arsenic	4.05E-06	2.89E-07	3.00E-04	1.75E+00	1.35E-02	5.06E-07
Arsenic Barium	1.39E-03	2.09E-07	7.00E-02	NA NA	1.98E-02	D.OOL O7
Beryllium	3.81E-07	2.72E-08	5.00E-03	4.30E+00	7.62E-05	1.17E-07
Cadmium	2.49E-06	2.72L-06	5.00E-04	NA NA	4.99E-03	1.172 01
Calcium	2.492-00		NA	NA	1.552 05	
Chromium	1.86E-05		5.00E-03	NA	3.72E-03	12.00
Cobalt	1.802-03	4	NA NA	NA	31.22 0	
Copper	7.70E-03		4.00E-02	NA	1.92E-01	
Iron	7.702-05		NA	NA		
Lead	113	5 4 6	NA	NA		and the second
Magnesium		311-100	NA	NA		
Manganese	1.81E-04	100	5.00E-03	NA	3.63E-02	laws S
Mercury	1.37E-06		3.00E-04	NA	4.57E-03	
Nickel	2.21E-05	904.00	2.00E-02	NA	1.11E-03	Land Land
Potassium	2.2.2	10.48	NA	NA		mental and
Selenium	1.08E-06	10.00	5.00E-03	NA	2.16E-04	100
Silver	1.48E-07		5.00E-03	NA	2.95E-05	100
Sodium		70.96	NA	NA		Parent I
Thallium	5.10E-07		7.00E-05	NA	7.29E-03	District Co.
Vanadium	1.72E-05	100	7.00E-03	NA	2.46E-03	
Zinc	2.75E-04	48-3%	3.00E-01	NA	9.17E-04	
Totals - HQ & CR					3.67E-01	8.98E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

1. P
- 7

No. of No. of

			Valid Re	Rejected No. of	No. of						Lognormal	Lognormal 95th UCL of	
Class	Parameter	Units	Analyses SC	SQLs	Hits	Freq. (%) Mean	Mean	Std. Dev.	Max. Hit	Normal?		Mean EPC	()
VOLATILE ORGANICS	1,1,2,2-Tetrachloroethane	UG/KG		0	1	1.8%	6.049	2.917	7.750	FALSE	FALSE	6.305	6.305
VOLATILE ORGANICS	2-Butanone	UG/KG	54	2	1	1.9%	5.449	0.803	5.000	FALSE	FALSE	5.842	5.000
VOLATILE ORGANICS	Acetone	UG/KG	99	0	4	7.1%	6.915	6.289	46.000	FALSE	FALSE	7.304	7.304
VOLATILE ORGANICS	Benzene	UG/KG	54	7	7	13.0%	5.181	1.237	5.000	FALSE	FALSE	5.691	5.000
VOLATILE ORGANICS	Carbon disulfide	UG/KG	54	2	3	2.6%	5.333	1.032	2.000	FALSE	FALSE	5.834	2.000
VOLATILE ORGANICS	Chloroform	UG/KG	53	3	2	3.8%	4.127	1.451	2.000	FALSE	FALSE	4.558	2.000
VOLATILE ORGANICS	Methylene chloride	UG/KG	54	2	3	2.6%	5.384	0.845	3.000	FALSE	FALSE	5.660	3.000
VOLATILE ORGANICS	Toluene	UG/KG	99	0	23	41.1%	5.223	3.575	10.000	FALSE	FALSE	6.110	6.110
VOLATILE ORGANICS	Total Xylenes	UG/KG	54	2	1	1.9%	5.523	0.537	4.250	FALSE	FALSE	5.656	4.250
SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	26	0	20	35.7%	3709.179	12855.584	85000.000	FALSE	FALSE	4022.334	4022.334
SEMIVOLATILE ORGANIC	2,6-Dinitrotoluene	UG/KG	99	0	11	19.6%	1492.714	6156.951	8000.000	FALSE	FALSE	1106.520	1106.520
SEMIVOLATILE ORGANIC	2-Methylnaphthalene	UG/KG	99	0	=	19.6%	989.929	2796.613	19000.000	FALSE	FALSE	1106.051	1106.051
SEMIVOLATILE ORGANIC	3,3'-Dichlorobenzidine	UG/KG	55	_	1	1.8%	693.455	1351.647	850.000	FALSE	FALSE	744.377	744.377
SEMIVOLATILE ORGANIC	3-Nitroaniline	UG/KG	55	-	-	1.8%	1694.727	3336.224	2100.000	FALSE	FALSE	1811.851	1811.851
SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	26	0	Ξ	19.6%	1927.107	9629.674	72000.000	FALSE	FALSE	1385.519	1385.519
SEMIVOLATILE ORGANIC	Acenaphthylene	UG/KG	44	12	10	22.7%	216.977	140.483	310.000	FALSE	FALSE	293.571	293.571
SEMIVOLATILE ORGANIC	Anthracene	UG/KG	99	0	17	30.4%	2791.964	16005.507	#########	FALSE	FALSE	1436.881	1436.881
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	99	0	30	53.6%	4640.357	29332.373	#########	FALSE	FALSE	2571.989	2571.989
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	99	0	33	28.9%	4368.036	26654.500	########	FALSE	TRUE	3486.601	3486.601
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	99	0	32	57.1%	4416.071	26648.605	#########	FALSE	TRUE	3556.043	3556.043
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	99	0	25	44.6%	2814.554	13390.161	#########	FALSE	FALSE	2818.185	2818.185
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	99	0	29	51.8%	3718.339	22660.158	#########	FALSE	FALSE	2354.159	2354.159
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate	UG/KG	99	0	12	21.4%	1502.134	6139.030	2100.000	FALSE	FALSE	1850.607	1850.607
SEMIVOLATILE ORGANIC	Butylbenzylphthalate	UG/KG	34	22	1	2.9%	184.059	34.961	18.000	FALSE	FALSE	218.738	18.000
SEMIVOLATILE ORGANIC	Carbazole	UG/KG	99	0	14	25.0%	2225.429	11883.693	89000.000	FALSE	FALSE	1413.426	1413.426
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	99	0	38	%6.79	4629.625	29335.747	########	FALSE	TRUE	2944.084	2944.084
SEMIVOLATILE ORGANIC	Cresols (-o)	UG/KG	34	22	1	2.9%	186.029	22.353	120.000	FALSE	FALSE	192.955	120.000
SEMIVOLATILE ORGANIC	Di-n-butylphthalate	UG/KG	99	0	20	35.7%	1691.464	6393.990	16000.000	FALSE	FALSE	1566.136	1566.136
SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG	99	0	17	30.4%	1454.652	6557.910	49000.000	FALSE	FALSE	1522.538	1522.538
SEMIVOLATILE ORGANIC	Dibenzofuran	UG/KG	99	0	12	21.4%	1518.161	6733.791	50000.000	FALSE	FALSE	1218.485	1218.485
SEMIVOLATILE ORGANIC	Diethyl phthalate	UG/KG	34	22	2	2.9%	178.382	44.883	19.000	FALSE	FALSE	234.682	19.000
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	26	0	39	%9.69	10372.196	70729.168	#########	FALSE	FALSE	3915.112	3915.112
SEMIVOLATILE ORGANIC	Fluorene	UG/KG	26	0	7	12.5%	2048.875	10421.132	78000.000	FALSE	FALSE	1263.767	1263.767
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	99	0	22	39.3%	2712.589	13348.287	#########	FALSE	FALSE	2748.480	2748.480
SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	99	0	20	35.7%	1831.768	6857.734	25000.000	FALSE	FALSE	1654.969	1654.969
SEMIVOLATILE ORGANIC	Naphthalene	UG/KG	99	0	10	17.9%	1827.625	8834.729	000.00099	FALSE	FALSE	1400.836	1400.836
SEMIVOLATILE ORGANIC	Pentachlorophenol	UG/KG	52	4	2	3.8%	940.962	820.090	1200.000	FALSE	FALSE	1131.904	1131.904
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	99	0	33	28.9%	9431.054	65401.770	65401.770 ########	FALSE	FALSE	2860.425	2860.425

			No. of N	No. of Rejected	No. of Rejected No. of	5				I	ognormal	Lognormal 95th UCL of	
Class	Parameter	Units	Analyses S	SQLs	Hits	Freq. (%	Freq. (%) Mean	Std. Dev.	Max. Hit	Normal? ?	,		EPC
SEMIVOLATILE ORGANIC	Pyrene	UG/KG	56		0 40		7299.857		48022.040 ########	FALSE	TRUE	3979.219	3979.219
PESTICIDES/PCB	4,4'-DDD	UG/KG	56		0	8 14.3%	% 4.700	5.902	23.000	FALSE	FALSE	5.352	5.352
PESTICIDES/PCB	4,4'-DDE	UG/KG	56	0.00	0 37	7 66.1%	% 57.245	191.515	1400.000	FALSE	TRUE	89.001	89.001
PESTICIDES/PCB	4,4'-DDT	UG/KG	99	2000	0 37	7 66.1%	32.082	77.568	340.000	FALSE	FALSE	42.950	42.950
PESTICIDES/PCB	Aldrin	UG/KG	26		0	3.6%	% 2.075	2.661	5.000	FALSE	FALSE	2.261	2.261
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	99		0 1.	4 25.0%	% 6.242	22.625	170.000	FALSE	FALSE	5.717	5.717
PESTICIDES/PCB	Aroclor-1254	UG/KG	99		0	3.6%	% 63.116	153.358	1100.000	FALSE	FALSE	61.211	61.211
PESTICIDES/PCB	Aroclor-1260	UG/KG	99		0	%1.91 6	% 56.330	74.975	340.000	FALSE	FALSE	66.397	66.397
PESTICIDES/PCB	Beta-BHC	UG/KG	99		0	3 5.4%	% 2.261	3.456	20.000	FALSE	FALSE	2.390	2.390
PESTICIDES/PCB	Delta-BHC	UG/KG	55		1	1.8%	1.903	2.446	2.200	FALSE	FALSE	2.059	2.059
PESTICIDES/PCB	Dieldrin	UG/KG	26		0	4 7.1%	% 4.239	5.464	26.000	FALSE	FALSE	4.724	4.724
PESTICIDES/PCB	Endosulfan I	UG/KG	99		0 2:	2 39.3%	% 12.057	57.230	430.000	FALSE	FALSE	8.939	8.939
PESTICIDES/PCB	Endosulfan II	UG/KG	99		0	%6.8	% 4.023	5.027	5.000	FALSE	FALSE	4.401	4.401
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	99		0	3.6%	3.971	5.230	20.000	FALSE	FALSE	4.285	4.285
PESTICIDES/PCB	Endrin	UG/KG	99			7 12.5%	4.797	7.110	43.000	FALSE	FALSE	5.316	5.316
PESTICIDES/PCB	Endrin aldehyde	UG/KG	99		0	%2.01 9	% 4.311	5.220	14.000	FALSE	FALSE	4.861	4.861
PESTICIDES/PCB	Endrin ketone	UG/KG	99		0	6 10.7%	% 5.020	10.146	71.000	FALSE	FALSE	5.036	5.036
PESTICIDES/PCB	Gamma-BHC/Lindane	UG/KG	99		0	1.8%	% 2.059	2.649	2.300	FALSE	FALSE	2.236	2.236
PESTICIDES/PCB	Gamma-Chlordane	UG/KG	26		0 1	3 23.2%	% 6.744	26.588	200.000	FALSE	FALSE	5.730	5.730
PESTICIDES/PCB	Heptachlor	UG/KG	20		9	1 2.0%			1.350	FALSE	FALSE	1.242	1.242
PESTICIDES/PCB	Heptachlorepoxide	UG/KG	26		0	6 10.7%	% 2.185	2.708	6.700	FALSE	FALSE	2.432	2.432
PESTICIDES/PCB	Toxaphene	UG/KG	20		9	1 2.0%	% 116.700	76.108	135.000	FALSE	FALSE	124.152	124.152
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	99		0 5	5 98.2%	% 0.363	0.712	4.800	FALSE	TRUE	0.593	0.593
OTHER ANALYSES	Total Organic Carbon	MG/KG	5		0	5 100.0%	-	23371.008	56400.000	FALSE	TRUE	62102742.802	56400.000
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	26		0 2	8 50.0%	% 2018.839	9919.629	74000.000	FALSE	FALSE	1568.636	1568.636
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	26		0	4 7.1%			900.000	FALSE	FALSE	101.711	101.711
NITROAROMATICS	2-amino-4,6-Dinitrotoluene		99		0	1.8%				100	FALSE	88.551	88.551
NITROAROMATICS	Tetryl	UG/KG	26		0	1.8%		159.919	220.000	FALSE	FALSE	84.963	84.963
METALS	Aluminum	MG/KG	26		0 4	8 85.7%	8	n	17200.000	TRUE	TRUE	10638.372	10638.372
METALS	Antimony	MG/KG	26		0 3	36 64.3%	% 45.899	257.641	1930.000	FALSE	TRUE	51.811	51.811
METALS	Arsenic	MG/KG	26		0 5	26 100.0%	% 6.885	5.303	32.200	FALSE	FALSE	7.512	7.512
METALS	Barium	MG/KG	26		0 5		% 435.921	1405.293	9340.000	FALSE	FALSE	378.785	378.785
METALS	Beryllium	MG/KG	26		0 5		% 0.409		0.910	TRUE	FALSE	0.445	0.445
METALS	Cadmium	MG/KG	99		0 3	38 67.9%	% 0.915	2.454	16.600	FALSE	FALSE	1.097	1.097
METALS	Calcium	MG/KG	26		0 5	26 100.0%	% 52970.714	54382.684	########	FALSE	TRUE	76967.114	76967.114
METALS	Chromium	MG/KG	26		0 5	5 98.2%	% 21.024	8.666	47.500	FALSE	TRUE	23.248	23.248
METALS	Cobalt	MG/KG	26		0 5	56 100.0%	10.227	2.959	17.800	TRUE	TRUE	10.889	10.889
METALS	Copper	MG/KG	99		0 5	6 100.0%	% 904.905	5058.042	37900.000	FALSE	FALSE	546.768	546.768

			0.316	3924.333	7449.772	0856.316	537.853	1.341	35.864	1416.479	0.638	0.538	145.172	1.361	23.919	361.371	4.033	4329.209
	95th UCL of	Mean EPC	0.316	23924.333 2.	7449.772	10856.316	537.853	1.341	35.864	1416.479	0.638	0.538	145.172	1.361	23.919	361.371	4.033	4329.209
	Lognormal 95	Σ.	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
		Normal? ?	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE		TRUE	FALSE	FALSE				FALSE	FALSE
		Max. Hit	1.500	36500.000	########	56000.000	4140.000	11.400	148.000	2300.000	1.600	11.100	1830.000	16.600	61.900	14600.000	8.300	16000.000
		Std. Dev. N	0.169	5683.665	19172.840 #	8642.033	521.145	1.653	18.455	400.972	0.439	1.467	242.135	6.182	8.388		1.711	3301.576
		Mean S	0.303	22653.214	4105.800	9757.411	505.625	0.654	33.113	1326.804	0.540	0.547	129.401	1.594	22.121	483.144	3.425	3640.625
		Freq. (%) M	3.6%	100.0%	100.0%	100.0%	100.0%	78.6%	100.0%	100.0%	53.6%	33.9%	%8.92	30.4%	100.0%	100.0%	12.5%	6.3%
	No. of		7	99	99	99	99	44	99	99	30	19	43	17	99	99	7	1
	ed No	Hits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of	Rejected	SQLs																
No. of	Valid	Analyses	26	26	99	26	99	56	26	99	99	99	26	99	26	99	16	16
		Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	UG/KG	UG/KG
		Parameter	Cyanide	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	2,4,5-T	MCPP
		Class	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	HERBICIDES	HERBICIDES

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

	(mg/kg-day)	Intake (Car) (mg/kg-day)	Total Soils (mg/kg)	Rate (mg soil/day)	Factor (kg/mg)	Ingested (unidess)	Frequency (days/year)	Duration (years)	Weight (kg)	X	(days)
Volatile Organics											
1,1,2,2-Tetrachloroethane	33500	4.23E-10	6.31E-03	087	1.00E-06		250		0,5	ě,	55
Acctone	3,43E-08	1	7.30E-03	087	1.00E-06		250		5 6	ňM	365
Benzene Carbon Disulfida	0 305.00	3.35E-10	5.00E-03	087	1.00E-06		250		6 6	m n	99
Chloroform	9.39E-09	1.34E-10	2.00E-03	180	1.00E-06		250		2 2	, ×	25
Methylene Chloride Toluene	1.41E-08 2.87E-08	2.01E-10	3.00E-03	180	1.00E-06		250		5 5	36.	s s
Xylene (total)	2.00E-08		4.25E-03	180	1.00E-06		250	-	70	365	
Semivolatile Organics											
2,4-Dinitrotoluene	1.89E-05		4.02E+00	180	1.00E-06	-	250	-	70	365	
2,6-Dinitrotoluene 2-methylnaphthalene	\$.20E-06		1.11E+00	180	1.00E-06 1.00E-06		250		0 20	365	
3,3'-Dichlorobenzidine		4.99E-08	7,44E-01	180	1.00E-06	-	250		70	365	
3-nitroaniline	200		1.81E+00	180	1.00E-06		250	-	2 2	365	
Acenaphthylene	6.31E-06		2.94E-01	084	1.00E-06		250		2 2	365	
Anthracene	6.75E-06		1.44E+00	180	1.00E-06		250		20	365	
Benzo(a)pyrene		2.34E-07	3,49E+00	180	1.00E-06		220		70	365	
Benzo(b)fluoranthene		2.39E-07	3.56E+00	180	1.00E-06		250	_	0,1	365	
Benzo(k)fluoranthene		1.58E-07	2.35E+00	180	1.00E-06		250	-	5 5	365	
Butylbenzylphthalate	8.45E-08		1.80E-02	480	1.00E-06	_	250	-	02	365	
Carbazole		9.48E-08 1.98E-07	1.41E+00 2.94E+00	087	1.00E-06		250		22	365	
Di-n-butylphthalate	7.36E-06	10000	1.57E+00	480	1.00E-06		250		21	365	
Dibenzofuran	508755-0	1.042-07	1.22E+00	084	1.00E-06		250		2 2	365	
Diethylphthalate Fluoranthene	8.92E-08		1.90E-02	180	1.00E-06		250		5 5	365	
Fluorene	5.94E-06		1.26E+00	480	1.00E-06		250		2 0	365	
Indeno(1,2,3-ed)pyrene N-Nitrosodiphenylamine (1)		1.84E-07	2.75E+00 1.65E+00	180	1.00E-06		250		0 0	365	
Naphthalene	20 200 2	7 400 00	1.40E+00	180	1.00E-06		250		2,5	365	
Phenanthrene	2.325-00	7.395-08	2.86E+00	081	1.00E-06		250		0 02	365	
Pyrene bis(2-Ethylhexyl)phthalate	1.87E-05 8.69E-06	1.24E-07	3.98E+00 1.85E+00	081	1.00E-06 1.00E-06		250		5 6	365	
Pesticides										2	
r cauciaca	00 444	200.00						,			
4,4*-DDE	7.31E-08	3,395-10	8.90E-02	087	1.00E-06		250		2 2	365	
4,4-DDT	2.02E-07	2.88E-09	4.30E-02	180	1.00E-06		250		0,5	365	
Aroclor-1254	2.87E-07	4.11E-09	6.12E-02	081	1.00E-06		250		5 6	365	
Aroclor-1260	90 000	4.45E-09	6.64E-02	180	1.00E-06		250		0.1	365	
Endosulfan I	4.20E-08	3.176-10	8.94E-03	08+	1.00E-06		250		5 6	365	
Endosulfan II	3 015 00		4.40E-03	180	1.00E-06		250		0.2	365	
Endrin	2.50E-08		5.32E-03	180	1.00E-06		250	-	5 6	365	
Endrin aldehyde Fadrin ketone	o and a second		4.86E-03	180	1.00E-06		250		0,5	365	
Heptachlor	5.83E-09	8.33E-11	1.24E-03	480	1.00E-06	-	250		0.00	365	
Heptachlor epoxide Toxaphene	1.14E-08	8.33E-09	2.43E-03	180	1.00E-06		250		0 6	365	
alpha-Chlordane	2.69E-08	3.84E-10	5.72E-03	180	1.00E-06	-	250	_	70	365	
beta-BHC	1.05E-08	1.60E-10	2.39E-03	180	1.00E-06		250		2 2	365	
gamma-Chlordane	0027001	h	5.73E-03	180	1.00E-06		250		2 2	365	
Nitroaromatics											
					0.000						
2-amino-4,6-Dinitrotoluene Tetryl	3.99E-07		8.86E-02 8.50E-02	180	1.00E-06		250	===	2 6	365	

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

	Intake (Nc) (mg/kg-day)	Intake (Ne) Intake (Car) Total Soils (mg/kg-day) (mg/kg-day) (mg/kg)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti	Averaging Time (days)	
Metals										NC.	Car	
Antimony	2.43E-04		5.18E+01	180	1.00E-06	ी	250	+	20	391	25 550	
Barium	1.78E-03		3.79E+02	180	1.00E-06		250		02	365	055.50	
Copper	2.57E-03		5.47E+02	480	1.00E-06		250	_	20	365	25 550	
Lead	Value 100 000 100 100 100 100 100 100 100 10		7.45E+03	180	1.00E-06	-	250	_	70	391	25 550	
Mercury	6.30E-06		1.34E+00	180	1.00E-06	_	250		20	391	25 550	
Selenium	3.00E-06		6.38E-01	180	1.00E-06	-	250	-	70	398	25 550	
Thallium	6.39E-06		1.36E+00	480	1.00E-06	***	250	-	70	398	25 550	
Zinc	1.70E-03		3.61E+02	180	1.00E-06	-	250	-	70	365	25,550	
Herbicides										Š		
2,4,5-T	1.89E-08		4.03E-03	180	1.00E-06		250		20	398	25 550	
MCPP	2.03E-05		4,33E+00	180	1.00E-06	•••	250	-	20	365	25,550	
EQUATION:	Intake (mg/kg-day) =		CS.IR.CF.F BW.AT	CS.IR.CF.FILEF.ED BW.AT	q							
	Variables:					Assumptions:						
	CS = Chemical Concen IR = Ingestion Rate (mr CF = Conversion Facto IF = Fraction Ingested IF = Exposure Freque ED = Exposure Duraid BW = Bodyweight (kg) AT = Averaging Time (CS = Chemical Concentration in Soil (mg soil/hg) Fe - Ingestion Rete (mg soil/hg) CF = Conversion Factor (16-6 kg/mg) CF = Fraction Ingested (mitlets) EF = Exposure Frequency (day/years) EF = Exposure Duration (years) SW = Bodyweight (eg) AI = Averaging Time (days)	on in Soil (m Vday) >-6 kg/mg) tless) (days/years) ears)	g soil/kg)		EPC - Total Soil 1480 (RME Constitute Const	EPC - Total Soil Data (RME) 480 (RME Construction Worker) 10-6 11 (All Receptors) 550 (RME Construction Worker) 11 (Upper bound limit for Construction Worker) 11 (Apper bound limit for Construction Worker) 12 (Apper bound limit for Construction Worker)	E) orker) orker) onstruction W	orker)			

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		4.23E-10	NA	2.00E-01		8.46E-11
2-Butanone	2.35E-08		6.00E-01	NA	3.91E-08	
Acetone	3.43E-08	27.000.000.00	1.00E-01	NA	3.43E-07	2019/07/07 STRESS
Benzene	USAMORTO-E-VC 2	3.35E-10	NA	2.90E-02		9.73E-12
Carbon Disulfide	9.39E-09	ADVAISAGES SA	1.00E-01	NA	9.39E-08	
Chloroform	9.39E-09	1.34E-10	1.00E-02	6.10E-03	9.39E-07	8.19E-13
Methylene Chloride	1.41E-08	2.01E-10	6.00E-02	7.50E-03	2.35E-07	1.51E-12
Toluene	2.87E-08		2.00E-01	NA	1.43E-07	
Xylene (total)	2.00E-08		2.00E+00	NA	9.98E-09	
Semivolatile Organics						
2.4-Dinitrotoluene	1.89E-05		2.00E-03	NA	9.45E-03	
2.6-Dinitrotoluene	5.20E-06		1.00E-03	NA	5.20E-03	111111111111111111111111111111111111111
2-methylnaphthalene		- 11	NA	NA		
3.3'-Dichlorobenzidine		4.99E-08	NA	4.50E-01		2.25E-08
3-nitroaniline			NA	NA		
Acenaphthene	6.51E-06		6.00E-02	NA	1.08E-04	
Acenaphthylene	100000000000000000000000000000000000000		NA	NA		
Anthracene	6.75E-06		3.00E-01	NA	2.25E-05	
Benzo(a)anthracene	0.752 00	1.73E-07	NA	7.30E-01		1.26E-07
Benzo(a)pyrene	1	2.34E-07	NA	7.30E+00		1.71E-06
Benzo(b)fluoranthene		2.39E-07	NA	7.30E-01		1.74E-07
Benzo(g,h,i)perylene		L.J.J.	NA	NA		23052E93
Benzo(g,ff,f)peryfene Benzo(k)fluoranthene		1.58E-07	NA NA	7.30E-01		1.15E-07
Butylbenzylphthalate	8.45E-08	1.502-07	2.00E+00	NA NA	4.23E-08	
Carbazole	0.43E-00	9.48E-08	NA	2.00E-02	1,2020 00	1.90E-09
Chrysene		1.98E-07	NA NA	7.30E-02		1.44E-08
Chrysene Di-n-butylphthalate	7.36E-06	1.76L-07	1.00E-01	NA NA	7.36E-05	1.112-00
Di-n-butyiphthalate Dibenz(a,h)anthracene	7.5015-00	1.02E-07	NA	7.30E+00	,,,,,,,,	7.46E-07
Dibenz(a,n)anthracene Dibenzofuran		1.02E-07	NA NA	NA NA		7.102-07
	8.92E-08		8.00E+00	NA NA	1.12E-08	
Diethylphthalate Fluoranthene	1.84E-05		4.00E-02	NA NA	4.60E-04	
TOTAL CONTRACTOR OF THE CONTRA	5.94E-06		4.00E-02	NA NA	1.48E-04	
Fluorene	3.94E-00	1.84E-07	4.00E-02 NA	7.30E-01	1.402-04	1.35E-07
Indeno(1,2,3-cd)pyrene		1.84E-07	NA NA	4.90E-03		5.44E-10
N-Nitrosodiphenylamine (1)		1.11E-07	NA NA	4.90E-03 NA		J.44L-10
Naphthalene	6 22F 06	7 50E 09	3.00E-02	1.20E-01	1.77E-04	9.11E-09
Pentachlorophenol	5.32E-06	7.59E-08			1.77E-04	9.1112-09
Phenanthrene	1.000.00		NA 2 00E 02	NA NA	6.23E-04	
Pyrene	1.87E-05	1 245 07	3.00E-02	NA LAOF 02	6.23E-04 4.35E-04	1.74E-09
bis(2-Ethylhexyl)phthalate	8.69E-06	1.24E-07	2.00E-02	1.40E-02	4.33E-04	1.74E-09

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD	2.51E-08	3.59E-10	5.00E-04	2,40E-01	5.03E-05	8.62E-11
4,4'-DDE			NA	NA		
4,4'-DDT	2.02E-07	2.88E-09	5.00E-04	3.40E-01	4.03E-04	9.80E-10
Aldrin	1.06E-08	1.52E-10	3.00E-05	1.70E+01	3.54E-04	2.58E-09
Aroclor-1254	2.87E-07	4.11E-09	2.00E-05	2.00E+00	1.44E-02	8.21E-09
Aroclor-1260		4.45E-09	NA	7.70E+00		3.43E-08
Dieldrin	2.22E-08	3.17E-10	5.00E-05	1.60E+01	4.44E-04	5.07E-09
Endosulfan I	4.20E-08		6.00E-03	NA	7.00E-06	
Endosulfan II	1. Versite event		NA	NA		
Endosulfan sulfate	2.01E-08	-	5.00E-05	NA	4.02E-04	
Endrin	2.50E-08		3.00E-04	NA	8.32E-05	
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA		
Heptachlor	5.83E-09	8.33E-11	5.00E-04	4.50E+00	1.17E-05	3.75E-10
Heptachlor epoxide	1.14E-08	1.63E-10	1.30E-05	9.10E+00	8.79E-04	1.49E-09
Toxaphene	100000000000000000000000000000000000000	8.33E-09	NA	1.10E+00		9.16E-09
alpha-Chlordane	2.69E-08	3.84E-10	6.00E-05	1.30E+00	4.48E-04	4.99E-10
beta-BHC		1.60E-10	NA	1.80E+00		2.89E-10
gamma-BHC (Lindane)	1.05E-08		3.00E-04	NA	3.50E-05	D.072 10
gamma-Chlordane	170.000000000		NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	3.99E-07		1.00E-02	NA I	3.99E-05	
renyi	3.9912-07		1.00E-02	NA	3.99E-03	
Metals						
Antimony	2.43E-04		4.00E-04	NA	6.08E-01	
Barium	1.78E-03		7.00E-02	NA	2.54E-02	
Copper	2.57E-03		4.00E-02	NA	6.42E-02	
Lead			NA	NA		
Mercury	6.30E-06		3.00E-04	NA	2.10E-02	
Selenium	3.00E-06		5.00E-03	NA NA	5.99E-04	
Thallium	6.39E-06		7.00E-05	NA NA	9.13E-02	
Zinc	1.70E-03		3.00E-01	NA	5.66E-03	
Herbicides						
2,4,5-T	1.89E-08		8.00E-03	NA	2.37E-06	
MCPP	2.03E-05		1.00E-03	NA NA	2.37E-06 2.03E-02	
Totals - HQ & CR					8.71E-01	3.12E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Volatile Organics	1.1.2.2-Terachlorochanc 2-Butanone Accione Beace Beace Carbon Dealfide Chloroform Methylene Chloride Xylene (total)	Semivolatile Organica 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-methylnaphthulene	3.3-Dichlorobenzidine A-ahivamiline Accamphibriene Accamphibriene Admathacene Benzologiandmancene Benzologiandmancene Benzolofiloroamhene Benzolofiloroamhene Benzolofiloroamhene Benzolofiloroamhene Benzolofiloroamhene Benzolofiloroamhene Contracolo	Dibenz(a,h)anthracene Dibenzofuran Diethyphthalate Fluoranthene Indeno(1,2,3-cd)pyrene	N-Nitrosodiphenylamine (1) Naphthalene Pentachlorophenol Phenanthrene Pyrene bis(2-Ethylhexyl)phthalate Pesticides	4.4.DDD 4.4.DDE 4.4.DDE 4.4.DDI Authoria Aldrin Aldrin Dieldrin Dieldrin Endosulfan I Endosulfan II	Nitroaromatics 2-amino-4,6-Dinitrotoluene
Dose (Nc) (mg/kg-day)							2.08E-07	
Dose (Car) (mg/kg-day)		The state of					3.23E-09	
EPC Total Soils (mg/kg)		6.31E-03 5.00E-03 7.30E-03 5.00E-03 2.00E-03 2.00E-03 3.00E-03 4.25E-03	4,02E+00 1,11E+00 1,11E+00	7,44E-01 1,81E+00 2,94E-01 1,44E-00 1,57E+00 3,56E+00 3,56E+00 1,80E+00 1,80E+00 1,11E+00 1,4	1.52E+00 1.22E+00 1.90E-02 3.92E+00 1.26E+00 2.75E+00	1.65E+00 1.40E+00 1.13E+00 2.86E+00 3.98E+00 1.85E+00	\$3,5E-03 8,90E-02 2,50E-03 2,50E-03 6,41E-03 4,40E-03 4,40E-03 4,40E-03 4,80E-03 5,42E-03 1,24E-03 1,2	8.86E-02
Conv. Factor (kg/mg)		1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06	1.00E-06 1.00E-06 1.00E-06	1,00E-06 1,0	1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06	1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06	1.00E-06 1.00E-06	1.00E-06
Skin Surface Area Contact (cm²)		5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800	5,800 5,800 5,800	5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800	5,800 5,800 5,800 5,800 5,800	5,800 5,800 5,800 5,800 5,800	5,800 5,800	5,800
Adherence Factor (mg soil/cm²)		22222222	1.0	222222222222	1999999	01 01 01 01 01 01 01 01	222222222222222222	23
Absorption Factor (unitless)							9900	
Exposure Frequency (days/year)		250 250 250 250 250 250 250 250 250 250	250 250 250	8888888888888888	1888888	22 22 23 23 23 23 23 23 23 23 23 23 23 2	******************	250
Exposure Duration (years)								-
Body Weight (kg)		5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	07 07 07	222222222222222222222222222222222222222	266666	22222	222222222222222222222222222222222222222	70
	N.	365 365 365 365 365 365 365 365	365 365 365	365 365 365 365 365 365 365 365 365 365	8 8 8 8 8 8	365 365 365 365 365	365 365 365 365 365 365 365 365 365 365	365
Averaging Time (days)	5	25.55 25.55	25,550 25,550 25,550	25,550 25	25,550	25.55 25.55	25.55 25.55	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Til (da	Averaging Time (days)
											Nc	Car
Metals												
Antimone			4 18E401	1 000 06	\$ 900	9		036		ç	200	25.250
Barium			3 79E+02	1.00F-06	5,800	0.0		250	-	9.9	392	25,530
Copper			\$ 47E+02	1 00E-06	\$ 800	01		250		2 6	365	25 550
Lead			7.15F+03	1 00E-06	\$ 800			350		9.0	375	35 550
Mercury			1.34E+00	1.00E-06	5.800	10		250		20,02	398	25 550
Sclenium			6.38E-01	1.00E-06	5.800	10		250		20	392	25 550
Thallium			1.36E+00	1.00E-06	\$ 800	10		250		20	391	25 550
Zinc			3.61E+02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Herbicides										Ž.		
24.5-T			4.03E-03	1.00E-06	5.800	10		250	4	20	398	25 550
MCPP			4.33E+00	1,00E-06	5,800	1.0		250	-	70	365	25,550
EQUATION:		Absorbed Dose	(mg/kg-day) =	CSICEISA	Absorbed Dose (mp/kg-day) = CS.x.CF.x.SA.x.AF.x.ABS.x.EF.x.ED. BW.x.AT	FLED						
Variables:			25	Assumptions.		7.04	Variables:			Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg)	ttion in Soil (mg so	il/kg)		EPC - Total S	EPC - Total Soil Data (RME)	and a	EF = Exposure	EF = Exposure Frequency (days/year)		250 (RME Construction Worker)	struction Work	(cer)
CF = Conversion Factor (10-6 kg/mg)	10-6 kg/mg)			10-6			ED = Exposure	ED = Exposure Duration (years)		1 (Upper bound limit for CW)	d limit for CW,	
SA = Surface Area Contact (cm²)	ct (cm³)		77	5,800 (RME Adult Worker)	dult Worker)	47	BW = Bodyweight (kg)	ght (kg)		70 (Adult Male)	0	
AF =Soil to Skin Adherence Factor (mg/cm²)	ce Factor (mg/cm2			1.0 (RME - All Receptors)	(Receptors)		AT = Averaging Time (days)	g Time (days)		1 x 365 (Nc) 70 x 365 (Car)	1 x 365 (Car)	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics				150	Sim 8	
1,1,2,2-Tetrachloroethane			NA	2.00E-01		
2-Butanone			6.00E-01	NA		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03	1 2 1 2 1	
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA	DHI N	
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline	,		NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene		133.4	NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA 1.46F+00		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA 1 20F 01		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA 2.00E.02	NA NA		
Pyrene		- 1	3.00E-02	1.40E-02		
ois(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides	(mg/ng uny)	(mg/ng duy)	(mg/ng du))	(mg/ng my) i		
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA		l)
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1254	2.08E-07	2.98E-09	1.90E-05	2.11E+00	1.10E-02	6.28E-09
Aroclor-1260		3.23E-09	NA	8.11E+00	5.0.000	2.62E-08
Dieldrin		0.000	5.00E-05	1.60E+01		2.022 00
Endosulfan I			6.00E-03	NA NA		
Endosulfan II			NA	NA NA		
Endosulfan sulfate			5.00E-05	NA NA		
Endrin	h .		3.00E-04	NA NA		
Endrin aldehyde			NA	NA NA		
Endrin ketone			NA NA	NA NA		
			5.00E-04	4.50E+00		
Heptachlor						
Heptachlor epoxide			1.30E-05	9.10E+00		
Foxaphene			NA COOR OF	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
oeta-BHC		0	NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA		
gamma-Chlordane			NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Γetryl			1.00E-02	NA		
Metals						
Antimony	()		4.00E-04	NA		
Barium			7.00E-03	NA		
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			1.50E-01	NA		
Herbicides						
2,4,5-T			8.00E-03	NA		
MCPP			1.00E-03	NA		
Totals - HQ & CR					1.10E-02	3.25E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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			No. of N	No. of Rejected No. of	No. of						Lognormal		
Class	Parameter	Units	Analyses	SQLs	Hits	Freq. (%) Mean	Mean	Std. Dev.	Max. Hit	Normal?	i	95th UCL of Mean	EPC
VOLATILE ORGANICS	1,1,1-Trichloroethane	UG/KG	10	,	_	16.7%	5.667	0.683	7.000	FALSE	FALSE	6.267	6.267
VOLATILE ORGANICS		UG/KG	9	4	_	16.7%	5.667	0.683	7.000	FALSE	FALSE	6.267	6.267
VOLATILE ORGANICS	Toluene	UG/KG	10	0	1	10.0%	9.150	4.859	20.000	FALSE	TRUE	13.111	13.111
VOLATILE ORGANICS	Trichloroethene	UG/KG	10	0	-	10.0%	8.450	3.411	13.000	FALSE	FALSE	11.342	11.342
NIC	2,4-Dinitrotoluene	UG/KG	7	m	3	42.9%	429107.143	1133657.572	3000000.000	FALSE	FALSE	28930130370962.200	3000000.000
SEMIVOLATILE ORGANIC		UG/KG	9	4	7	33.3%	12508.333	30124.685	74000.000	FALSE	FALSE	344636934.486	74000.000
SEMIVOLATILE ORGANIC	ne	UG/KG	80	7	9	75.0%	2486.875	6673.546	19000.000	FALSE	TRUE	603223.499	19000.000
SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	7	m	m	42.9%	847.571	1619.104	4500.000	FALSE	TRUE	31812.193	4500.000
SEMIVOLATILE ORGANIC		UG/KG	7	m	4	57.1%	610.571	1033.416	2900.000	FALSE	TRUE	65844.194	2900.000
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	6	-	∞	88.9%	404.556	545.136	1600.000	FALSE	TRUE	3735.669	1600.000
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	10	0	6	%0.06	25303.300	78951.783	1500.000	FALSE	FALSE	6389198.483	1500.000
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	10	0	6	%0.06	25341.000	78938.631	1600.000	FALSE	FALSE	2899733.091	1600.000
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	00	14	S	62.5%	270.625	264.249	870.000	FALSE	TRUE	804.664	804.664
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	6	_	00	88.9%	401.333	511.127	1600.000	FALSE	TRUE	2779.781	1600.000
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate	UG/KG	7	(1)	S	71.4%	1091.714	1772.697	5000.000	FALSE	TRUE	29453.521	5000.000
SEMIVOLATILE ORGANIC	Butylbenzylphthalate	UG/KG	9	4	2	33.3%	9129.167	21982.187	54000.000	FALSE	FALSE	456022564.114	54000.000
SEMIVOLATILE ORGANIC	(800)	UG/KG	7		4	57.1%	243.000	265.069	740.000	TRUE	TRUE	432.854	432.854
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	10	0	6	%0.06	25464.000	78896.525	1900.000	FALSE	FALSE	2636800.154	1900.000
SEMIVOLATILE ORGANIC	lphthalate	UG/KG	7		n	42.9%	135893.571	358987.206	950000.000	FALSE	FALSE	361538723243.890	950000.000
SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG	7	m	7	28.6%	255.143	159.160	500.000	TRUE	TRUE	369.140	369.140
SEMIVOLATILE ORGANIC	Dibenzofuran	UG/KG	00	7	4	20.0%	378.500	475.019	1500.000	FALSE	TRUE	4200.422	1500.000
SEMIVOLATILE ORGANIC	Diethyl phthalate	UG/KG	7	•	-	14.3%	280.000	140.238	530.000	TRUE	TRUE	380.444	380.444
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	10	0	6	%0.06	25929.000	78742.230	3900.000	FALSE	FALSE	2538067.274	3900.000
SEMIVOLATILE ORGANIC	Fluorene	UG/KG	7	6	3	42.9%	1076.429	2221.367	6100.000	FALSE	TRUE	51251.706	6100.000
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	00	74	S	62.5%	214.000	157.352	450.000	TRUE	TRUE	317.476	317.476
SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	9	4	7	33.3%	33550.000	81543.585	200000.000	FALSE	FALSE	30551992748.782	200000.000
SEMIVOLATILE ORGANIC	Naphthalene	UG/KG	00	7	4	20.0%	392.750	509.508	1600.000	FALSE	TRUE	5504.032	1600.000
SEMIVOLATILE ORGANIC	Pentachlorophenol	UG/KG	5	4)	_	20.0%	394.000	98.577	220.000	FALSE	FALSE	581.703	220.000
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	10	0	6	%0.06	27753.400	78385.647	22000.000	FALSE	FALSE	28182411.043	22000.000
SEMIVOLATILE ORGANIC	Phenol	UG/KG	9	ч	E.	20.0%	6295.167	15042.285	37000.000	FALSE	FALSE	54039803.039	37000.000
SEMIVOLATILE ORGANIC		UG/KG	10	0	6	%0.06	26019.500	78716.118	5000.000		FALSE	3301371.047	2000.000
PESTICIDES/PCB		UG/KG	7	(1)	3	42.9%	8.529		35.000		TRUE	30.144	30.144
PESTICIDES/PCB		UG/KG	10	0	6	%0.06	165.960	254.959	750.000	FALSE	TRUE	3679.151	750.000
PESTICIDES/PCB	4,4'-DDT	UG/KG	10		10	100.0%	305.540	370.426	940.000	FALSE	TRUE	24851.615	940.000
PESTICIDES/PCB	Alpha-BHC	UG/KG	7	(1)	-	14.3%	1.993	1.153	3.700	TRUE	TRUE	2.819	2.819
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	6		7	77.8%	8.678	14.814	47.000	FALSE	TRUE	40.682	40.682
PESTICIDES/PCB	Aroclor-1254	UG/KG	00	74	9	75.0%	267.188	470.797	1400.000	FALSE	TRUE	3133.076	1400.000
PESTICIDES/PCB	Aroclor-1260	UG/KG	6	_	9	%2.99	135.778	192.436	630.000	FALSE	TRUE	451.408	451.408
PESTICIDES/PCB	Dieldrin	UG/KG	00	7	7	25.0%	6.756	8.700	28.000	FALSE	TRUE	18.230	18.230
PESTICIDES/PCB	Endosulfan I	UG/KG	80	7	7	25.0%	4.444	7.161	22.000	FALSE	TRUE	17.753	17.753
PESTICIDES/PCB	Endosulfan II	UG/KG	7	63	3	42.9%	3.800	1.666	5.700	TRUE	TRUE	4.993	4.993

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CHRS The Prop. (b) Tree (c) ANY LINE				Valid	Rejected No. of	d No.	J(Lognormal		
Commata-BHCLindrian UGNGC 1 1 14.3% 41.05 2.71 2.50 TRUE FALSE 2.064	Class	Parameter	Units		SQLs	Hits) Mean	Std. Dev.	Max. Hit	Normal?	6	95th UCL of Mean	EPC
Common-Chordane UGKNG 6 4 1 16.7% 15.13 16.64 36.00 RAISE TRUE 2.048 Hepzehlenzponide UGKNG 9 1 16.67% 1.79 1.91 6.600 FALSE TRUE 2.468 Hepzehlenzponide VGKG 1 1 6.67 0.91 0.000 FALSE FALSE 0.488 Chrysolite Abestors % 1.0 0 0 0.91 0.000 FALSE FALSE 0.633 Chrysolite Abestors % 1.0 0 0 0.000 0.000 FALSE FALSE 0.000 Chrysolite Abestors % 7.0 1 1.000% 8.11 4.000 0.000 FALSE FALSE 0.000 Lock Allente 1 1 1.000% 8.11 1.000 0.000 FALSE FALSE 0.000 Lock Allente 1 1 1.000% 8.00 0.00 FALSE FALSE 0.000 1.000 ALSE FALSE CALS	PESTICIDES/PCB	Endrin	UG/KG	7		3	1 14.39					TRUE	6.020	6.020
Convention of Configuration of Con	PESTICIDES/PCB	Gamma-BHC/Lindane	UG/KG	9		4	1 16.79					FALSE	2.048	0.930
Hepachelosovide Abelestos % 1 43% 1 793 6 9015 2.00 RO TRUE FALSE 6 48 Chysolide Abelestos % 1 5 0 4 27% 41683 24.70 65.00 1000 FALSE FALSE 6 35.39 Chysolide Abelestos % 1 5 0 4 10.00 100 100 FALSE FALSE 6 35.39 Chysolide Abelestos % 7 1 1 0.00 100	PESTICIDES/PCB	Gamma-Chlordane	UG/KG	6		_	6 66.79				-	TRUE	32.664	32.664
Chycolic Abbestors % 13 0 0.0% 0.000 CORD FALSE FALSE 36.53 Chycolic Abbestors % 15 0 0.0% 0.000 FALSE FALSE 36.53 Chycolic Abbestors % 7.1 1 0.00 1.000 FALSE FALSE 7.15 1.15 Chycolic Abbestors % 7.1 1 1.000 1.000 FALSE FALSE FALSE 1.13 2.4-Chintrooluene CORKG 1 1 1.000 5.1 1.200 0.000 A.1 1.000 A.1 2.4-Chintrooluene CORKG 11 0 1.000 4.000 0.000 PALSE FALSE 6.003 1.1 1.000 A.2 4.000 A.1 1.000	PESTICIDES/PCB	Heptachlorepoxide	UG/KG	7		3	1 14.39					TRUE	2.448	2.448
Chyposite Ashestos %	OTHER ANALYSES	Amosite Asbestos	%	13		0	0.00				400	FALSE	0.529	0.000
Observation According Mighted Numbers % > THAN 4 4 100.0% 1.00 4.000 FALSE FALSE FALSE PALSE	OTHER ANALYSES	Chrysotile Asbestos	%	15		0	4 26.79			90.59		FALSE	305.379	65.000
Adjustion of the control of	OTHER ANALYSES	Chrysotile Asbestos	%, > THAN	4		0	4 100.09			1.000	1	FALSE	1.154	1.000
2.4.6-Trinitrooluene UGKG 8 3 1 2.5.8 78.12.3 3.1.2.5 77.4.2.4.7. 3.1.2.5 77.4.2.4.7. 3.1.2.5 77.4.2.4.7. 3.1.2.5 77.4.2.4.7. 3.1.2.5 77.4.2.4.7. 3.1.2.5 77.4.2.4.7. 3.1.2.4.7. 3.1.2.4.7. 3.1.2.5. 77.4.2.4.7. 3.1.2.4.7. 3.2.2.4.7. 3.2.2.4.7. 3.2.2.2. 4.2.2.2.7. 4.2.2.2. 4.2.2.2. 4.2.2.2. 4.2.2.2. 4.2.2.2. 4.2.2.2.4.7. 3.2.2.2.4.7. 3.2.2.2.4.7. 3	OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	10		0	100.00			14200.000		TRUE	40600409392.079	14200.000
24-Dintroollame UGKG 11 0 8 727% 2007889.72 772421473 190000000 FALSE FALSE 262304577894700 190000 24-Dintroollame UGKG 11 0 0 60% 60% 60% 10 0 700% 10 0 700% 10 0 70 60% 10 0 10 10 0 10 10 0 10 0 10 10 0 10 0 10 10 0 10	NITROAROMATICS	2,4,6-Trinitrotoluene	UG/KG	80		3	1 12.59					FALSE	102.134	102.134
2,6-Dilithoolluene UG/KG 8 3 0 65.000 0.000 FALSE TALS 70.708 Aduminum MGKKG 11 0 90.9% 71.308 527.64 160.000 FALSE TRUE TRUE 170.735 10 Aduminum MGKG 11 0 10 90.9% 12.19 12.256 160.000 FALSE TRUE 170.735 10 Arsenic MGKG 11 0 9 81.8% 63.15 13.73 1100 FALSE TRUE 12945.96 10 Beryllium MGKG 11 0 9 81.8% 63.90 47.20 14.8 15.90 47.30 14.8 15.90 47.30 14.8 15.90 47.30 14.8 15.90 47.30 14.8 15.90 47.30 14.8 15.90 47.30 14.8 15.90 47.30 14.8 15.90 47.30 14.8 15.90 47.30 14.8 15.90 47.30 1	NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	11		0	8 72.7			190000000.000		FALSE	262380457789547.000	19000000.000
Attention MGKG 11 0 87, 791,146 4549,347 1600,000 FALSE RUE 12945.96 110 100,006 12945.46 149,000 FALSE RUE 12945.96 110 100,006 12945.46 110 100,006 12945.46 110 110,006 12945.46 110 110,006 12945.46 110 110,006 12945.46 110 110,006 110,	NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	80		3	0.00					FALSE	70.078	0.000
Assente MGKG 11 0 10 09% 310.800 552.765 1560.000 FALSE TRUE 12945.966 15 15 10 00 09% 310.800 552.765 1560.000 FALSE TRUE 12945.966 15 11 0 0 11 100.00% 63895.46 1234.323 46500.000 FALSE TRUE 232729.04 40.8 Barium MGKG 11 0 1 11 100.0% 63895.46 124.323 12730 FALSE TRUE 1317.22 1 1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	METALS	Aluminum	MG/KG	11		0	8 72.7			16500.000		TRUE	10617.355	10617.355
Assenic MGKG 11 1000% 639546 13712 47300 FALSE RUB 37273 Barium MGKG 11 1000% 638954 1248253 47300000 FALSE RUB 37273 Cadmium MGKG 11 0 11 1000% 63894 127000 FALSE RUB 1377320 Cadmium MGKG 11 0 11 1000% 87256 6949084 127000 FALSE RUB 7377320 Chromium MGKG 11 1 700% 87256 6949084 1500000 FALSE RUB 797687 Chromium MGKG 11 1 700% 87270 164398 518000 FALSE RUB 797687 Chromium MGKG 11 0 1 1000% 1000% 1000% 1000% 1000% 1000% 1000% 1000% 1000% 1000% 1000% 1000% 10000% 1000% 1000% <td>METALS</td> <td>Antimony</td> <td>MG/KG</td> <td>11</td> <td></td> <td>0</td> <td>6.06 01</td> <td></td> <td></td> <td>1560.000</td> <td></td> <td>TRUE</td> <td>12945.966</td> <td>1560.000</td>	METALS	Antimony	MG/KG	11		0	6.06 01			1560.000		TRUE	12945.966	1560.000
Barrium MGKG 11 0 00% 538 544 1248 523 4050 000 FALSE IRUE 28379 67 405 Cadnium MGKG 11 0 00% 4773 1100 PALSE IRUE 1131 131 Cadnium MGKG 11 0 00% 4879 568 6094084 1100 PALSE IRUE 7157702 1131 Cadnium MGKG 11 10 00% 4879 568 6094084 120000 PALSE IRUE 7157702 1131 Cobpet MGKG 11 10 100% 4879568 44000 FALSE IRUE 715702 1150 Coppet MGKG 11 10 100% 4879569 44000 FALSE IRUE 71570 70	METALS	Arsenic	MG/KG	=		0	11 100.09					TRUE	37.275	37.275
Beryllium MGKG 11 0 81.8% 0.315 0.307 1.100 FALSE RUB 71577202 Cadmium MGKG 11 0 11 1000% 4897668 9.723 177000 FALSE RUB 7777202 3.1577202 Chomium MGKG 11 1 7.00% 87.276 164.58 18.000 FALSE RUB 6.9396.83 3.155 Cobat MGKG 11 10.00% 13.345 11.690 40.600 FALSE RUB 4702307 5.959 Copper MGKG 11 10.00% 13.751 12.27 24.200 FALSE RUB 4702307 3.159 Copper MGKG 11 10.00% 36.4637 32.23 32.00 FALSE RUB 4702307 Magnesium MGKG 11 10.00% 36.4637 35.91 12.973 39.300 FALSE RUB 4702307 Magnesium MGKG 11 10.00% 36.4645 37.400 FALSE RUB 4702307	METALS	Barium	MG/KG	11		0	11 100.0			40500.000		TRUE	283279.067	40500.000
Cadmium MGKKG 8 3 7 87.5% 32.556 47.722 127.000 FALSE TRUE 619366.83 215.00 FALSE TRUE 705.05 7	METALS	Beryllium	MG/KG	11		0	81.8					TRUE	1.311	1.100
Cacicium MG/KG 11 100.0% 487266 6 6049.084 215000.00 FALSE TRUE 619306.683 2150 Cobert MG/KG 11 0 1 7 70.0% 87270 164.398 518.000 FALSE TRUE 32.969 518 518.00 60.60 707.697 5 51.00 10.00	METALS	Cadmium	MG/KG	8		3	7 87.5					TRUE	71577.202	127.000
Chromium MGKG 10 1 700% 813240 164598 518 000 FALSE TRUE 707 697 5 Cobalt MGKG 11 0 11 1000% 31345 11690 40600 FALSE TRUE 20369 814 Copper MGKG 11 0 11 1000% 345864 24200 FALSE TRUE 470216.79 747 Loon MGKG 11 0 11 1000% 3460000 TRUE TRUE 470216.79 747 Lead MGKG 11 0 11 1000% 3460000 TRUE TRUE 470216.79 747 Magnesium MGKG 11 0 11 1000% 3464273 1800000 TRUE TRUE 477315 47316.79 Magnesium MGKG 11 0 11 1000% 35307 15400 TRUE TRUE 477317 47476 Magresium MGKG 11 0 <td< td=""><td>METALS</td><td>Calcium</td><td>MG/KG</td><td>=======================================</td><td></td><td>0</td><td>11 100.0</td><td>4</td><td>0.00</td><td></td><td></td><td>TRUE</td><td>619306.683</td><td>215000.000</td></td<>	METALS	Calcium	MG/KG	=======================================		0	11 100.0	4	0.00			TRUE	619306.683	215000.000
Cobalt MGKG 11 100 0% 13.34 11.690 40.600 FALSE TRUE 28.969 Copper MGKG 11 0 11 100.0% 307.610 2561976 R1400.000 FALSE TRUE 27.487 814 Copper MGKG 11 0 11 100.0% 34646.364 22213.481 7200 FALSE TRUE 47216.797 472 Load MGKG 11 0 11 100.0% 34646.364 22213.481 72000.000 FALSE TRUE 47216.797 473 Maguesse MGKG 11 0 11 100.0% 34646.364 5200.000 FALSE FALSE 477315 473 Manguesse MGKG 11 0 11 100.0% 34646.364 5230 FALSE FALSE 877315 347400 FALSE 147313 472 Marguesse MGKG 11 0 11 100.0% 34545 3591	METALS	Chromium	MG/KG	10		-	7 70.0					TRUE	707.697	518.000
Copper MGKG 11 100.0% 13076.100 25591976 81400.00 FALSE TRUE 470239.738 814 Cyanide MGKG 11 0 6 54.5% 4.00 7239 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727487 727480 727487 727480 727480 727480 727480 727480 727487 727480 727487 727480 727480 727487 727480 727480 727487 727480 727487 <td>METALS</td> <td>Cobalt</td> <td>MG/KG</td> <td>Π</td> <td></td> <td>0</td> <td>11 100.0</td> <td></td> <td></td> <td></td> <td></td> <td>TRUE</td> <td>28.969</td> <td>28.969</td>	METALS	Cobalt	MG/KG	Π		0	11 100.0					TRUE	28.969	28.969
Cyanide MG/KG 11 0 6 54.5% 4 097 7.237 24.200 FALSE TRUE 27.487 4726.797 472 473 472 472 472 472 472 472 472 472 473 474 472 473 474 474 474 474 <td>METALS</td> <td>Copper</td> <td>MG/KG</td> <td>11</td> <td></td> <td>0</td> <td>11 100.0</td> <td>-</td> <td></td> <td>152</td> <td></td> <td>TRUE</td> <td>4702309.728</td> <td>81400.000</td>	METALS	Copper	MG/KG	11		0	11 100.0	-		152		TRUE	4702309.728	81400.000
Figure F	METALS	Cyanide	MG/KG	11		0	6 54.5					TRUE	27.487	24.200
Lead MGKG 11 1000% 89540273 195108.759 577000.00 FALSE RALSE 8076858.546 5270 Magnesium MGKG 11 1000% 366.664 167.403 374.00 TRUE FALSE 8076858.546 5270 Magnesium MGKG 11 1000% 366.664 167.403 393.00 FALSE TRUE 14343.155 14343.155 1443.155 <	METALS	Iron	MG/KG			0	11 100.0	****		79200.00		TRUE	47216.797	47216.797
Magnesium MGKG 11 0 00% 11004-345 5999.121 19700.000 TRUE TRUE 14343.155 143 Manganese MGKG 11 0 11 100.0% 366.64 167.403 574.000 TRUE FALSE 457.315 457.000 FALSE TRUE 293.161 1 100.0% 53.337 359.71 145.22 7806.00 FALSE TRUE 293.161 1 145.21 3508.31.27	METALS	Lead	MG/KG	=======================================		0	11 100.0	~				FALSE	80768558.546	527000.000
Manganese MGKG 11 10,0% 366.64 167.403 574.00 TRUE FALSE 457.315 4 Mercury MGKG 11 0 9 81.8% 67.86 12.973 39.300 FALSE TRUE 999.175 999.175 Nokecury MGKG 11 100.0% 53.327 1.329.0 FALSE TRUE 293.161 399.175 Potassium MGKG 11 100.0% 53.245 2.3687.322 8600.000 FALSE FALSE 293.161 350.33.17 350.33.13 350.33.13 350.33.13 350.33.13 350.33.13 350.33.13 350.30 FALSE FALSE FALSE FALSE TRUE 439.753 350.00 FALSE TRUE 439.753 350.30 ALSE 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30 350.30	METALS	Magnesium	MG/KG	=		0	11 100.0	Ξ		19700.00		TRUE	14343.155	14343.155
Mercury MG/KG 11 0 9 81.8% 6.786 12.973 39.300 FALSE TRUE 949.175 Nickel MG/KG 11 10.00% 53.327 53.971 154.000 FALSE TRUE 293.161 1 Selenium MG/KG 11 0 11 10.00% 9675.45 2587.392 8060.000 FALSE TRUE 293.161 35.831.27 <td>METALS</td> <td>Manganese</td> <td>MG/KG</td> <td>=</td> <td></td> <td>0</td> <td>11 100.0</td> <td></td> <td>(3,03)</td> <td></td> <td>10000</td> <td>FALSE</td> <td>457.315</td> <td>457.315</td>	METALS	Manganese	MG/KG	=		0	11 100.0		(3,03)		10000	FALSE	457.315	457.315
Nickel MG/KG 11 100.0% 53.327 53.971 154.00 FALSE TRUE 293.161 1 Potassium MG/KG 11 100.0% 9673.455 23.87.392 80600.00 FALSE FALSE 3508.127 356 Selenium MG/KG 11 0 1 100.0% 9673.455 2.887.392 80600.00 FALSE TRUE 293.127 356 Silver MG/KG 11 0 1 100.0% 1295.364 1550.284 3690.00 FALSE TRUE 439.755 Sodium MG/KG 11 0 1 100.0% 14.682 14.00 TRUE 44.39.755 36.755 36.759 36.00 FALSE TRUE 439.755 36.710 ALSE 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.07 71.	METALS	Mercury	MG/KG	11		0	81.8					TRUE	949.175	39.300
Potassium MG/KG 11 100.0% 9675.455 23687.392 80600.000 FALSE FALSE FALSE 35083.127 <t< td=""><td>METALS</td><td>Nickel</td><td>MG/KG</td><td>=</td><td></td><td>0</td><td>11 100.0</td><td></td><td></td><td></td><td></td><td>TRUE</td><td>293.161</td><td>154.000</td></t<>	METALS	Nickel	MG/KG	=		0	11 100.0					TRUE	293.161	154.000
Selenium MG/KG 9 2 7 77.8% 1.453 1.722 5.80 FALSE TRUE 14.521 Silver MG/KG 8 3 4 50.0% 5.210 8.380 22.70 FALSE TRUE 439.755 Sodium MG/KG 11 0 1 100.0% 1295.364 1550.284 3690.00 FALSE TRUE 439.755 36 Thallium MG/KG 11 0 1 18.2% 0.451 0.418 1.40 FALSE TRUE 6.897 21.107 Vanadium MG/KG 11 100.0% 9735.273 15297.994 42600.00 FALSE TRUE 468392.143 42680.00 FALSE TRUE 468392.143 42680.00 FALSE TRUE 8.013 5.815 DES 24.45 13.00 FALSE TRUE 468392.143 42680.00 FALSE TRUE 8.013 8.013 8.013 8.013 8.013 8.013 8.013	METALS	Potassium	MG/KG	=		0	11 100.0	170.6					35083.127	35083.127
Silver MG/KG 8 3 4 50.0% 5.210 8.380 22.700 FALSE TRUE 439.755 36 Sodium MG/KG 11 10.00% 1295.364 1550.284 3690.00 FALSE TRUE 13203.672 36 Thallium MG/KG 11 0 1 10.00% 14.682 11.866 44.00 TRUE FALSE TRUE 0.897 Vanadium MG/KG 11 10 11 10.00% 9735.273 15297.994 42600.00 FALSE TRUE 468392.143 426 DES 2,4,5-T UG/KG 8 0 2 25.0% 4.913 3.461 13.00 FALSE TRUE 468392.143 426 DES 2,4,5-T UG/KG 8 0 1 12.5% 45.34 160.00 FALSE TRUE 86.504 DES 2,4-D UG/KG 8 0 1 12.5% 43.125 13.654	METALS	Selenium	MG/KG	6		2	7 77.8					8	14.521	5.800
Sodium MG/KG 11 100.0% 1295.364 1550.284 3690.000 FALSE TRUE 13203.672 36 Thallium MG/KG 11 0 2 18.2% 0.451 0.418 1.400 FALSE TRUE 0.897 0.897 Vanadium MG/KG 11 0 1 100.0% 9735.273 15.297.994 42.600.00 FALSE TRUE 6.8392.143 426 DES 2,4,5-T UG/KG 8 0 2 25.0% 4.913 3.461 13.00 FALSE TRUE 6.8392.143 426 DES 2,4,5-T UG/KG 8 0 1 12.5% 4.538 1.943 7.90 TRUE 8.135 DES 2,4-D UG/KG 8 0 1 12.5% 51.438 45.454 160.00 FALSE FALSE 92.918 DES 2,4-D UG/KG 8 0 1 12.5% 43.125 15.654	METALS	Silver	MG/KG	∞		3	4 50.0					TRUE	439.755	22.700
Thallium MG/KG 11 0 2 18.2% 0.451 0.418 1.400 FALSE TRUE 0.897 Vanadium MG/KG 11 0 11 100.0% 14.682 11.866 44.000 TRUE FALSE 21.107 Zinc MG/KG 11 0 11 100.0% 9735.273 15297.994 42600.000 FALSE TRUE 468392.143 426 DES 2,4,5-T UG/KG 8 0 2 25.0% 4.913 3.461 13.000 FALSE TRUE 468392.143 426 DES 2,4,5-T UG/KG 8 0 1 12.5% 51.438 45.454 160.000 FALSE FALSE 92.918 DES 2,4-D UG/KG 8 0 1 12.5% 51.750 34.534 130.000 FALSE TRUE 86.504 DES UG/KG 8 0 1 12.5% 433.125 15.654	METALS	Sodium	MG/KG	=		0	11 100.0					TRUE	13203.672	3690.000
Vanadium MG/KG 11 0 11 100.0% 14.682 11.866 44.000 TRUE FALSE 21.107 Zinc MG/KG 11 0 11 100.0% 9735.273 15297.994 42600.000 FALSE TRUE 468392.143 426 2,4,5-T UG/KG 8 0 2 25.0% 4.913 3.461 13.000 FALSE TRUE 8.013 5.815 2,4,5-TP/Silvex UG/KG 8 0 1 12.5% 51.438 45.454 160.000 FALSE FALSE 92.918 2,4-D UG/KG 8 0 1 12.5% 51.750 34.534 130.000 FALSE TRUE 86.504 Dichloroprop UG/KG 8 0 1 12.5% 43.125 15.654 61.000 TRUE 5898.323 58 MCPA UG/KG 8 0 1 12.5% 4300.000 TRUE TRUE 5898.323 58 </td <td>METALS</td> <td>Thallium</td> <td>MG/KG</td> <td>11</td> <td></td> <td>0</td> <td>2 18.2</td> <td></td> <td></td> <td></td> <td></td> <td>TRUE</td> <td>0.897</td> <td>0.897</td>	METALS	Thallium	MG/KG	11		0	2 18.2					TRUE	0.897	0.897
Zinc MG/KG 11 0 11 100.0% 9735.273 15297.994 42600.000 FALSE TRUE 468392.143 426 2,4,5-T UG/KG 8 0 2 25.0% 4.913 3.461 13.000 FALSE TRUE 8.013 5.815 2,4,5-TP/Silvex UG/KG 8 0 1 12.5% 51.438 45.454 160.000 FALSE FALSE 92.918 2,4-D UG/KG 8 0 1 12.5% 51.750 34.534 130.000 FALSE FALSE 92.918 Dichloroprop UG/KG 8 0 1 12.5% 43.125 15.654 61.000 TRUE TRUE 53.419 MCPA UG/KG 8 0 1 12.5% 4300.000 1549.424 6000.000 FALSE TRUE 5898.323 58	METALS	Vanadium	MG/KG	11		0	11 100.0					FALSE	21.107	21.107
2,4,5-T UG/KG 8 0 2 25.0% 4.913 3.461 13.000 FALSE TRUE 8.013 2,4,5-TP/Silvex UG/KG 8 0 1 12.5% 4.538 1.943 7.900 TRUE 5.815 2,4-D UG/KG 8 0 1 12.5% 51.750 34.534 130.000 FALSE FALSE 92.918 Dichloroprop UG/KG 8 0 1 12.5% 43.125 15.654 61.000 TRUE TRUE 86.504 MCPA UG/KG 8 0 1 12.5% 43.00.000 1549.424 6000.000 FALSE TRUE 5898.323 58	METALS	Zinc	MG/KG	11		0	11 100.0					TRUE	468392.143	42600.000
2,4,5-TP/Silvex UG/KG 8 0 1 12.5% 4.538 1.943 7.900 TRUE 5.815 2,4-D UG/KG 8 0 1 12.5% 51.438 45.454 160.000 FALSE FALSE 92.918 2,4-DB UG/KG 8 0 1 12.5% 51.750 34.534 130.000 FALSE TRUE 86.504 Dichloroprop UG/KG 8 0 1 12.5% 43.125 15.654 61.000 TRUE TRUE 53.419 MCPA UG/KG 8 0 1 12.5% 4300.000 1549.424 6000.000 FALSE TRUE 5898.323 58	HERBICIDES	2,4,5-T	UG/KG	8		0	2 25.0						8.013	8.013
2,4-D UG/KG 8 0 1 12.5% 51.438 45.454 160.000 FALSE FALSE 92.918 2,4-DB UG/KG 8 0 1 12.5% 51.750 34.534 130.000 FALSE TRUE 86.504 Dichloroprop UG/KG 8 0 1 12.5% 43.125 15.654 61.000 TRUE TRUE 53.419 MCPA UG/KG 8 0 1 12.5% 4300.000 1549.424 6000.000 FALSE TRUE 5898.323 58	HERBICIDES	2,4,5-TP/Silvex	UG/KG	80		0	1 12.5							5.815
2,4-DB UG/KG 8 0 1 12.5% 51.750 34.534 130.000 FALSE TRUE 86.504 Dichloroprop UG/KG 8 0 1 12.5% 43.125 15.654 61.000 TRUE TRUE 53.419 MCPA UG/KG 8 0 1 12.5% 4300.000 1549.424 6000.000 FALSE TRUE 5898.323 58	HERBICIDES	2,4-D	UG/KG	8		0	1 12.5							
Dichloroprop UG/KG 8 0 1 12.5% 43.125 15.654 61.000 TRUE TRUE 53.419 MCPA UG/KG 8 0 1 12.5% 4300.000 1549.424 6000.000 FALSE TRUE 5898.323 56	HERBICIDES	2,4-DB	UG/KG	00		0	1 12.5						86.504	86.504
MCPA UG/KG 8 0 1 12.5% 4300.000 1549.424 6000.000 FALSE TRUE 5898.323	HERBICIDES	Dichloroprop	UG/KG	80		0	1 12.5					TRUE	53.419	
	HERBICIDES	MCPA	UG/KG	8		0	1 12.5	276	State S			TRUE	5898.323	5898.323

95th UCL of Mean EPC 12817.632 1

12817.632

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO INDOOR DUST INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,1-Trichloroethane			NA	NA		
Bromomethane			1.40E-03	1.43E-03		
Chloroform			1.00E-02	6.10E-03		
Chloromethane			NA	NA		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Trichloroethene			NA	1.10E-02		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA NA		
2-Methylnaphthalene	1		NA	NA		
Acenaphthene	1		6.00E-02	NA NA		
Anthracene			3.00E-01	NA 1.46E100		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA NA	1.46E+01 1.46E+00		
Benzo(b)fluoranthene		1	3,43,50	NA		
Benzo(g,h,i)perylene			NA NA	1.46E+00		
Benzo(k)fluoranthene			2.00E+00	NA		
Butylbenzylphthalate Carbazole	1	1	NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate		1	8.50E-02	NA NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene	8		4.00E-02	NA		
Indeno(1,2,3-cd)pyrene	1		NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Phenol			6.00E-01	NA		
Pyrene			3.00E-02	NA LAGE 02		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
Pesticides/PCBs						
4,4'-DDD	1	1	5.00E-04	2.40E-01		
4,4'-DDE		1	NA	NA		
4,4'-DDT			5.00E-04	3.40E-01	propagation and	92/1/23/4/10 PATES
Aroclor-1254	4.77E-06	1.70E-06	1.90E-05	2.11E+00	2.51E-01	3.59E-06
Aroclor-1260		5.49E-07	NA	8.11E+00		4.45E-06
Dieldrin	1		5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA	1	
Endosulfan II	1		NA 2 corr of	NA		
Endrin	1		3.00E-04	NA 0.10E+00	1	
Heptachlor epoxide		1	1.30E-05	9.10E+00	1	
alpha-BHC			NA 6 00F 05	6.30E+00		
alpha-Chlordane	1		6.00E-05	1.30E+00 NA		
gamma-BHC (Lindane)	1		3.00E-04	NA NA	1	
gamma-Chlordane		1	NA	INA	1	1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO INDOOR DUST INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Nitroaromatics						
			5.00E-05	NA		
1,3,5-Trinitrobenzene			5.00E-04	3.00E-02		
2,4,6-Trinitrotoluene			5,0012-04	3.00E-02		
Metals						
Antimony			4.00E-04	NA		
Arsenic			2.94E-04	1.79E+00		
Barium			7.00E-03	NA	- 105+ 5H	
Cadmium	7.21E-05		3.00E-05	NA	2.40E+00	
Copper			2.00E-02	NA		
Cyanide			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA	100	
Selenium			3.00E-03	NA		
Silver		100	5.00E-03	NA		
Sodium			NA Table 05	NA		
Thallium			7.00E-05	NA NA	1 1 1 1 1	
Zinc			1.50E-01	NA		
Herbicides				100		
2,4,5-T			1.00E-02	NA		
2,4,5-TP (Silvex)			8.00E-03	NA		
2,4-D			1.00E-02	NA		
2,4-DB	-	(10)	8.00E-03	NA		
Dichloroprop	2.0		NA	NA		
MCPA	100		5.00E-04	NA		
МСРР			1.00E-03	NA		
Totals - HQ & CR					2.65E+00	8.04E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

Toxicity Values Soil Medium REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Oral RfD mg/kg/day	Carc. Slope Oral (mg/kg-day)-1	Dermal RfD mg/kg/day	Carc. Slope Dermal (mg/kg-day)-
Volatile Organics				
1,1,1-Trichloroethane	NA	NA	NA	NA
Bromomethane	1.40E-03	1.43E-03	1.40E-03	1.43E-03
Chloroform	1.00E-02	6.10E-03	1.00E-02	6.10E-03
Chloromethane	NA	NA	NA	NA
Methylene Chloride	6.00E-02	7.50E-03	6.00E-02	6.00E-02
Toluene	2.00E-01	NA	1.20E-01	NA
Trichloroethene	NA	1.10E-02	NA	1.10E-02
Semivolatile Organics				
2,4-Dinitrotoluene	2.00E-03	NA	2.00E-03	NA
2,6-Dinitrotoluene	1.00E-03	NA	1.00E-03	NA
2-methylnaphthalene	NA	NA	NA	NA
Acenaphthene	6.00E-02	NA	6.00E-02	NA
Anthracene	3.00E-01-	NA	3.00E-01	NA
Benzo(a)anthracene	NA	7.30E-01	NA	1.46E+00
Benzo(a)pyrene	NA	7.30E+00	NA	1.46E+01
Benzo(b)fluoranthene	NA	7.30E-01	NA	1.46E+00
Benzo(g,h,i)perylene	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	7.30E-01	NA	1.46E+00
Butylbenzylphthalate	2.00E+00	NA	2.00E+00	NA
Carbazole	NA	2.00E-02	NA	2.00E-02
Chrysene	NA	7.30E-02	NA	1.46E-01
Di-n-butylphthalate	1.00E-01	NA 7.20F. 00	8.50E-02	NA
Dibenz(a,h)anthracene	NA	7.30E+00	NA	1.46E+01
Dibenzofuran Diethylphthalate	NA 8.00E+00	NA NA	NA 8 00E+00	NA
Fluoranthene	4.00E-02	NA NA	8.00E+00 4.00E-02	NA NA
Fluorene	4.00E-02 4.00E-02	NA NA	4.00E-02	NA NA
Indeno(1,2,3-cd)pyrene	NA	7.30E-01	NA	1.46E+00
N-Nitrosodiphenylamine (1)	NA NA	4.90E-03	NA	4.90E-03
Naphthalene	NA NA	NA NA	NA	NA NA
Pentachlorophenol	3.00E-02	1.20E-01	3.00E-02	1.20E-01
Phenanthrene	NA NA	NA NA	NA	NA NA
Phenol	6.00E-01	NA	6.00E-01	NA
Pyrene	3.00E-02	NA	3.00E-02	NA
bis(2-Ethylhexyl)phthalate	2.00E-02	1.40E-02	2.00E-02	1.40E-02
Pesticides				
4,4'-DDD	5.00E-04	2.40E-01	5.00E-04	2.40E-01
4,4'-DDE	NA	NA	NA	NA
4,4'-DDT	5.00E-04	3.40E-01	5.00E-04	3.40E-01
Aroclor-1254	2.00E-05	2.00E+00	1.90E-05	2.11E+00
Aroclor-1260	NA	7.70E+00	NA	8.11E+00
Dieldrin	5.00E-05	1.60E+01	5.00E-05	1.60E+01
Endosulfan I	6.00E-03	NA	6.00E-03	NA
Endosulfan II	NA 2 00F 04	NA NA	NA 2 00E 04	NA
Endrin	3.00E-04	NA 0.10E+00	3.00E-04	NA 0.10E+00
Heptachlor epoxide	1.30E-05	9.10E+00	1.30E-05	9.10E+00
alpha-BHC alpha-Chlordane	NA 6.00E-05	6.30E+00 1.30E+00	NA 6.00E-05	6.30E+00 1.30E+00
gamma-BHC (Lindane)	3.00E-04	NA	3.00E-04	1.30E+00 NA
gamma-BHC (Emdane) gamma-Chlordane	NA	NA NA	NA	NA NA
Nitroaromatics				
1,3,5-Trinitrobenzene	5.00E-05	NA	5.00E-05	NA

Toxicity Values Soil Medium REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Oral RfD mg/kg/day	Carc. Slope Oral (mg/kg-day)-1	Dermal RfD mg/kg/day	Carc. Slope Dermal (mg/kg-day)-
2,4,6-Trinitrotoluene	5.00E-04	3.00E-02	5.00E-04	3.00E-02
Metals				
Antimony	4.00E-04	NA	4.00E-04	NA
Arsenic	3.00E-04	1.75E+00	2.94E-04	1.79E+00
Barium	7.00E-02	NA	7.00E-03	NA
Cadmium	5.00E-04	NA	3.00E-05	NA
Copper	4.00E-02	NA	2.00E-02	NA
Cyanide	2.00E-02	NA	2.00E-02	NA
Lead	NA	NA	NA	NA
Mercury	3.00E-04	NA	4.50E-05	NA
Selenium	5.00E-03	NA	3.00E-03	NA
Silver	5.00E-03	NA	5.00E-03	NA
Sodium	NA	NA	NA	NA
Thallium	7.00E-05	NA	7.00E-05	NA
Zinc	3.00E-01	NA	1.50E-01	NA
Herbicides				
2,4,5-T	1.00E-02	NA	1.00E-02	NA
2,4,5-TP (Silvex)	8.00E-03	NA	8.00E-03	NA
2,4-D	1.00E-02	NA	1.00E-02	NA
2.4-DB	8.00E-03	NA	8.00E-03	NA
Dichloroprop	NA	NA	NA	NA
MCPA	5.00E-04	NA	5.00E-04	NA
MCPP	1.00E-03	NA	1.00E-03	NA

CALCULATION OF INTAKE FROM INGESTION OF INDOOR DUST INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC Solids	Ingestion Rate (mg solids/dav)	Conv. Factor	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Aver Ti (dč	Averaging Time (days)
	(fan Su Am)	(for Su Su)	(9, 6,)	((m) (m) (m) (m)	(66)				ò	Nc	Car
Volatile Organics											
1,1,1-Trichloroethane		99	6.27E-03	100	1.00E-06	-	250	25	70	9,125	25,550
Bromomethane	0.00E+00	0.00E+00	0.00E+00	001	1.00E-06		250	25	20	9,125	25,550
Chloromethone	0.005+00	0.005+00	0.005+00	861	1.00E-06		250	25	2 2	9,125	25,550
Methylene Chloride	6.13E-09	2.19E-09	6.27E-03	100	1.00E-06		250	25	70	9,125	25,550
Toluene	1.28E-08	200	1.31E-02	100	1.00E-06		250	25	0 2 6	9,125	25,550
Trichloroethene		3.96E-09	1.13E-02	100	1.00E-06	-	067	9	0/	671,6	73,330
Semivolatile Organics											
2,4-Dinitrotoluene	2.94E-03		3.00E+03	100	1.00E-06		250	25	70	9,125	25,550
2,6-Dinitrotoluene	7.24E-05		7.40E+01	001	1.00E-06		250	25	0,2	9,125	25,550
2-Methylnaphthalene	4 40E 06		1.90E+01	000	1.00E-06		250	2 %	0,7	9,125	25,550
Acenaphthene	2.84E-06		4.30E+00	100	1.00E-06		250	2 52	202	9,125	25,550
Benzo(a)anthracene		5.59E-07	1.60E+00	100	1.00E-06	-	250	25	70	9,125	25,550
Benzo(a)pyrene		5.24E-07	1.50E+00	100	1.00E-06	-	250	25	70	9,125	25,550
Benzo(b)fluoranthene		5.59E-07	1.60E+00	100	1.00E-06		250	25	70	9,125	25,550
Benzo(g,h,i)perylene		6 50E 07	8.05E-01	100	1.00E-06		250	2 %	0,6	9,125	25,550
Benzo(k)fluoranthene	5.78E-05	70-365-07	5.40F±01	100	1.00E-06		250	25	70	9.125	25,550
Carbazole	00.707.0	1.51E-07	4.33E-01	100	1.00E-06		250	25	70	9,125	25,550
Chrysene		6.64E-07	1,90E+00	100	1.00E-06	_	250	25	70	9,125	25,550
Di-n-butylphthalate	9.30E-04		9.50E+02	100	1.00E-06	-	250	25	70	9,125	25,550
Dibenz(a,h)anthracene		1.29E-07	3.69E-01	100	1.00E-06		250	25	70	9,125	25,550
Dibenzofuran	10 101 0		1.50E+00	001	1.00E-06		250	5 5	9 9	0,125	25,550
Diethylphthalate	2 075 06		3.00E±00	100	1.00E-06		250	3,0	0,0	0,125	25,550
Fluoranthene	5.97E-06		6.10F+00	801	1.00E-06	-	250	25	70	9.125	25.550
Indeno(1.2 3-cd)nyrene		1.11E-07	3.17E-01	100	1.00E-06	-	250	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)		6.99E-05	2.00E+02	100	1.00E-06	_	250	25	70	9,125	25,550
Naphthalene			1.60E+00	100	1.00E-06	-	250	25	70	9,125	25,550
Pentachlorophenol	2.15E-07	7.69E-08	2.20E-01	100	1.00E-06	_	250	25	70	9,125	25,550
Phenanthrene		angle described	2.20E+01	100	1.00E-06	-	250	25	70	9,125	25,550
Phenol	3.62E-05		3.70E+01	100	1.00E-06	-	250	25	70	9,125	25,550
Pyrene	4.89E-06		5.00E+00	100	1.00E-06	-	250	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate	4.89E-06	1.75E-06	5.00E+00	100	1 00F-06		250	25	20	0 125	05550

CALCULATION OF INTAKE FROM INGESTION OF INDOOR DUST INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Solids (mg/kg)	Ingestion Rate (mg solids/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (dz	Averaging Time (days)
								6.		Nc	Car
Pesticides/PCBs											
4,4'-DDD	2.95E-08	1.05E-08	3.01E-02	100	1.00E-06	-	250	25	70	9,125	25,550
4,4'-DDE			7.50E-01	100	1.00E-06	-	250	25	70	9,125	25,550
4,4'-DDT	9.20E-07	3.28E-07	9.40E-01	100	1.00E-06	-	250	25	70	9,125	25,550
Aroclor-1254	1.37E-06	4.89E-07	1.40E+00	100	1.00E-06		250	25	70	9,125	25,550
Aroclor-1260		1.58E-07	4.51E-01	001	1.00E-06	 .	250	25	70	9,125	25,550
Dieldrin	1.78E-08	6.37E-09	1.82E-02	001	1.00E-06		250	25	70	9,125	25,550
Endosulfan II	1.745-08		1.78E-02 4 99E-03	100	1.00E-06		250	9 %	0,6	0,125	055,550
Endrin	5 89F-09		6 02E-03	100	1.00E-06		250	25	202	9,125	25,530
Heptachlor epoxide	2.40E-09	8.56E-10	2.45E-03	100	1.00E-06		250	25	70	9.125	25,550
alpha-BHC		9.85E-10	2.82E-03	100	1.00E-06	-	250	25	70	9,125	25,550
alpha-Chlordane	3.98E-08	1.42E-08	4.07E-02	100	1.00E-06	-	250	25	70	9,125	25,550
gamma-BHC (Lindane)	9.10E-10		9.30E-04	100	1.00E-06	-	250	25	20	9,125	25,550
gamma-Chlordane			3.27E-02	100	1.00E-06	_	250	25	70	9,125	25,550
Nitroaromatics		1 8									
1,3,5-Trinitrobenzene	0.00E+00		0.00E+00	100	1.00E-06	-	250	25	70	9,125	25.550
2,4,6-Trinitrotoluene	80-366-08	3.57E-08	1.02E-01	100	1.00E-06	-	250	25	70	9,125	25,550
Metals	1										
Antimony	1.53E-03		1.56E+03	100	1.00E-06	_	250	25	70	9.125	25 550
Arsenic	3.65E-05	1.30E-05	3.73E+01	100	1.00E-06	_	250	25	70	9,125	25.550
Barium	3.96E-02		4.05E+04	100	1.00E-06	1	250	25	70	9,125	25,550
Cadmium	1.24E-04		1.27E+02	100	1.00E-06	_	250	25	70	9,125	25,550
Copper	7.96E-02		8.14E+04	100	1.00E-06	_	250	25	70	9,125	25,550
Cyanide	2.37E-05		2.42E+01	100	1.00E-06	-	250	25	70	9,125	25,550
Lead			5.27E+05	100	1.00E-06	_	250	25	70	9,125	25,550
Mercury	3.85E-05		3.93E+01	100	1.00E-06	-	250	25	70	9,125	25,550
Selenium	5.68E-06		5.80E+00	100	1.00E-06	_	250	25	70	9,125	25,550
Silver	2.22E-05		2.27E+01	100	1.00E-06	-	250	25	70	9,125	25,550
Sodium			3.69E+03	100	1.00E-06	-	250	25	70	9,125	25,550
Thallium	8.77E-07		8.97E-01	100	1.00E-06	_	250	25	70	9,125	25,550
Zinc	4.17E-02		4 26F+04	100	1 00 5 06		030	20	1	30.0	011

TABLE 6-28

CALCULATION OF INTAKE FROM INGESTION OF INDOOR DUST INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC	Ingestion Rate	Conv. Factor	Fraction Ingested	Exposure Frequency	Exposure Duration	Body	Aver	Averaging
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg solids/day)	(kg/mg)	(unitless)	(days/year)	(years)	(kg)	, da	(days)
Herbicides											
2.4.5-T	7.84E-09		8.01E-03	100	1.00E-06	-	250	25	70	9,125	25,550
2,4,5-TP (Silvex)	5.69E-09		5.82E-03	100	1.00E-06	1	250	25	70	9,125	25,550
2.4-D	9.09E-08		9.29E-02	100	1.00E-06	-	250	25	70	9,125	25,550
2,4-DB	8.46E-08		8.65E-02	100	1.00E-06	-	250	25	70	9,125	25,550
Dichloroprop			5.34E-02	100	1.00E-06	-	250	25	70	9,125	25,550
MCPA	5.77E-06		5.90E+00	100	1.00E-06	-	250	25	70	9,125	25,550
MCPP	1.25E-05		1.28E+01	100	1.00E-06	-	250	25	70	9,125	25,550
EQUATION:											
	Intake $(mg/kg-day) = CSxIRxCFxFIxEFxED$ BWxAT	CSxIRxCFxF BWxAT	Ix EF x ED	35							
	Variables:					Assumptions:					
	CS = Chemical Concentration (mg solid IR = Ingestion Rate (mg solid/day) CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	centration (mg soli (mg solid/day) actor (10-6 kg/mg) led (unitless) quency (days/years ation (years) kg)	solid/kg) ng) ears)			EPC Solid Data - RME 100 (RME Adult Worker) 10-6 1 (All Receptors) 250 25 (RME Adult Worker) 70 (Adult male) 25 x 365 (Nc) 70 x 365 (Car)	- RME it Worker) s) Worker)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF INDOOR DUST INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,1-Trichloroethane	1 - Sec. 150	55 0000000990	NA	NA	0.005.00	0.005.00
Bromomethane	0.00E+00	0.00E+00	1.40E-03	1.43E-03	0.00E+00	0.00E+00
Chloroform	0.00E+00	0.00E+00	1.00E-02	6.10E-03	0.00E+00	0.00E+00
Chloromethane	67042182788		NA	NA 7.50F.03	1.025.02	1 640 11
Methylene Chloride	6.13E-09	2.19E-09	6.00E-02	7.50E-03	1.02E-07	1.64E-11
Toluene	1.28E-08		2.00E-01	NA 	6.41E-08	4 20E 11
Trichloroethene		3.96E-09	NA	1.10E-02		4.36E-11
Semivolatile Organics	1 88				15.5%	
2,4-Dinitrotoluene	2.94E-03		2.00E-03	NA	1.47E+00	
2,6-Dinitrotoluene	7.24E-05		1.00E-03	NA	7.24E-02	
2-Methylnaphthalene	1,77		NA	NA		
Acenaphthene	4.40E-06		6.00E-02	NA	7.34E-05	
Anthracene	2.84E-06		3.00E-01	NA	9.46E-06	5.86
Benzo(a)anthracene		5.59E-07	NA	7.30E-01		4.08E-07
Benzo(a)pyrene		5.24E-07	NA	7.30E+00	3-1	3.83E-06
Benzo(b)fluoranthene		5.59E-07	NA	7.30E-01		4.08E-07
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		5.59E-07	NA	7.30E-01	NAME OF THE PARTY	4.08E-07
Butylbenzylphthalate	5.28E-05	260000000000000000000000000000000000000	2.00E+00	NA	2.64E-05	TE SOCIETA
Carbazole		1.51E-07	NA	2.00E-02		3.03E-09
Chrysene		6.64E-07	NA	7.30E-02	1 VANDERS OF STREET	4.85E-08
Di-n-butylphthalate	9.30E-04		1.00E-01	NA	9.30E-03	50.705.0500
Dibenz(a,h)anthracene		1.29E-07	NA	7.30E+00		9.42E-07
Dibenzofuran			NA	NA	V 0.00000000000000000000000000000000000	
Diethylphthalate	3.72E-07		8.00E+00	NA	4.65E-08	
Fluoranthene	3.82E-06		4.00E-02	NA	9.54E-05	
Fluorene	5.97E-06		4.00E-02	NA	1.49E-04	
Indeno(1,2,3-cd)pyrene		1.11E-07	NA	7.30E-01		8.10E-08
N-Nitrosodiphenylamine (1)		6.99E-05	NA	4.90E-03		3.42E-07
Naphthalene			NA	NA		0.000.00
Pentachlorophenol	2.15E-07	7.69E-08	3.00E-02	1.20E-01	7.18E-06	9.23E-09
Phenanthrene	4		NA	NA	6 00F 05	
Phenol	3.62E-05		6.00E-01	NA	6.03E-05	
Pyrene	4.89E-06	CONTROL WAS A WAY	3.00E-02	NA	1.63E-04	2 455 00
bis(2-Ethylhexyl)phthalate	4.89E-06	1.75E-06	2.00E-02	1.40E-02	2.45E-04	2.45E-08
Pesticides/PCBs			100			
4,4'-DDD	2.95E-08	1.05E-08	5.00E-04	2.40E-01	5.90E-05	2.53E-09
4,4'-DDE	2402-6		NA	NA		
4,4'-DDT	9.20E-07	3.28E-07	5.00E-04	3.40E-01	1.84E-03	1.12E-07
Aroclor-1254	1.37E-06	4.89E-07	2.00E-05	2.00E+00	6.85E-02	9.78E-07
Aroclor-1260		1.58E-07	NA	7.70E+00	2 500 01	1.21E-06
Dieldrin	1.78E-08	6.37E-09	5.00E-05	1.60E+01	3.57E-04	1.02E-07
Endosulfan I	1.74E-08		6.00E-03	NA	2.90E-06	
Endosulfan II	57223452345		NA NA	NA	1.000.00	
Endrin	5.89E-09	. 1/22/17	3.00E-04	NA 0.105.00	1.96E-05	7 700 00
Heptachlor epoxide	2.40E-09	8.56E-10	1.30E-05	9.10E+00	1.84E-04	7.79E-09
alpha-BHC	Engagemental A	9.85E-10	NA SOF OF	6.30E+00	6 625 04	6.21E-09
alpha-Chlordane	3.98E-08	1.42E-08	6.00E-05	1.30E+00	6.63E-04	1.85E-0
gamma-BHC (Lindane)	9.10E-10		3.00E-04 NA	NA NA	3.03E-06	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF INDOOR DUST INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Nitroaromatics						
1,3,5-Trinitrobenzene	0.00E+00		5.00E-05	NA	0.00E+00	
2,4,6-Trinitrotoluene	9.99E-08	3.57E-08	5.00E-04	3.00E-02	2.00E-04	1.07E-09
Metals						
Antimony	1.53E-03		4.00E-04	NA	3.82E+00	
Arsenic	3.65E-05	1.30E-05	3.00E-04	1.75E+00	1.22E-01	2.28E-05
Barium	3.96E-02		7.00E-02	NA	5.66E-01	
Cadmium	1.24E-04		5.00E-04	NA	2.49E-01	
Соррег	7.96E-02		4.00E-02	NA	1.99E+00	
Cyanide	2.37E-05		2.00E-02	NA	1.18E-03	
Lead		1 44	NA	NA		
Mercury	3.85E-05		3.00E-04	NA	1.28E-01	
Selenium	5.68E-06		5.00E-03	NA	1.14E-03	
Silver	2.22E-05		5.00E-03	NA	4.44E-03	
Sodium	100000000000000000000000000000000000000		NA	NA		
Thallium	8.77E-07		7.00E-05	NA	1.25E-02	
Zinc	4.17E-02		3.00E-01	NA	1.39E-01	
Herbicides						
2.4.5-T	7.84E-09		1.00E-02	NA	7.84E-07	
2.4.5-TP (Silvex)	5.69E-09		8.00E-03	NA	7.11E-07	
2,4-D	9.09E-08	1	1.00E-02	NA	9.09E-06	
2,4-DB	8.46E-08		8.00E-03	NA	1.06E-05	
Dichloroprop			NA	NA	H2004/1907/40000	
MCPA	5.77E-06		5.00E-04	NA	1.15E-02	
MCPP	1.25E-05		1.00E-03	NA	1.25E-02	
Totals - HQ & CR					8.68E+00	3.17E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO INDOOR DUST FUTURE WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc)	Dose (Car)	EPC Solids	Conv. Factor	Skin Surface Area Contact	Adherence Factor (mg solids/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Avera Tir (da	ys)
Analyte	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm²/event)	(trig solids/em/	(unincos)				Ne	Car
olatile Organics			1 - 171 1					5703.944	3000	24	9,125	25,550
	1		6.27E-03	1.00E-06	5,800	1.0		250 250	25 25	70 70	9,125	25,550
1.1-Trichloroethane	11 12		1333000	1.00E-06	5,800	1.0		250	25	70	9,125	25,550
romomethane hloroform	No. 1		Test and	1.00E-06	5,800	1.0		250	25	70	9,125	25,550
hlorotorm			17772444	1.00E-06	5,800 5,800	1.0		250	25	70	9,125	25,550
ethylene Chloride	(4) Th		6.27E-03	1.00E-06 1.00E-06	5,800	1.0		250	25	70	9,125	25,550 25,550
luene			1.31E-02 1.13E-02	1.00E-06	5,800	1.0		250	25	70	9,125	23,330
richloroethene			1.131.50	2000 China								
emivolatile Organica			3.00E+03	1.00E-06	5,800	1.0		250	25	70	9,125	25,550 25,550
4-Dinitrotoluene			7.40E+01	1.00E-06	5,800	1.0		250	25 25	70	9,125 9,125	25,550
6-Dinitrotoluene			1.90E+01	1.00E-06	5,800	1.0		250 250	25	70	9,125	25,550
-Methylnaphthalene			4.50E+00	1.00E-06	5,800	1.0	1	250	25	70	9,125	25,550
cenaphthene			2.90E+00	1.00E-06	5,800	1.0	1	250	25	70	9,125	25,550
inthracene			1.60E+00	1.00E-06	5,800	1.0	1	250	25	70	9,125	25,550
ienzo(a)anthracene lenzo(a)pyrene		1	1.50E+00	1.00E-06	5,800	1.0		250	25	70	9,125	25,550
lenzo(b)fluoranthene			1.60E+00	1.00E-06	5,800 5,800	1.0		250	25	70	9,125	25,550
lenzo(g.h.i)perylene	1		8,05E-01	1.00E-06 1.00E-06	5,800	1.0	1	250	25	70	9,125	25,550
Benzo(k)fluoranthene		4.1	1.60E+00 5.40E+01	1.00E-06	5,800	1.0		250	25	70 70	9,125 9,125	25,550
utylbenzylphthalate			4.33E-01	1.00E-06	5,800	1.0		250	25	70	9,125	25,550
Carbazole			1.90E+00	1.00E-06	5,800	1.0		250 250	25 25	70	9,125	25,550
Chrysene			9.50E+02	1.00E-06	5,800	1.0		250	25	70	9,125	25,550
Di-n-butylphthalate			3.69E-01	1.00E-06	5,800	1.0		250	25	70	9,125	25,550
Sibenz(a,h)anthracene Sibenzofuran			1.50E+00	1,00E-06	5,800 5,800	1.0	1	250	25	70	9,125	25,556
Diethylphthalate			3.80E-01	1,00E-06	5,800	1.0	1	250	25	70	9,125	25,550
luoranthene			3.90E+00	1.00E-06 1.00E-06	5,800	1.0		250	25	70	9,125	25,550
Tuorene			6.10E+00 3.17E-01	1.00E-06	5,800	1.0		250	25	70	9,125 9,125	25,550
ndeno(1,2,3-ed)pyrene		1000	2.00E+02	1.00E-06	5,800	1.0		250	25	70 70	9,125	25,550
I-Nitrosodiphenylamine (1)			1.60E+00	1.00E-06	5,800	1.0		250 250	25 25	70	9,125	25,550
Vaphthalene Pentachlorophenol		1	2.20E-01	1.00E-06	5,800	1.0	_	250	25	70	9,125	25,550
henanthrene			2.20E+01	1.00E-06	5,800 5,800	1.0		250	25	70	9,125	25,550
henol		1.00	3.70E+01	1.00E-06 1.00E-06	5,800	1.0		250	25	70	9,125	25,55
vrene			5.00E+00 5.00E+00	1.00E-06	5,800	1.0		250	25	70	9,125	25,55
ois(2-Ethylhexyl)phthalate			3.001.100	100000	100000000000000000000000000000000000000							
Pesticides/PCBs												
CHINDRENICOR		1	55400040	17222020	5,800	1.0		250	25	70	9,125	25,550
1,4'-DDD	1		3.01E-02	1.00E-06 1.00E-06	5,800	1.0		250	25	70	9,125	25,550
4,4'-DDE			7.50E-01 9.40E-01	1.00E-06	5,800	1.0		250	25	70	9,125	25,550
4,4'-DDT	177244133	1 707 07	1.40E+00	1.00E-06	5,800	1.0	0.06	250	25	70	9,125 9,125	25,55
Aroclor-1254	4.77E-06	1.70E-06 5.49E-07	4.51E-01	1.00E-06	5,800	1.0	0.06	250	25	70 70	9,125	25,55
Aroclor-1260		3.496-01	1.82E-02	1.00E-06	5,800	1.0		250	25 25	70	9,125	25,55
Dieldrin Endosulfan I			1.78E-02	1.00E-06	5,800	1.0		250 250	25	70	9,125	25,55
Endosulfan II			4.99E-03	1.00E-06	5,800	1.0	1	250	25	70	9,125	25,55
Endrin			6.02E-03	1.00E-06	5,800 5,800	1.0		250	25	70	9,125	25,55
Heptachlor epoxide			2.45E-03	1.00E-06	5,800	1.0		250	25	70	9,125	25,55
alpha-BHC	1		2.82E-03	1.00E-06 1.00E-06	5,800	1.0	1	250	25	70	9,125	25,55
alpha-Chlordane	1		4.07E-02 9.30E-04	1.00E-06	5,800	1.0	1	250	25	70	9,125	25,55
gamms-BHC (Lindane) gamma-Chlordane		0.14	3.27E-02	1.00E-06	5,800	1.0		250	25	70	9,125	25,55
			-									
Nitrogromatics	1			1.00E-06	5,800	1.0		250	25	70	9,125	25,55
1.3.5-Trinitrobenzene 2.4.6-Trinitrotoluene			1.02E-01	1.00E-06	5,800	1.0		250	25	70	9,125	25,55
Metala							1		5901	960		
			1.56E+03	1.00E-06	5,800	1.0		250	25	70	9,125 9,125	25,55 25,55
Antimony	1		3.73E+01	1.00E-06	5,800	1.0		250	25	70 70	9,125	25,55
Arsenic			4.05E+04	1.00E-06	5,800	1.0	0.01	250 250	25 25	70	9,125	25,55
Barium Cadmium	7.21E-05		1.27E+02	1.00E-06	5,800	1.0	0.01	250	25	70	9,125	25,55
Copper	0.00000000		8.14E+04	1.00E-06	5,800 5,800	1.0		250	25	70	9,125	25,55
Cyanide			2.42E+01	1.00E-06 1.00E-06	5,800	1.0	1	250	25	70	9,125	25,55
Lend		1	5.27E+05 3.93E+01	1.00E-06	5,800	1.0		250	25	70	9,125	25,55 25,55
Mercury			5.80E+00	1.00E-06	5,800	1.0	1	250	25	70 70	9,125 9,125	25,55
Selenium			2.27E+01	1.00E-06	5,800	1.0		250	25 25	70	9,125	25,55
Silver			3.69E+03	1.00E-06	5,800	1.0		250 250	25	70	9,125	25,55
Sodium Thallium			8.97E-01	1.00E-06 1.00E-06	5,800 5,800	1.0		250	25	70	9,125	25,55
Zinc			4.26E+04	E.ODE-OG	3,000	,		7.4000	1			
Herbicides				LOOP of	5,800	1.0		250	25	70	9,125	25,55
2,4,5-T			8.01E-03 5.82E-03	1.00E-06 1.00E-06	5,800	1.0		250	25	70	9,125	25,5
2.4.5-TP (Silvex)			9.29E-02	1.00E-06	5,800	1.0		250	25	70	9,125	25,5
2.4-D			8.65E-02	1.00E-06	5,800	1.0		250	25	70 70	9,125 9,125	25,5
2,4-DB			5.34E-02	1.00E-06	5,800	1.0		250	25 25	70	9,125	25,5
Dichloroprop	1		5.90E+00	1.00E-06 1.00E-06	5,800 5,800	1.0		250 250	25	70	9,125	25,5
MCPA			1.28E+01									

EQUATION:

Absorbed dose (mg/kg-day) =

CS x CF x SA x AF x ABS x EF x ED BW x AT

Variables:

Assumptions:

Variables:

EF = Exposure Frequency (events/year)
ED = Exposure Duration (years)
BW = Bodyweight (kg)
AT = Averaging Time (days)

Assumptions:

250 (RME Adult Worker) 25 (RME Adult Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)

CS = Chemical Concentration (mg solid/kg)

CF = Conversion Factor (10-6 kg/mg)

SA = Surface Area Contact (cm)

AF = Soli to Skin Adherence Factor (mg/cm)

ABS = Absorption Factor (unitless)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

		6.888	5.000	8.080	5.000	2.000	2.000	3.000	7.016	4.250	2144.381	180.000	1229.588	2155.796	308.340	2011.200	7195.470	11520.198	9847.431	5889.049	4709.947	1269.840	1869.181	8640.767	120.000	714.218	2353.560	1617.219	19.000	11261.722	1731.206	5554.813	577.024	1953.704	1156.083	7327.205	12639.496	4.378
	EPC			_	_		,-				7	5												∞					22			16767				#055 0650		~
95th UCL	of Mean	6.888	6.107	8.080	5.889	5.903	4.786	5.746	7.016	5.718	2144.381	195.607	1229.588	2155.796	308.340	2011.200	7195.470	11520.198	9847.431	5889.049	4709.947	1269.840	1869.181	8640.767	196.598	714.218	2353.560	1617.219	241.142	11261.722	1731.206	5554.813	577.024	1953.704	1156.083	7327.205	12639.496	4.378
Lognormal 95th UCL	6	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	Normal?	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE	FALSE	FALSE		FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	Max. Hit	7.750	5.000	46.000	5.000	2.000	2.000	3.000	10.000	4.250	2200.000	180.000	19000.000	72000.000	310.000	120000.000	220000.000	200000.000	200000.000	100000.000	170000.000	2100.000	89000.000	220000.000	120.000	1300.000	49000.000	50000.000	19.000	530000.000	78000.000	100000.000	680.000	66000.000	1200.000	490000.000	360000.000	5.000
	Std. Dev. N	3.707	0.993	7.761	1.334	1.047	1.424	0.731	4.289	0.616	7769.222	22.716	3376.451	12309.156	175.317	20514.996 1	37620.127 2	34173.558 2	34163.821 2	17108.725 1	29063.409 1	1236.111	15213.722	37627.269 2	25.623	1205.788	8381.335	8561.869	42.370	90752.290 5	13330.003	17068.183 1	366.070	11284.525	750.479	83921.323 4	61603.645 3	5.331
		6.404	5.414	7.404	5.164	5.375	4.195	5.492	5.809	5.539	2084.676	187.273	1114.471	2666.412	231.464	4099.176	505	6827.265	929:5889	4126.353	5736.000	576.955	3162.324	7255.500	185.952	554.667	2086.559	2013.500	180.905	6280.0859	2858.412	3953.059	395.938	2492.206	883.387	15149.206	11578.412	3.835
	Freq. (%) Mean	2.9%	3.1%	2.9%	15.6%	6.3%	6.3%	3.1%	38.2%	3.1%	17.6%	13.6%	14.7%	20.6%	25.0%	29.4%	25.9%	%8.19	25.9%	52.9%	47.1%	15.2%	20.6%	%9.02	4.8%	24.2%	41.2%	14.7%	4.8%	70.6% 1	11.8%	47.1%	21.9%	17.6%	6.5%	55.9% 1	73.5% 1	5.9%
Jo.		-	-	-	5	7	7	-	13	П	9	3	2	7	7	10	19	21	19	18	16	2	7	24	-	∞	14	5	-	24	4	16	7	9	2	19	25	7
oN b	Hits	0	2	0	2	2	2	7	0	2	0	12	0	0	9	0	0	0	0	0	0	_	0	0	13		0	0	13	0	0	0	2	0	3	0	0	0
No. of Rejected No. of	SQLs											18275.																										
No. of N	Analyses S	34	32	34	32	32	32	32	34	32	34	22	34	34	28	34	34	34	34	34	34	33	34	34	21	33	34	34	21	34	34	34	32	34	31	34	34	34
	Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
	Parameter	1,1,2,2-Tetrachloroethane	2-Butanone	Acetone	Benzene	Carbon disulfide	Chloroform	Methylene chloride	Toluene	Total Xylenes	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[ghi]perylene	Benzo[k]fluoranthene	Bis(2-Ethylhexyl)phthalate	Carbazole	Chrysene	Cresols (-o)	Di-n-butylphthalate	Dibenz[a,h]anthracene	Dibenzofuran	Diethyl phthalate	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	N-Nitrosodiphenylamine	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	4.4'-DDD
	Class	VOLATILE ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	SEMIVOLATILE ORGANIC	PESTICIDES/PCB											

No. of

No. of

		Λ	Valid Re	Rejected No. of	o. of						Lognormal 95th UCI	95th UCL	
Class	Parameter	Units A	Analyses SC	SQLs Hi		Freq. (%) Mean		Std. Dev. N	Max. Hit	Normal?		of Mean E	EPC
PESTICIDES/PCB	4,4'-DDT	UG/KG	34	0	17	20.0%	7.022	8.625	43.000	FALSE	FALSE	9.855	9.855
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	34	0	4	11.8%	2.344	2.896	8.600	FALSE	FALSE	2.929	2.929
PESTICIDES/PCB	Aroclor-1260	UG/KG	30	4	1	3.3%	18.500	1.462	22.000	FALSE	FALSE	19.136	19.136
PESTICIDES/PCB	Beta-BHC	UG/KG	34	0	П	2.9%	2.265	3.985	20.000	FALSE	FALSE	2.453	2.453
PESTICIDES/PCB	Delta-BHC	UG/KG	33	1	н	3.0%	1.735	2.398	2.200	FALSE	FALSE	1.918	1.918
PESTICIDES/PCB	Dieldrin	UG/KG	34	0	n	8.8%	4.201	5.924	26.000	FALSE	FALSE	4.993	4.993
PESTICIDES/PCB	Endosulfan I	UG/KG	34	0	11	32.4%	16.836	73.364	430.000	FALSE	FALSE	13.778	13.778
PESTICIDES/PCB	Endosulfan II	UG/KG	34	0	n	8.8%	3.938	5.309	5.000	FALSE	FALSE	4.548	4.548
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	34	0	1	2.9%	3.825	5.542	20.000	FALSE	FALSE	4.287	4.287
PESTICIDES/PCB	Endrin	UG/KG	34	0	4	11.8%	4.876	8.310	43.000	FALSE	FALSE	5.588	5.588
PESTICIDES/PCB	Endrin aldehyde	UG/KG	31	3	-	3.2%	2.365	2.823	3.000	FALSE	FALSE	2.515	2.515
PESTICIDES/PCB	Endrin ketone	UG/KG	34	0	4	11.8%	5.460	12.512	71.000	FALSE	FALSE	5.579	5.579
PESTICIDES/PCB	Gamma-Chlordane	UG/KG	34	0	3	8.8%	2.499	3.163	9.400	FALSE	FALSE	3.171	3.171
PESTICIDES/PCB	Heptachlorepoxide	UG/KG	33	П	7	6.1%	1.738	2.399	2.100	FALSE	FALSE	1.935	1.935
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	34	0	33	97.1%	0.259	0.312	1.400	FALSE	TRUE	0.610	0.610
OTHER ANALYSES	Total Organic Carbon	MG/KG	4	0	4	100.0%	4982.000	4822.431	9850.000	TRUE	TRUE	10122.712	9850.000
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	34	0	10	29.4%	2570.882	12659.588	74000.000	FALSE	FALSE	1374.456	1374.456
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	34	0	2	2.9%	123.897	245.508	900.000	FALSE	FALSE	122.153	122.153
METALS	Aluminum	MG/KG	34	0	28	82.4%	9823.824	3548.324	14600.000	FALSE	FALSE	11574.807	11574.807
METALS	Antimony	MG/KG	34	0	20	58.8%	6.114	22.994	135.000	FALSE	FALSE	7.907	7.907
METALS	Arsenic	MG/KG	34	0	34	100.0%	4.953	1.058	006'9	TRUE	TRUE	5.260	5.260
METALS	Barium	MG/KG	34	0	34	100.0%	88.816	56.419	302.000	FALSE	TRUE	107.397	107.397
METALS	Beryllium	MG/KG	34	0	34	100.0%	0.398	0.146	0.750	TRUE	FALSE	0.441	0.441
METALS	Cadmium	MG/KG	34	0	22	64.7%	0.215	0.130	0.500	FALSE	FALSE	0.315	0.315
METALS	Calcium	MG/KG	34	0	34	100.0%	46529.706	59449.637	260000.000	FALSE	TRUE	73601.553	73601.553
METALS	Chromium	MG/KG	34	0	33	97.1%	17.456	5.265	28.400	TRUE	TRUE	18.984	18.984
METALS	Cobalt	MG/KG	34	0	34	100.0%	9.771	2.944	17.800	TRUE	TRUE	10.625	10.625
METALS	Copper	MG/KG	34	0	34	100.0%	68.197	126.023	736.000	FALSE	FALSE	76.552	76.552
METALS	Cyanide	MG/KG	34	0	-	2.9%	0.279	0.051	0.520	FALSE	FALSE	0.291	0.291
METALS	Iron	MG/KG	34	0	34	100.0%	21849.412	5203.600	30400.000	FALSE	FALSE	24139.760	24139.760
METALS	Lead	MG/KG	34	0	34	100.0%	1170.950	6050.372	35400.000	FALSE	FALSE	630.239	630.239
METALS	Magnesium	MG/KG	34	0	34	100.0%	8720.735	6274.900	34900.000	FALSE	TRUE	10222.985	10222.985
METALS	Manganese	MG/KG	34	0	34	100.0%	448.647	152.456	948.000	FALSE	TRUE	497.022	497.022
METALS	Mercury	MG/KG	34	0	24	%9.07	0.249	0.417	1.900	FALSE	FALSE	0.543	0.543
METALS	Nickel	MG/KG	34	0	34	100.0%	29.074	966.6	53.500	FALSE	TRUE	32.337	32.337
METALS	Potassium	MG/KG	34	0	34	100.0%	1261.559	355.637	2280.000	TRUE	TRUE	1364.744	1364.744
METALS	Selenium	MG/KG	34	0	19	55.9%	0.575	0.461	1.600	FALSE	TRUE	0.920	0.920
METALS	Silver	MG/KG	34	0	∞	23.5%	0.275	0.216	1.200	FALSE	FALSE	0.338	0.338

	C	105.433	1.629	23.373	110.008
5th UCL	of Mean EPC	105.433	1.629	23.373	110.008
oenormal 9	,	TRUE	FALSE	TRUE	TRUE
Н	Normal? ?	FALSE	FALSE	FALSE	FALSE
	Max. Hit	383.000	1.700	38.100	219.000
	std. Dev. N		7.477	6.622	37.860
	san St	82.743	1.839	21.076	98.416
	Freq. (%) Me	%9.07	29.4%	%0.001	100.0%
of	E	24	10	34	34
No	Hit	0	0	0	0
No. of Rejected	QLs				
No. of N	nalyses S	34	34	34	34
Z >	Units A	MG/KG	MG/KG	MG/KG	MG/KG
	Parameter	Sodium	Thallium	Vanadium	Zinc
	Class	METALS	METALS	METALS	METALS

18.463	18.463	FALSE	FALSE	140.000	24.343	12.143	50.0%	17	0	. 34	UG/KG	4,4'-DDE	PESTICIDES/PCB
4.378	4.378	FALSE	FALSE	5.000	5.331	3.835	5.9%	2	0	34	UG/KG	4,4"-DDD	PESTICIDES/PCB
12639.496	12639.496	FALSE	FALSE	61603.645 360000.000	61603.645	11578.412	73.5%	25	0	34	UG/KG	Pyrene	SEMIVOLATILE ORGANIC
7327.205	7327.205	FALSE	FALSE	83921.323 490000.000	83921.323	15149.206	55.9%	19	0	34	UG/KG	Phenanthrene	SEMIVOLATILE ORGANIC
1156.083	1156.083	FALSE	FALSE	1200.000	750.479	883.387	6.5%	2	w	31	UG/KG	Pentachlorophenol	SEMIVOLATILE ORGANIC
1953.704	1953.704	FALSE	FALSE	66000.000	11284.525	2492.206	17.6%	6	0	34	UG/KG	Naphthalene	SEMIVOLATILE ORGANIC
577.024	577.024	FALSE	FALSE	680.000	366.070	395.938	21.9%	7	2	32	UG/KG	N-Nitrosodiphenylamine	SEMIVOLATILE ORGANIC
5554.813	5554.813	TRUE	FALSE	17068.183 100000.000	17068.183	3953.059	47.1%	16	0	34	UG/KG	Indeno[1,2,3-cd]pyrene	SEMIVOLATILE ORGANIC
1731.206	1731.206	FALSE	FALSE	78000.000	13330.003	2858.412	11.8%	4	0	34	UG/KG	Fluorene	SEMIVOLATILE ORGANIC
11261.722	11261.722	FALSE	FALSE	530000.000	90752.290 530000.000	16580.059	70.6%	24	0	34	UG/KG	Fluoranthene	SEMIVOLATILE ORGANIC
19.000	241.142	FALSE	FALSE	19.000	42.370	180.905	4.8%	_	13	21	UG/KG	Diethyl phthalate	SEMIVOLATILE ORGANIC
1617.219	1617.219	FALSE	FALSE	50000.000	8561.869	2013.500	14.7%	V1	0	34	UG/KG	Dibenzofuran	SEMIVOLATILE ORGANIC
2353.560	2353.560	FALSE	FALSE	49000.000	8381.335	2086.559	41.2%	14	0	34	UG/KG	Dibenz[a,h]anthracene	SEMIVOLATILE ORGANIC
714.218	714.218	FALSE	FALSE	1300.000	1205.788	554.667	24.2%	8	_	33	UG/KG	Di-n-butylphthalate	SEMIVOLATILE ORGANIC
120.000	196.598	FALSE	FALSE	120.000	25.623	185.952	4.8%	_	13	21	UG/KG	Cresols (-o)	SEMIVOLATILE ORGANIC
8640.767	8640.767	FALSE	FALSE	220000.000	37627.269 220000.000	7255.500	70.6%	24	0	34	UG/KG	Chrysene	SEMIVOLATILE ORGANIC
1869.181	1869.181	FALSE	FALSE	89000.000	15213.722	3162.324	20.6%	7	0	34	UG/KG	Carbazole	SEMIVOLATILE ORGANIC
1269.840	1269.840	FALSE	FALSE	2100.000	1236.111	576.955	15.2%	5	1	33	UG/KG	Bis(2-Ethylhexyl)phthalate	SEMIVOLATILE ORGANIC
4709.947	4709.947	FALSE	FALSE	170000.000	29063.409 170000.000	5736.000	47.1%	16	0	34	UG/KG	Benzo[k]fluoranthene	SEMIVOLATILE ORGANIC
5889.049	5889.049	FALSE	FALSE		17108.725 100000.000	4126.353	52.9%	18	0	34	UG/KG	Benzo[ghi]perylene	SEMIVOLATILE ORGANIC
9847.431	9847.431	TRUE	FALSE		34163.821 200000.000	6885.676	55.9%	19	0	34	UG/KG	Benzo[b]fluoranthene	SEMIVOLATILE ORGANIC
11520.198	11520.198	TRUE	FALSE	200000.000	34173.558 200000.000	6827.265	61.8%	21	0	34	UG/KG	Benzo[a]pyrene	SEMIVOLATILE ORGANIC
7195.470	7195.470	FALSE	FALSE		37620.127 220000.000	7282.382	55.9%	19	0	34	UG/KG	Benzo[a]anthracene	SEMIVOLATILE ORGANIC
2011.200	2011.200	FALSE	FALSE	120000.000	20514.996 120000.000	4099.176	29.4%	10	0	34	UG/KG	Anthracene	SEMIVOLATILE ORGANIC
308.340	308.340	FALSE	FALSE	310.000	175.317	231.464	25.0%	7	6	28	UG/KG	Acenaphthylene	SEMIVOLATILE ORGANIC
2155.796	2155.796	FALSE	FALSE	72000.000	12309.156	2666.412	20.6%	7	0	34	UG/KG	Acenaphthene	SEMIVOLATILE ORGANIC
1229.588	1229.588	FALSE	FALSE	19000.000	3376.451	1114.471	14.7%	5	0	34	UG/KG	2-Methylnaphthalene	SEMIVOLATILE ORGANIC
180.000	195.607	TRUE	FALSE	180.000	22.716	187.273	13.6%	ω	12	22	UG/KG	2,6-Dinitrotoluene	SEMIVOLATILE ORGANIC
2144.381	2144.381	FALSE	FALSE	2200.000	7769.222	2084.676	17.6%	6	0	34	UG/KG	2,4-Dinitrotoluene	NIC
4.250	5.718	FALSE	FALSE	4.250	0.616	5.539	3.1%	_	2	32	UG/KG	Total Xylenes	VOLATILE ORGANICS
7.016	7.016	FALSE	FALSE	10.000	4.289	5.809	38.2%	13	0	34	UG/KG	Toluene	VOLATILE ORGANICS
3.000	5.746	FALSE	FALSE		0.731	5.492	3.1%	_	2	32	UG/KG	Methylene chloride	VOLATILE ORGANICS
2.000	4.786	FALSE	FALSE	2.000	1.424	4.195	6.3%	2	2	32	UG/KG	Chloroform	VOLATILE ORGANICS
2.000	5.903	FALSE	FALSE	2.000	1.047	5.375	6.3%	2	2	32	UG/KG	Carbon disulfide	VOLATILE ORGANICS
5.000	5.889	FALSE	FALSE	5.000	1.334	5.164	15.6%	5	2	32	UG/KG	Benzene	VOLATILE ORGANICS
8.080	8.080	FALSE	FALSE	46.000	7.761	7.404	2.9%	1	0	34	UG/KG	Acetone	VOLATILE ORGANICS
5.000	6.107	FALSE	FALSE	5.000	0.993	5.414	3.1%	1	2	32	UG/KG	2-Butanone	VOLATILE ORGANICS
6.888	6.888	FALSE	FALSE	7.750	3.707	6.404	2.9%	1	0	34	UG/KG	1,1,2,2-Tetrachloroethane	VOLATILE ORGANICS
EPC	of Mean E		Normal? ?	Max. Hit	Std. Dev. N		Freq. (%) Mean	Hits Fr	SQLs H	Analyses St	Units A	Parameter	Class
	95th UCL	Lognormal 95th UCL						No. of	Rejected N	Valid Re	_		
								E			7		
									•		,		

METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	NITROAROMATICS	NITROAROMATICS	OTHER ANALYSES	OTHER ANALYSES	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	Class		
Silver	Selenium	Potassium	Nickel	Mercury	Manganese	Magnesium	Lead	Iron	Cyanide	Copper	Cobalt	Chromium	Calcium	Cadmium	Beryllium	Barium	Arsenic	Antimony	Aluminum	2,6-Dinitrotoluene	2,4-Dinitrotoluene	Total Organic Carbon	Nitrate/Nitrite Nitrogen	Heptachlorepoxide	Gamma-Chlordane	Endrin ketone	Endrin aldehyde	Endrin	Endosulfan sulfate	Endosulfan II	Endosulfan I	Dieldrin	Delta-BHC	Beta-BHC	Aroclor-1260	Alpha-Chlordane	4,4`-DDT	Parameter		
MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	UG/KG	UG/KG	MG/KG	MG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	Units		
34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	4	34	33	34	34	31	34	34	34	34	34	33	34	30	34	34	Analyses	Valid 1	No. of
			200	.000	120	S <u>12</u> .	32	-2	50	20				// // <u>@</u> 20			_	2	2	20		L					200	2	228						200	223		SQLs	Rejected No. of	No. of
0	0 19	0 34	0 34	0 24	0 34	0 34	0 34	0 34	0	0 34	0 34	0 33	0 34	0 22	0 34	0 34	3	0 20	0 28	0	0 10	0	33	_	0	0		0	0	0	0 1	0	_	0	-	9	0 17	Hits	No. 0	
8 23.5%	9 55.9%	4 100.0%	4 100.0%	4 70.6%	4 100.0%	4 100.0%	4 100.0%	4 100.0%	1 2.9%	4 100.0%	4 100.0%	3 97.1%	4 100.0%	2 64.7%	4 100.0%	4 100.0%	4 100.0%	0 58.8%	8 82.4%	2 5.9%	0 29.4%	4 100.0%	3 97.1%	2 6.1%	3 8.8%	4 11.8%	1 3.2%	4 11.8%	1 2.9%	3 8.8%	1 32.4%	3 8.8%	1 3.0%	1 2.9%	1 3.3%	4 11.8%	7 50.0%	Freq. (9	f	
% 0.275	% 0.575	% 1261.559	% 29.074	% 0.249	% 448.647	% 8720.735	% 1170.950	% 21849.412	% 0.279	% 68.197	% 9.771	% 17.456	% 46529.706	% 0.215	% 0.398	% 88.816	% 4.953	% 6.114	% 9823.824	% 123.897	% 2570.882	% 4982.000	% 0.259	% 1.738	% 2.499	% 5.460	% 2.365	% 4.876	% 3.825	% 3.938	% 16.836	% 4.201	% 1.735	% 2.265	% 18.500	% 2.344	% 7.022	Freq. (%) Mean		
0.216	0.461	355.637	9.996	0.417	152.456	6274.900	6050.372	5203.600	0.051	126.023	2.944	5.265	59449.637	0.130	0.146	56.419	1.058	22.994	3548.324	245.508	12659.588	4822.431	0.312	2.399	3.163	12.512	2.823	8.310	5.542	5.309	73.364	5.924	2.398	3.985	1.462	2.896	8.625	Std. Dev.		
1.200	1.600	2280.000	53.500	1.900	948.000	34900.000	35400.000	30400.000	0.520	736.000	17.800	28.400	260000.000	0.500	0.750	302.000	6.900	135.000	14600.000	900.000	74000.000	9850.000	1.400	2.100	9.400	71.000	3.000	43.000	20.000	5.000	430.000	26.000	2.200	20.000	22.000	8.600	43.000	Max. Hit		
FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	Normal?		
FALSE		TRUE	TRUE	FALSE	TRUE	TRUE	FALSE			FALSE	TRUE	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE		TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	.?	Lognormal	
0.338	0.920	1364.744	32.337	0.543	497.022	10222.985	630.239	24139.760	0.291	76.552	10.625	18.984	73601.553	0.315	0.441	107.397	5.260	7.907	11574.807	122.153	1374.456	10122.712	0.610	1.935	3.171	5.579	2.515	5.588	4.287	4.548	13.778	4.993	1.918	2.453	19.136	2.929	9.855	of Mean	Lognormal 95th UCL	
0.338	0.920	1364.744	32.337	0.543	497.022	10222.985	630.239	24139.760	0.291	76.552	10.625	18.984	73601.553	0.315	0.441	107.397	5.260	7.907	11574.807	122.153	1374.456	9850.000	0.610	1.935	3.171	5.579	2.515	5.588	4.287	4.548	13.778	4.993	1.918	2.453	19.136	2.929	9.855	EPC		

16 surface soil case 1

Zinc	Vanadium	Thallium	Sodium	Parameter		
	4.5					
MG/KG	MG/KG	MG/KG	MG/KG	Units		
34	34	34	34	Analyses	Valid	No. of
				SQLs	Rejected	No. of
0	0	0	0	Hit	ed No.	
34	34	10	24	s Fr	of	
100.0%	100.0%) 10 29.4%	70.6%	eq. (%)		
98.41	21.07	1.83	82.74	Aean .		
37.860	6.622	7.477	68.708	Std. Dev.		
219.000	38.100	9 7.477 1.700	383.000	Max. Hit		
FALSE	FALSE	FALSE	FALSE	Normal?		
		FALSE		.0	Lognormal	
110.008	23.373	1.629	105.433	of Mean	95th UCL	
110.008						

Class METALS METALS METALS METALS

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1 SEAD-16 Remedial Investigation Seneca Army Depot Activity

			_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_																	
Averaging Time (days)	Car		25 550	25 550	25 550	25 550	25 550	25,550	25 550	25,550			25,550	25,550	25,550		25.550	25.550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25.550	25 550	25 550	25.550	25,550	25.550	25 550	25 550	25.550	25 550	25.550
Aver TI (dt	Nc		1 825	1 825	1 825	1.825	1 875	1 825	1 825	1,825			1,825	1,825	1,825		1.825	1.825	1.825	1,825	1,825	1,825	1.825	1,825	1.825	1.825	1.825	1.825	1.825	1 825	1.825	1.825	1,825	1.825	1 825	1.825	1 825	1.825	1 825
Body Weight (kg)			25	25	25	25	25	25	25	22			52	52	52		23	25	25	52	52	52	25	25	25	25	52	25	25	25	25	52	52	22	25	25	25	25	7.
Exposure Duration (years)			\$	· v	5	8	5	8	8	\$			2	'n	v.		2	٠	40	s	s	2	2	\$	\$	2	9	\$	2	8	8	8	8	2	8	2	8	2	٧.
Exposure Frequency (days/year)			20	50	50	50	50	20	50	20			20	20	20		50	50	50	20	50	50	50	50	20	20	50	20	20	50	50	20	20	20	50	50	50	50	20
Fraction Ingested (unitless)			-	-	-	-	-	-	-					_	-		***	_	-	_	_	_	_	_	_	_	_	_	-	_	-		_	-	_	_	-	-	
Conv. Factor (kg/mg)			1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		***************************************	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Ingestion Rate (mg soil/day)			200	200	200	200	200	200	200	200			200	200	700		200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
EPC Soil (mg/kg)			6.89E-03	8.08E-03	5.00E-03	2.00E-03	2.00E-03	3.00E-03	7.02E-03	4.25E-03			2.14E+00	1.805-01	1.235+00		2.16E+00	3.08E-01	2.01E+00	7.20E+00	1.15E+01	9.85E+00	5.89E+00	4.71E+00	1.87E+00	8.64E+00	7.14E-01	2.35E+00	1.62E+00	1.90E-02	1.13E+01	1.73E+00	\$.55E+00	5.77E-01	1.95E+00	1.16E+00	7.33E+00	1.26E+01	1.27E+00
Intake (Car) (mg/kg-day)			5.39E-10	D. Market States	3.91E-10		1.57E-10	2.35E-10										ACCOUNT OF THE PARTY OF THE PAR	1.57E-07	5.63E-07	9.02E-07	NAME OF STREET	4.61E-07	3.69E-07	1.46E-07		5.59E-08				CASS-CASS-CASS-CASS-CASS-CASS-CASS-CASS	1.36E-07	4.35E-07	The second secon	1.53E-07			9.89E-07	9.94E-08
Intake (Nc) (mg/kg-day)			270000000000000000000000000000000000000	8.85E-09	CONTRACTOR DECIMAL	2.19E-09	2.19E-09	3.29E-09	7.69E-09	4.66E-09			2,355-06	13/5-0/				3.38E-07								9.47E-06			1.77E-06	2.08E-08	1.23E-05			The second second	2.14E-06	The second second	8.03E-06	1.39E-05	1.39E-06
Analyte	The Contraction of the Contracti	Volatile Organics	1,1,2,2,-Tetrachlorocthane	Acetone	Benzene	Carbon Disulfide	Chloroform	Methylene Chloride	Toluene	Xylene (total)	Semivolatile Organics		2,4-Dinitrotoluene	2,0-Dinitalionene	-mem's mapunalene		Acenaphthene	Acenaphthylene	Anthricene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,t)perylene	Benzo(k)fluoranthene	Carbazole	Chrysene	Di-n-buty iphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	N-Nitrosodiphenylamine (1)	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	bis(2-Ethylhexyl)phthalate

TABLE 6-20

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MARKINUM EXPOSURE (RME) CASE 1 SEAD-16 Remedial investigation Sencea Army Depot Activity

Analyte	Pesticides	4,4'-DDD 4,4'-DDE 4,4'-DDT	Aroclor-1260 Dieldrin Endosulfan I	Endosulfan sulfate Endosulfan sulfate	Endrin ketone	Heptachlor Heptachlor epoxide	loxaphene alpha-Chlordane beta-BHC	gamma-Chlordane delta-BHC	Metals	Antimony Barium	Lead Mercury Selenium Thallium Zinc		EQUATION: Intak		
Child Intake (Nc) (mg/kg-day)		2.02E-08 1.08E-08	2.10E-08 5.47E-09	4.70E-09	6.11E-09	į	2.69E-09	2.10E-09	į	8.67E-09 1.18E-07	6.91E-07 5.95E-10 1.01E-09 1.79E-09 1.21E-07		Intake (mg/kg-day) = CSxIRxCExFIxEFxED BWxAT	Variables:	CS = Chemical Concer IR = Ingestion Rate (in CF = Conversion Fact FI = Fraction Ingested EF = Exposure Freque ED = Exposure Duratit BW = Bodyweight (Rg) AT = Averaging Time
Child Intake (Car) (mg/kg-day)		1.45E-09 7.71E-10	1.50E-09		4.37E-10	1.51E-10	2.29E-10	1.50E-10			8.61E-09		- CSxIRxCFxI		CS = Chemical Concentration in Soil (mg soil/kg) Re Ingestion Rate (mg soil/day) CF = Conversion Textor (1d-6 kg/mg) FI = Fraction Ingested (unitess) EF = Exposure Frequency (days/sears) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)
EPC Soil (mg/kg)		4.38E-03 1.85E-02 9.85E-03	1.91E-02 4.99E-03 1.38E-02	4.29E-03 5.59E-03	2.51E-03 5.58E-03	1.94E-03	2.93E-03 2.45E-03	3.17E-03 1.92E-03		7.91E-03 1.07E-01	6.30E-01 5.43E-04 9.20E-04 1.63E-03 1.10E-01	4	TELEFE		tion in Soil (r nil/day) (0-6 kg/mg) itless) (days/years) years)
Child Ingestion Rate (mg soil/day)		200 200 200	200	200	200	200	200 200 200	200		200	200 200 200 200 200	0.	ED		ng soil/kg)
Conv. Factor (kg/mg)		1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06		1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06 1.00E-06			Assumptions:	EPC Soil Data - RME 200 (RME Child) 10-6 1 SO (RME) 5 (RME) 25 (Child) 5 x 365 (NC), 70 x 365
Fraction Ingested (unidess)														u	EPC Soil Data - RME 200 (RME Child) 110-6 50 (RME) 5 (RME) 5 x 865 (NC), 70 x 365 (Car)
Exposure Frequency (days/year)		20 20 20	20.00	20.00	222	200	20.00	20		20 00	2 2 2 2 2				Car)
Child Exposure Duration (years)		222	****	. v. v	. v. v.	~ ~ ~	n e n en	~ ~		s, s,	***				
Child Body Weight (kg)		มมม	มมม	0 X1 X	រងង	ឧឧ	ឧឧឧ	22		มม	มมมมม		411		
Averaging Time (days)	JAC	1,825 1,825 1,825	1,825	228,1	228,1	1,825	228,1	1,825		1,825	1,825 1,825 1,825 1,825 1,825	Ħ.			
eraging Time days)	3	25,550 25,550 25,550	25,550 25,550 25,550	25,550	25,550	25,550	25,550	25,550		25,550	25,550 25,550 25,550 25,550 25,550				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 1
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics	(mg ng nay)	(887)	(mg ng nay)	(
		5 20F 10	274	2 005 01		1 000 10
1,1,2,2,-Tetrachloroethane	0.050.00	5.39E-10	NA	2.00E-01		1.08E-10
Acetone	8.85E-09		1.00E-01	NA 2 2 2 2 2 2 2	8.85E-08	9.702.33
Benzene	252222	3.91E-10	NA	2.90E-02	12 12 12 12 12 12 12 12 12 12 12 12 12 1	1.14E-11
Carbon Disulfide	2.19E-09		1.00E-01	NA	2.19E-08	9 544 15
Chloroform	2.19E-09	1.57E-10	1.00E-02	6.10E-03	2.19E-07	9.55E-13
Methylene Chloride	3.29E-09	2.35E-10	6.00E-02	7.50E-03	5.48E-08	1.76E-12
Toluene	7.69E-09		2.00E-01	NA	3.84E-08	
Xylene (total)	4.66E-09		2.00E+00	NA	2.33E-09	
Semivolatile Organics						
2,4-Dinitrotoluene	2.35E-06		2.00E-03	NA	1.18E-03	
2.6-Dinitrotoluene	1.97E-07		1.00E-03	NA	1.97E-04	
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene	3.38E-07		NA	NA NA		
Anthracene	5.502.07	1.57E-07	3.00E-01	NA NA		
Benzo(a)anthracene		5.63E-07	NA	7.30E-01		4.11E-07
Benzo(a)pyrene		9.02E-07	NA	7.30E+00		6.58E-06
Benzo(b)fluoranthene		J.02L-07	NA	7.30E-01		0.3815-00
Benzo(g,h,i)perylene		4.61E-07	NA	NA NA		
Benzo(k)fluoranthene		3.69E-07	NA	7.30E-01		2.69E-07
Carbazole		1.46E-07	NA	2.00E-02		2.93E-09
Chrysene	9.47E-06	1.4015-07	NA	7.30E-02		2,93E-09
Di-n-butylphthalate	2.472-00	5.59E-08	1.00E-01	NA NA		
Dibenz(a,h)anthracene		2.572.00	NA	7.30E+00		
Dibenzofuran	1.77E-06		NA	NA NA		
Diethylphthalate	2.08E-08		8.00E+00	NA NA	2.60E-09	
Fluoranthene	1.23E-05		4.00E-02	NA I	3.09E-04	
Fluorene	1,232,03	1.36E-07	4.00E-02	NA NA	2.0715-04	
Indeno(1,2,3-cd)pyrene		4.35E-07	NA	7.30E-01		3.17E-07
N-Nitrosodiphenylamine (1)		4.556-07	NA	4.90E-03		5.17E-07
Naphthalene	2.14E-06	1.53E-07	NA NA	NA NA		
Pentachlorophenol	2.1415-00	1.55E-07	3.00E-02	1.20E-01		
Phenanthrene	8.03E-06		NA	NA NA		
Pyrene	1.39E-05	9.89E-07	3.00E-02	NA NA	4.62E-04	
bis(2-Ethylhexyl)phthalate	1.39E-05	9.89E-07 9.94E-08	2.00E-02	1.40E-02	6.96E-05	1.39E-09
na(z-Eurymexyr)phinarate	1.59E-00	2,74E-00	2.00E-02	1.402-02	0.902-03	1.39E-09

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Pesticides						4/4-17/
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE	2.02E-08	1.45E-09	NA	NA		
4,4'-DDT	1.08E-08	7.71E-10	5.00E-04	3.40E-01	2.16E-05	2.62E-10
Aldrin	2010/07/T0:250	The state of the s	3.00E-05	1.70E+01		
Aroclor-1254		700	2.00E-05	2.00E+00		
Aroclor-1260	2.10E-08	1.50E-09	NA	7.70E+00		1.15E-08
Dieldrin	5.47E-09	A.Arvanskina.	5.00E-05	1.60E+01	1.09E-04	
Endosulfan I			6.00E-03	NA		100
Endosulfan II	4.98E-09		NA	NA		
Endosulfan sulfate	4.70E-09		5.00E-05	NA	9.40E-05	
Endrin			3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin ketone	6.11E-09	4.37E-10	NA	NA		
Heptachlor	0.112.07		5.00E-04	4.50E+00		
Heptachlor epoxide		1.51E-10	1.30E-05	9.10E+00		1.38E-09
Toxaphene			NA	1.10E+00		*7.6-76700000000
alpha-Chlordane		2.29E-10	6.00E-05	1.30E+00		2.98E-10
beta-BHC	2.69E-09	L.L.J.L. 10	NA	1.80E+00		
gamma-BHC (Lindane)	2.072 07	1200	3.00E-04	NA		
gamma-BHC (Emdane) gamma-Chlordane			NA	NA		1000
gamma-Chiordane delta-BHC	2.10E-09	1.50E-10	NA	NA		
delta-Bric	2.1015-07	1.502.10	1			
Nitroaromatics		3				
2-amino-4,6-Dinitrotoluene		7.0	NA	NA		Allen I
Tetryl			1.00E-02	NA		
renyi	300					0.000
Metals			E INTE			
Antimony	8.67E-09		4.00E-04	NA	2.17E-05	
Barium	1.18E-07		7.00E-02	NA	1.68E-06	
Copper			4.00E-02	NA		
Lead	6.91E-07		NA	NA	0.001.000.000.0000	
Mercury	5.95E-10		3.00E-04	NA	1.98E-06	
Selenium	1.01E-09		5.00E-03	NA	2.02E-07	
Thallium	1.79E-09		7.00E-05	NA	2.55E-05	
Zinc	1.21E-07	8.61E-09	3.00E-01	NA	4.02E-07	
Herbicides						
2,4,5-T	10	-	1.00E-02	NA	1 4	
MCPP			1.00E-03	NA		
			2010/2010/2015			
Totals - HQ & CR					2.49E-03	7.60E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-26 CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL REASONABLE MAXIMUM ERESSPASSER (Child) REASONABLE MAXIMUM EACSITE (RME) SEAD-16 Remedial inscription Series Army Depot Activity

Analyte	Volatile Organics	1,1,2,2,-Tetrachloroethune Acetone	Senzene Carbon Disulfide	Methylene Chloride	(ylene (total)	Semivolatile Organics	.4-Dinitrotoluene	-methylnaphthalene	.3.Dichloroberzidine	Acenaphthene Acenaphthylene	Inhracene	Senzo(a)anthracene Senzo(a)pyrene	Serzo(b)fluoranthene	Senzo(k)fluoranthene	arbazole	N-n-butylphthalate	Abenzofuran	Nethylphthalate Phormulhene	Tuorene	Whitesodiphenylamine (1)	entachlorophenol	henanthrene Vrene in C. Ethelbered behehalate	esticides	GGG-p.	A-DDI	Aroclor-1254	Vroctor-1260 Vieldrin	ndosulfan I	indosulfan sulfate	ndrin aldehyde	leptachlor	leptachlor epoxide oxaphene	lpha-Chlordane	amma-BHC (Lindanc)	amma-Chlordane elta-BHC	litroaromatics	-amino-4,6-Dinitrotoluene
Absorbed Dose (Nc) (mg/kg-day)					s.																																
Absorbed Dose (Car) (mg/kg-day)																											1.03E-09										
EPC Soil (mg/kg)		6.89E-03 8.08E-03	2.00E-03	3.00E-03	4.25E-03		2.14E+00 1.80E-01	1.23E+00		3.08E-01	2.01E+00	7.20E+00 1.15E+01	9.85E+00	4.71E+00	1.87E+00	7.14E-01	1.62E+00	1.90E-02	1.73E+00	5.77E-01	1.16E+00	7.33E+00 1.26E+01		4.38E-03	9.85E-03		1.91E-02 4.99E-03	1.38E-02 4.55E-03	4.29E-03	2.51E-03	3.38E-03	1.94E-03	2.93E-03	4.435.403	3.17E-03 1.92E-03		
Conv. Factor (kg/mg)		1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06 1.00E-06	1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.005-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06 1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06
Skin Surface Area Contact (cm²/event)		2,300	2,300	2,300	2,300		2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2300	2,300	roct*	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300		2,300
Adherence Factor mg soil/cm²)		99	999	999	30		9.0	0.1	0.1	0,0	0.1	9 0	0.1	0.0	0.0	201	0 0	0.0	20.	0 0	9 9	999	2	1.0	200	100	0.1	010	0.0	293	10	0.0	0.0	0.1	1.0	1	1.0
Absorption Factor (unitless)																										90'0	90.0										
Exposure Frequency (events/year)		20.00	88	2 2 3	2 8		8 8	8	20 20	9,5	2 8	88	8.8	28	9, 5	2 23	8 8	9.9	2 2 3	2 2	2 2	888	R	8	2 8	2 8	8 8	20 00	20 9	2.2.2	20 20	9,9	8.8	2 2	8 8	ì	20
Child Exposure Duration (years)		\$ 5	v, v, v	w w	n vs		w w	. *	so so	٧. ٧	· v	v, v,	50.0	n vn	5 4	n 40 1	w w			n w	v v	w w v		3	0 90	n so	5 0 50	so so	٠,٠	n vn i	n vı	s, v		0 50	es es	6	45.1
Weight (kg)		នន	នន	ឧឧ	ឧង		22	121	22 22	nx	าห	នន	52 5	ពនា	22 2	3 23	22 22	1212	121	ឧឧ	กห	ងងង	3	82	9 20 1	4 23	21 22	กก	22 22	3 23 2	ឧឧ	25	121	a za	ងង		n
Averaging Time (days)	ž	1,825	223	28.1	1,825		1,825	1,825	1.825	1,825	1,825	1,825	1,825	528,1	1.825	528,1	1,825	1,825	1,825	28.1	228.1 228.1	528,1	676.1	1,825	528.1	528,1	1,825	1,825	1,825	1,825	528.1	1,825	1.825	1.825	1.825		1.825
S)	i.	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25,550	25,550	25,550	25.550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	00000	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		25,550

TABLE 6-26

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL REASONABLE MAXIMUM RESSER(CRid) REASONABLE MAXIMUM CAGE I EVOSURE (RME) SEAD-16 Kenedial Investigation SERCE ATMY Depat Activity

1,000 1,00	als	Dose (Nc) (mg/kg-day)	Absorbed Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Skin Surface Adherence Area Contact (cm²/event) (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)		Averaging Time (days)
1.07E-01 1.00E-06 2.300 1.0 50 5 5 5 5 5 5 5 5													Ne
1,00E-06 1,00E-06 1,00 50 5	sous			7.91E-03	1.00E-06	2,300	1.0		92	8	23		1.825
7,68E-02 1,00E-66 2,300 1,0 5 5 6,38E-04 1,00E-66 2,300 1,0 5 5 7,88E-04 1,00E-66 2,300 1,0 5 5 7,88E-04 1,00E-66 2,300 1,0 5 5 1,00E-04 1,00E-66 2,300 1,0 5 5 1,00E-06 2,300 1,0 1,00E-06 2,300 1,0 5 1,00E-06 2,300 1,0				1.07E-01	1.00E-06	2,300	1.0		90	s	25		1,825
6.00E-01 1.00E-06 2.300 1.0 50 5 5.45E-04 1.00E-06 2.300 1.0 5 5 1.00E-04 1.00E-06 2.300 1.0 5 5 1.00E-05 1.00E-06 2.300 1.0 5 5 1.00E-06 2.300 1.0 5 1.00E-06 2.300 1.0 5 5 5 1.00E-06 2.300 1.0 5 5 5 5 1.00E-06 2.300 1.0 5 5 5 5 5 5 1.00E-06 2.300 1.0 5 5 5 5 5 5 5 5 5	-			7.66E-02	1.00E-06	2,300	1.0		90	8	52		1,825
5.45E-64 1.00E-66 2.300 1.0 59 5 9.20E-64 1.00E-66 2.300 1.0 50 5 1.00E-66 2.300 1.0 50 5 1.00E-66 2.300 1.0 50 5 1.00E-66 2.300 1.0 50 5 1.00E-66 2.300 1.0 50 5				6.30E-01	1.00E-06	2,300	1.0		20	5	25		1,825
1,00E-04 1,00E-06 2,300 1,0 50 5 1,00E-06 1,00E-	Ain			5.43E-04	1.00E-06	2,300	1.0		20	5	52		1,825
LASE-03 1.00E-06 2.300 1.0 50 5 1.10E-01 1.00E-06 2.300 1.0 50 5 1.00E-06 2.300 1.0 250 5	inne			9.20E-04	1.00E-06	2,300	1.0		20	5	25		1,825
des 1.10E-01 1.00E-06 2.300 1.0 50 5 25 1.00E-06 1.00E-06 2.300 1.0 250 5 25	ioni			1.63E-03	1.00E-06	2,300	1.0		20	s	25		1,825
des 1.00E-06 2.300 1.0 250 5 25 15 15.00E-06 2.300 1.0 250 5 25 15 15.00E-06 2.300 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1				1.10E-01	1.00E-06	2,300	1.0		20	45	25	~	,825
1,00E-06 2,300 1.0 250 5 25 15 15,00E-06 2,300 1.0 250 5 25 25	bicides												
1,00E-06 2,300 1.0 2.50 \$ 25	1.5				1.00E-06	2.300	1.0		250	\$	25	-	828
	PP PP				1.00E-06	2,300	1.0		250	\$	52	-	1,825
		Yariables:			Assumptions:			Variables:			Assumption	H	
Assumptions:		CS = Chemical Co CF = Conversion F	ncentration in Soil (n Factor (18-6 kg/mg)	ag soll/kg)	EPC Soil Data 10-6	- RME		EF = Exposu ED = Exposu	re Frequency ((events/year)	SO (RME) S (RME)		
Assumptions: Variables: Assumptions: EPC Soil Data - RME EF = Exposure Frequency (events/year) eraton Factor (16-6 kg/mg) 16-6 ED = Exposure Duration (years)		SA = Surface Area AF =Soil to Skin A	Contact (cm²) dherence Factor (mg	/cm²)	2,300 (RME all r	hild) eceptors)		BW = Bodyw AT = Averag	eight (kg) ing Time (days	•	25 kg (child 5 x 365 (Nc) 70 x 3	965 (
Assumption: Variables: (mg solfAg) EPC Soil Data - RME EF = Exposure Frequency (events/rest) 19-6 ED = Exposure Duration (vers) 2,000 (RME Child) BW = Bodyweight (rest) 1,0 (RME all receptor) AT = Averaging Time (days)		ABS = Absorption Factor (unitless)	Factor (unitless)		Compound Sp	Compound Specific PCBs and Cd (EPA, 1992b)	Cd (EPA, 1992	(q)					

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 1
SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2.6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene		1	NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 1

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Pesticides						
			5 000 04	2 405 01		
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA 5 00E 04	NA 2 40F 01		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1254			1.90E-05	2.11E+00		
Aroclor-1260		1.03E-09	NA	8.11E+00		8.38E-09
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA		
Endosulfan II			NA	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin ketone		Aller 1	NA	NA		11.36.10
Heptachlor			5.00E-04	4.50E+00		
Heptachlor epoxide			1.30E-05	9.10E+00		2 - 12 - 12
Toxaphene			NA	1.10E+00		
alpha-Chlordane	-		6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA		
gamma-Chlordane			NA	NA		ment of the
delta-BHC			NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			1.00E-02	NA		
Metals						
Antimony			4.00E-04	NA		
Barium			7.00E-03	NA		
Copper			2.00E-02	NA		
ead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Thallium	100	24	7.00E-05	NA		201
Zinc			1.50E-01	NA		
Herbicides						
2,4,5-T	1-1		1.00E-02	NA		
МСРР	-		1.00E-03	NA		
Гotals - HQ & CR						8.38E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

11/03/97

CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS
SITE WORKER EXPOSING (CURENT LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SEATHAL CALGALIAL CONTINUE AND CONTINUE SEATHAL CONTINUES OF THE SEATHAL SEATHAL CONTINUES OF THE SEATHAL SE

	ation	ity
CASE 1	SEAD-16 Remedial Investig	Seneca Army Depot Activ

Analyte Intake (Nc) (mg/kg-day)	Volatile Organics	1,1,2,2,-Tetrachloroethane 6.32E-10	Benzene Curbon Disulfide 1 578:10		Methylene Chloride 2.35E-10	total)	Semivolatile Organics		2.6-Dinitrotoluene 2-methylnaphthalene	3,3'-Dichlorobenzidine	3-nitroaniline	2	Anthracene 1.57E-07	Benzo(a)pyrene	Benzo(b)fluoranthene	Berzo(k)fluoranthene	Carbazole	Di-n-butylphthalate 5.59E-08	Dibenz(a,h)anthracene Dibenzofuran	Diethylphthalate 1.49E-09	-	Indeno(1,2,3-cd)pyrene N-Nitrosodiphenylamine (1)	Naphthalene Pentachlorophenol 9.05E-08	Phenanthrene 9.89E-07	bis(2-Ethylhexyl)phthalate 9.94E-08	Pesticides	3.43E-10	4,4-DDT 7.71E-10	Arsclor-1254 0.00E+00		Endosulfan I 1.08E-09	Endosulfan II Endosulfan sulfate 3.36E-10	Endrin 4.37E-10		Heptachlor epoxide 1,51E-10			gamma-BHC (Lindane) 0.00E+00	delta-BHC	Nitroaromatics	2-amino-4,6-Dinitrotoluene
				_	10 8.39E-11	0		70	80	0.00E+00			_	3.22E-07	2.75E-07	1.321	5.231	_	6.58E-08	2.0	nen	1.55E-07 1.61E-08	3.23E-08	0	8 3.55E-08		0 1.22E-10		-700	\$.35E-10		0	0	-	0 0.00E+00 0 5.41E-11		6.86E-11	0			- 0
Intake (Car) (mg/kg-day)		2000	1,40E-10	71.0		***		7		-	0,	4 10		III.			23E-08 1.		-		_	e, e			0000						_	य य	8	4 00	8			0.	·		00
EPC Soll (mg/kg)		6.89E-03	5.00E-03	2.00E-03	3.00E-03	4.25E-03		2.14E+00	1.80E-01	0.00E+00	0.00E+00	3.08E-01	2.01E+00	1.15E+01	9.85E+00	4.71E+00	1.87E+00	7.14E-01	2.35E+00	.90E-02	.73E+00	5.55E+00 5.77E-01	95E+00	.33E+00 26E+01	1.27E+00		4.38E-03	9.85E-03	0.00E+00	91E-02	1.38E-02	4.55E-03 4.29E-03	59E-03	58E-03	0.00E+00 1.94E-03	0.00E+00	2.45E-03	0.00E+00	92E-03		0.00E+00
Ingestion Rate (mg soil/day)		100	90 5	8 8	90 5	8 8		100	8 8	100	8 8	8 8	001	100	001	8 00	00 5	8 8	9 2	8 8 8	8 8	8 8	8 10	100	100		100	8 8	8 8	8 8	88	001	88	8 8	90 00	100	100	100	80		100
Conv. Factor (kg/mg)		1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.005-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06
Fraction Ingested (unitless)				-				-					_			107			-		1/2		-		-		-														-
Exposure Frequency (days/year)		2 2	50	9 2	200	88		20	2 2	20	50	20 50	70	2 2	20	2 2	50	20	50	282	20 20	50 20 20	20	0 20	20		20	2 2	02 02	20	ឧឧ	20	28	88	20	22	20	50	50		20
Exposure Duration (years)		nn	22	2 22	52	a xa		25	22 52	52	52.5	23 %	22	ន្ត	n	a n	n	a n	21 2	121	1 21	ងង	ងង	XX.	1X		25	ងង	22 %	2 23	នន	23 %	121	ន្តន	25	52	2 22	22	9 23		25
Body Weight (kg)		5 5	21	2 8	21	28		02	22	20	2	6 6	2	22	21	5 2	25	2,2	200	2 2 3	5 5	22	22	2 6	2 8		92	22	2 5	2 2	8 8	22	28	22	22	2	2 2	25	2 2		2
Averaging Time (days)	ž	9,125	9,125	9,125	9,125	9,125		9,125	9,125	9.125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9.125	9,125	9,125	9,125	9,125	9,125	9.125	9,125		9,125	9,125	9.125	9,125	9,125	9.125	9,125	9,125	9,125	9,125	9,125	9.125	9.125		9,125
ging se :s)		25,550	25,550	25.550	25,550	25,550		25,550	25.550	25 550	25,550	25,550	25.550	25,550	25,550	25.550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25.550	25.550		25,550	25,550	25,550	25,550	25,550	25.550	25,550	25.550	25,550	25,550	25,550	25,550	25,550		25,550

11/03/97

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS
SITE WORKER EXPOSURE (CURRENT LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SEAD-16 Remedial Investigation
Serices Army Depail Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	Soll (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Tir (da	Averaging Time (days)
										Nc	Car
Metals											
Antimony	6.19E-10		7.91E-03	100	1.00E-06	-	20	25	20	9,125	25,550
Barium	8.41E-09		1.07E-01	100	1.00E-06	-	20	52	20	9,125	25,550
Connet	5.99E-09		7.66E-02	100	1.00E-06	-	20	25	70	9,125	25.550
Lond	1000000		6.30E-01	100	1.00E-06	-	20	22	2	9.125	25,550
Mercury	4.25E-11		5.43E-04	100	1.00E-06	-	20	25	02	9,125	25,550
Selenium	7.20E-11		9.20E-04	100	1.00E-06	-	20	25	02	9,125	25,550
Thellion	1.28E-10		1.63E-03	100	1.00E-06	-	20	25	20	9,125	25,550
Zinc	8.61E-09	l	1.10E-01	100	1.00E-06	<u>ਾ</u>	20	22	6	9,125	25,550
Herbicides											
2.4.5-T	0.00E+00		0.00E+00	100	1.00E-06	•	20	25	20	9,125	25,550
MCPP	0.00E+00		0.00E+00	100	1.00E-06	ě	20	22	70	9,125	25,550
EQUATION:	Intake (mg/kg-day) =	= (Asp.)	CSIRI	CSIRICFIFIEFED BWAAT	a						
	Variables:					Assumptions:	4				
	CS = Chemical Concent BR = Ingestion Rate (m) CF = Conversion Factor FI = Fraction Ingested EF = Exposure Freque ED = Exposure Freque ED = Exposure Dursilo BW = Bodyweight (kg) AT = Aversetine Time (CS = Chemical Concentration in Soil (mg voil/kg) R = Injection Rate (mg suil/kg) CF = Conversion Factor (18-4 kgmg) R1 = Fraction injector (18-4 kgmg) R1 = Fraction injector (unitles) R2 = Exposure Prequency (unitles) R3 = Exposure Duration (vetar) R3 = Mayer (application (vetar) A1 = Averaelie Time (dexx)	i in Soil (mg lay) i kg/mg) ns) nya/years) rr)	soithe		EPC Soil Data - RME 100 (RME Site Worker 10-6 10 (All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult male) 23 x 365 (Nc) 70 x 365	EPC Soil Data - RME 100 (RME Site Worker) 10-6 11 (All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 25 3.36 (No. 70 x 365 (Car)	- 144			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 1 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane		1.93E-10	NA	2.00E-01		3.85E-11
Acetone	6.32E-10	(200,000,000,000	1.00E-01	NA	6.32E-09	5.052-11
Benzene		1.40E-10	NA	2.90E-02	0.022	4.05E-12
Carbon Disulfide	1.57E-10		1.00E-01	NA NA	1.57E-09	4.03L-12
Chloroform	1.57E-10	5.59E-11	1.00E-02	6.10E-03	1.57E-08	3.41E-13
Methylene Chloride	2.35E-10	8.39E-11	6.00E-02	7.50E-03	3.91E-09	6.29E-13
Toluene	5.49E-10		2.00E-01	NA NA	2.75E-09	0.2715
Xylene (total)	3.33E-10		2.00E+00	NA	1.66E-10	
Semivolatile Organics						
2,4-Dinitrotoluene	1.68E-07		2.00E-03	NA	8.39E-05	
2,6-Dinitrotoluene	1.41E-08		1.00E-03	NA	1.41E-05	
2-methylnaphthalene	100000000000000000000000000000000000000		NA	NA	.43.1.556.555	
3,3'-Dichlorobenzidine		0.00E+00	NA	4.50E-01		0.00E+00
3-nitroaniline			NA	NA		1,400
Acenaphthene	1.69E-07		6.00E-02	NA	2.81E-06	
Acenaphthylene	100000000000000000000000000000000000000		NA	NA		
Anthracene	1.57E-07		3.00E-01	NA	5.25E-07	
Benzo(a)anthracene	1.000.000.000	2.01E-07	NA	7.30E-01	08/00/00/00/00	1.47E-07
Benzo(a)pyrene		3.22E-07	NA	7.30E+00		2.35E-06
Benzo(b)fluoranthene		2.75E-07	NA	7.30E-01		2.01E-07
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		1.32E-07	NA	7.30E-01		9.61E-08
Carbazole		5.23E-08	NA	2.00E-02		1.05E-09
Chrysene	A-4-9-4-1-5-5-5	2.42E-07	NA	7.30E-02		1.76E-08
Di-n-butylphthalate	5.59E-08	1 14 14 14 14 14 14 14 14 14 14 14 14 14	1.00E-01	NA	5.59E-07	***********
Dibenz(a,h)anthracene	000000000000000000000000000000000000000	6.58E-08	NA	7.30E+00	200000000000000000000000000000000000000	4.80E-07
Dibenzofuran			NA	NA		
Diethylphthalate	1.49E-09		8.00E+00	NA	1.86E-10	
Fluoranthene	8.82E-07		4.00E-02	NA	2.20E-05	
Fluorene	1.36E-07		4.00E-02	NA	3.39E-06	
ndeno(1,2,3-cd)pyrene		1.55E-07	NA	7.30E-01	-45-00 and 2000	1.13E-07
N-Nitrosodiphenylamine (1)		1.61E-08	NA	4.90E-03		7.90E-11
Naphthalene		- Anna Anna Anna Anna Anna Anna Anna Ann	NA	NA		
Pentachlorophenol	9.05E-08	3.23E-08	3.00E-02	1.20E-01	3.02E-06	3.88E-09
Phenanthrene			NA	NA		
Pyrene	9.89E-07		3.00E-02	NA	3.30E-05	
ois(2-Ethylhexyl)phthalate	9.94E-08	3.55E-08	2.00E-02	1.40E-02	4.97E-06	4.97E-10

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD	3.43E-10	1.22E-10	5.00E-04	2.40E-01	6.85E-07	2.94E-11
4,4'-DDE			NA	NA		
4,4'-DDT	7.71E-10	2.75E-10	5.00E-04	3.40E-01	1.54E-06	9.37E-11
Aldrin	0.00E+00	0.00E+00	3.00E-05	1.70E+01	0.00E+00	0.00E+00
Aroclor-1254	0.00E+00	0.00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+00
Aroclor-1260	1 VORSE SERVICE.	5.35E-10	NA	7.70E+00		4.12E-09
Dieldrin	3.91E-10	1.40E-10	5.00E-05	1.60E+01	7.82E-06	2.23E-09
Endosulfan I	1.08E-09		6.00E-03	NA	1.80E-07	- CACIONATION
Endosulfan II			NA	NA		United Street
Endosulfan sulfate	3.36E-10		5.00E-05	NA	6.71E-06	
Endrin	4.37E-10		3.00E-04	NA	1.46E-06	
Endrin aldehyde			NA	NA	SHOE SEL	
Endrin ketone			NA	NA		
Heptachlor	0.00E+00	0.00E+00	5.00E-04	4.50E+00	0.00E+00	0.00E+00
Heptachlor epoxide	1.51E-10	5.41E-11	1.30E-05	9.10E+00	1.17E-05	4.92E-10
Toxaphene	1.512 10	0.00E+00	NA	1.10E+00	111/12/02	0.00E+00
alpha-Chlordane	2.29E-10	8.19E-11	6.00E-05	1.30E+00	3.82E-06	1.06E-10
beta-BHC	2.292-10	6.86E-11	NA	1.80E+00	J.02L-00	1.23E-10
gamma-BHC (Lindane)	0.00E+00	0.00L-11	3.00E-04	NA NA	0.00E+00	1.252-10
gamma-Bric (Emdane)	0.001		NA	NA	0.00L:00	
delta-BHC			NA	NA NA		
Nitroaromatics		115				
2-amino-4,6-Dinitrotoluene		100	NA	NA		
	0.00E+00		1.00E-02	NA NA	0.00E+00	
Tetryl	0.00E+00	1000	1.00E-02	NA	0.00E+00	
Metals				4.00		
Antimony	6.19E-10		4.00E-04	NA	1.55E-06	
Barium	8.41E-09		7.00E-02	NA	1.20E-07	
Copper	5.99E-09		4.00E-02	NA	1.50E-07	
Lead			NA	NA		
Mercury	4.25E-11		3.00E-04	NA	1.42E-07	
Selenium	7.20E-11		5.00E-03	NA	1.44E-08	
Thallium	1.28E-10		7.00E-05	NA	1.82E-06	
Zinc	8.61E-09		3.00E-01	NA	2.87E-08	
Herbicides						
2,4,5-T	0.00E+00		1.00E-02	NA	0.00E+00	
MCPP	0.00E+00		1.00E-03	NA	0.00E+00	
Γotals - HQ & CR					2.06E-04	3.42E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

11/03/97

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL.
SITE WORKER EVENOSURE (CIRRENT LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SEASONABLE MAXIMUM EXPOSURE (RME)
SEAD-16 Remedial Inscription
Series Army Popol Activity

Analyte	Volatile Organics	.1.2.2Tetrachloroethane	Senzene Zarbon Disulfide	Methylene Chloride	Kylene (total)	Semivolatile Organics	,4-Dinitrotoluene	1-methy inaphthalene	3.3'-Dichlorobenzidine	Accomplishers	Anthracene	Senzo(a)pyrene	3erzo(b)fluoranthene	Senzo(g,n,) perytene Senzo(k)fluoranthene	Carbazole	Di-n-buty iphthalate	Niberiz(a,h)unthracene Niberizofuran	Diethylphthalate	Fluorence	N-Nitrosodiphenylamine (1)	Pentachlorophenol	Thenauthrene Syrene Syrene	Pesticides	,4-DDD	.4.DDE	Aroclor-1254	Aroclor-1260 Dieldrin	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Indrin ketone Jeptachlor	Septachlor epoxide	Ipha-Chlordane	camma-BHC (Lindane)	gamma-Chlordane Jelta-BHC	Vitroaromatics	2-amino-4,6-Dinitrotoluene
Dose (Nc) (mg/kg-day)																																					
Dose (Car) (mg/kg-day)																											1.862-09										
Soil (mg/kg)		6.89E-03	5.00E-03 2.00E-03	3.00E-03	4.25E-03		2.14E+00 1.80E-01	1.232+00		3.16E+00	2.01E+00	1.15E+01	9.85E+00	4.71E+00	1.87E+00	7.14E-01	1.62E+00	1.90E-02	1.73E+00	5.77E-01	1.16E+00	7.33E+00 1.26E+01 1.27E+00		4.38E-03	1.85E-02 9.85E-03		4.99E-03	1.38E-02 4.55E-03	4.29E-03	2.51E-03	3.365-03	1.94E-03	2.93E-03	7.435-03	3.17E-03 1.92E-03		
Conv. Factor (kg/mg)		1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06		1.005-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06 1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.005-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06 1.00E-06		1.00E-06
Skin Surface Area Contact (cm²/event)		5.800	5,800	5,800	5,800		5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800		5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800		5,800
Adherence Factor (mg soil/cm²)		1.0	070	201	1.0		071	07	071	1.0	1.0	0.0	1.0	0.0	0.0	0.1	0 0	0.0	0 0	01	20	0 0 0		1.0	0 0 0	32:	9 9	0.0	0.0	200	0.01	0 0	01	0.1	0 0		0.1
Absorption Factor (unitless)																										0.06	90.0										
Exposure Frequency (events/year)		0,00	222	282	32		888	20	20 50	2 2	20	3.5	20	20 20	200	283	20 20	2,2	22.5	202	2 22	ឧឧឧ		50	222	201	50 50	2 2	20 50	322	88	20.00	50	30 20	22		20
Exposure Duration (years)		22 22	ន្តន	2 22 2	ាភា		กก	a :	នន	nx	នេះ	ลห	ន	a xa	35	123	2 22	22.22	121 2	១ ដា រ	3 23	ងងង		52	ឧឧ	១ ភា :	2 22	នន	22,22	1 12 1	a xa	nn	22.2	9 22	នន		25
Body Weight (kg)		5 5	228	222	2.2		226	R I	22	2 5	20	5 5	21	2 2	2 5	5 2 1	2 2	22	288	281	2,8	222		02	225	5 6 1	2 2	5 5	66	221	2 2	22	2 2 2	2 2	22		92
Averagic Time (days)		9,125	9,125	9.125	9,125		9,125	9,125	9,125	9.125	9,125	9.125	9.125	9,125	9,125	9,125	9,125	9,125	9.125	9,125	9,125	9.125 9.125 9.125		9.125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125		9,125
Averaging Time (days) Car		25,550	25,550	25.550	25.550		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25.550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25.550	25.550	25,550	25,550		25,550

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL
SITE WORKER EXPOSURE (CRORENT LAND USE)
REASONABLE MAXIMUM CURDENT LAND USE)
CASE I SCASOR SOURCE (RNE)
SEAD-16 Remedial inexigation
Senera Army Depat Activity

Analyte	Dose (Nc) (mg/kg-day)	Doxe (Car) (mg/kg-day)	Soil (mg/kg)	Factor (kg/mg)	Area Contact (cm²/event)	Factor (mg soil/cm²)	Factor (unitless)	Frequency (events/year)	Duration (years)	Weight (kg)	T)	Time (days)
Metals											Nc	Car
Artimony			7.91E-01	1.00F.06	5.800	10		30	34	£	3110	7.6 660
Barrism			1.07E-01	1.00E-06	5,800	10		50	2 22	2 2	9,125	25,550
Copper			7.66E-02	1.00E-06	5,800	1.0		20	25	2	9,125	25.550
Lead			6.30E-01	1.00E-06	5,800	1.0		20	25	20	9.125	25.550
Mercuty			5.43E-04	1.00E-06	5,800	1.0		20	23	2	9,125	25.550
Selenium			9.20E-04	1.00E-06	5,800	1.0		50	25	20	9,125	25,550
I hallmm Zinc			1.10E-01	1.00E-06	5,800	9 9		22	กก	22	9,125	25,550
Herbicides												
2,4,5-T MCPP				1.00E-06 1.00E-06	5,800	0.1		22	នន	5 6	9,125	25,550
EQUATION:	Absorbed doss	Absorbed dose (mg/kg-day) = CS.s.CF.s.SA.s.AF.s.ABS.s.EF.s.ED	GLGEISA	AFIABSIE	ELED					-	14 19	H. h
Variables:			Assumptions:				Variables:			Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CS = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (mm) AF = Soil to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitexs)	ton in Soll (mg sol 0-6 kg/mg) ((cm²) e Factor (mg/cm²) unitless)	(VAE)	EPC Soil Data - RME 10-5. 5800 cm* (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd	EPC Soil Data - RME 10-6 5.800 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd	po pum		EF = Exposure Frequency (e ED = Exposure Duration (yes BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (Ag) AT = Averaging Time (days)	ts/year)	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	Norker) Norker)) 0 x 365 Adult (Carr)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 1 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA NA		
Chloroform	-		1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA NA		
Xylene (total)			2.00E+00	NA NA		
Ayrene (total)		-	2.002	233.8		
Semivolatile Organics						
2.4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA NA		
2-methylnaphthalene		2	NA	NA NA		
z-metnymaphmatene			I III	l BA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran		1	NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene		-	NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene		In the second	NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 1
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4.4'-DDD			5.00E-04	2.40E-01		N. T.
4,4'-DDE		10.0	NA	NA		describe
4,4'-DDT	100	0.50	5.00E-04	3.40E-01		100
Aldrin			3.00E-05	1.70E+01		
Aroclor-1254			1.90E-05	2.11E+00		
Aroclor-1260	D-3814 T	1.86E-09	NA	8.11E+00		1.51E-08
Dieldrin		3.000	5.00E-05	1.60E+01		1000
Endosulfan I			6,00E-03	NA		1
Endosulfan II		100	NA	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA		
Heptachlor		- E	5.00E-04	4.50E+00		
Heptachlor epoxide		100	1.30E-05	9.10E+00		
Toxaphene			NA.	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		C. Carrier
beta-BHC			NA NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA NA		
gamma-Chlordane			NA NA	NA		
delta-BHC			NA.	NA		
пена-вис	March State of the		na.	""		
Nitroaromatics	1.00	- 4				111111
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	10-04		1.00E-02	NA		
Metals	mula.					
Antimony	123		4.00E-04	NA		
Barium			7.00E-03	NA		
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		-
Fhallium		100	7.00E-05	NA		
Zinc	Charles III		1.50E-01	NA		
Line		The same of the		0.000		
Herbicides						THE
2,4,5-T	12.16.1	Land I	1.00E-02	NA		ri Car
MCPP			1.00E-03	NA		
		:				A34.17.73.31.11.11
Totals - HQ & CR						1.51E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-13
CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS
INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (veas)	Body Weight	Aver	Averaging Time
									ò	Nc	Car
Volatile Organics											
I, I, 2, 2, - Tetrachloroethane	6 175-10	1.93E-10	6.89E-03	00	1.00E-06		20	25	70	9,125	25,550
Benzene	01-01-01	1,40E-10	5.00E-03	8 8	1.00E-06		2 2	21 22	0 0 0 0	9.125	25,550
Chloroform	1.57E-10	5 59F-11	2.00E-03	8 2	1.00E-06		20	22	02	9,125	25,550
Methylene Chloride	2.35E-10	8.39E-11	3.00E-03	100	1.00E-06		50 02	3 23	6 6	9,125	25,550
Xylene (total)	3.33E-10		7.02E-03	0 00	1.00E-06 1.00E-06		20 20	ងង	0.5	9,125	25,550
Semivolatile Organics											
2.4-Dinitrotoluene 2.6-Dinitrotoluene 2-methylnaphthalene	1.68E-07 1.41E-08		2.14E+00 1.80E-01 1.23E+00	000	1.00E-06 1.00E-06		222	25 25	222	9,125	25,550
3,3'-Dichlorobenzidine		0.00E+00	0.00E+00	100	1.00E-06		20 20	3 2	S 6	571.6	25,550
3-nitroaniline Acenaphthene	1.69E-07		0.00E+00	100	1.00E-06		50	22.2	0,1	9,125	25,550
Acenaphthylene			3.08E-01	100	1.00E-06	-	20	2 22	6 07	9,125	25,550
Anthracene Benzo(a)anthracene	1.375-07	2.01E-07	2.01E+00 7.20E+00	90 100	1.00E-06		20	22	5 5	9,125	25,550
Benzo(a)pyrene Benzo(b)fluoranthene		3.22E-07	1.15E+01	00 5	1.00E-06		50	121	70	9,125	25,550
Benzo(g,h,i)perylene			5.89E+00	8 8	1.00E-06		20 50	ឧឧ	2 2	9,125	25,550
Carbazole		5.23E-08	4.71E+00	8 8	1.00E-06		20 50	22 22	2 2	9,125	25,550
Chrysene		2.42E-07	8.64E+00	100	1.00E-06		202	22	2 2	9,125	25,550
Dibenz(a,h)anthracene	5.59E-08	6.58E-08	7.14E-01 2.35E+00	8 B	1.00E-06		20	ងង	5 5	9,125	25,550
Dibenzofuran Diethylbhthalate	1 195-09		1.62E+00	001	1.00E-06		50	1 XI :	20	9,125	25,550
Fluoranthene	8.82E-07		1.13E+01	80	1.00E-06		2 02	១ ង	5 6	9,125	25,550
Indeno(1,2,3-cd)pyrene	1.305-07	1.55E-07	5.55E+00	00 00	1.00E-06		0 00	22 2	2.5	9,125	25,550
N-Nitrosodiphenylamine (1) Naphthalene		1.61E-08	5.77E-01	001	1.00E-06		2 2	121	20	9.125	25.550
Pentachlorophenol	9.05E-08	3.23E-08	1.16E+00	001	1.00E-06		3 2	3 23	5 6	9,125	25,550
Pyrene bis(2-Ethylhexyl)phthalate	9.94E-07	3 55F-08	1,26E+01	888	1.00E-06		2 2 2	2 22 23	5 5 1	9.125	25,550
esticides							0.	4	0/	51.6	25,530
ddd:+;	3.43E-10	1.22E-10	4.38E-03	100	1.00E-06	-	20	25	70	9 125	25 550
4,4*DDE	7716.10	1 755 10	1.85E-02	001	1.00E-06	-	20	23	02	9,125	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	001	1.00E-06		20	52 52	2 2	9,125	25,550
Aroclor-1254	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06		20	2 22	202	9,125	25,550
Aroctor-1200 Dieldrin	3.91F.10	5.35E-10	1.91E-02	00 5	1.00E-06		20	25	70	9,125	25,550
Endosulfan I	1.08E-09	200	1.38E-02	001	1.00E-06		50	ឧឧ	2 2	9,125	25,550
Endosulfan sulfate	3.36E-10		4.55E-03	00 8	1.00E-06		20	25	0.0	9,125	25,550
Endrin	4.37E-10		5.59E-03	001	1.00E-06		50 2	3 23	0,02	9,125	25,550
Endrin aldehyde Endrin ketone			2.51E-03	900	1.00E-06		20	22	70	9,125	25,550
Heptachlor	0.00E+00	0.00E+00	0.00E+00	8 90	1.00E-06		20	2 22	0.02	9,125	25,550
Heptachlor epoxide	1.51E-10	5.41E-11	1.94E-03	001	1.00E-06	_	20	25	0,	9,125	25,550
alpha-Chlordane	2.29E-10	8.19E-11	2.93E-03	100	1.00E-06		2 20	21 22	5 5	9.125	25,550
beta-BHC	0000	6.86E-11	2.45E-03	0-25	90-300T	-	20	25	92	9,125	25,550
gamma-Dric (Lindane)	0.005+00		3.17E-03		1.00E-06		2 20	22 22	0,5	9.125	25,550
delta-BHC			1 075 01		200 100				2	27.172	055,52

TABLE 6-13
CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS
INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT ROMULUS, NEW YORK - SEAD 16
CASE 1

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Tir (da	Averaging Time (days)
Nitroaromatics										Nc	Car
2-amino-4,6-Dinitrotoluene Tetryl	0.00E+00		0.00E+00 0.00E+00	100	1.00E-06 1.00E-06		70 70	ងង	57	9,125	25,550
Metals								9.89			
Antimony	6.19E-10		7.91E-03	100	1.00E-06	-	20	25	70	9.125	25 550
Barium	8.41E-09		1.07E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Copper	5.99E-09		7.66E-02	90 90	1.00E-06		20	25	20	9,125	25,550
Mercina	11.350.11		0.305-01	901	1.005-06		20	22	70	9,125	25,550
Scientium	7.20E-11		9.70F-04	8 8	1.00E-06		20	23 %	2 6	9,125	25,550
Thallium	1.28E-10		1.63E-03	100	1.00E-06		20	3.5	02	9175	25.550
Zinc	8.61E-09		1.10E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Herbicides			H								
2,4,5-T	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	70	9 125	25 550
MCPP	0.00E+00		0.00E+00	100	1.00E-06	-	20	22	02	9,125	25,550
EQUATION:	intake (mg/kg-day) = CS.1R.1.CF.1.FI.1.EF.1.ED BW.1.AT	CSAIRACEAE	TYEFYED							į n	
	Variables:					Assumptions:					
	CS = Chemical Concentration in Soil (mg soil/kg) CF = Logscine Aget (mg soil/day) CF = Conversion Factor (10-kg/mg) FI = Fraction Ingested (unitles) ED = Exposure Frequency (days/years) ED = Exposure Duration (years) AT = Averaine Time (day)	centration in Soil ((mg soil/day) ceo (10-6 kg/mg) ced (unitless) quency (days/year ation (years) ce (days/year)	(mg soil/kg)			EPC Soil Data - RME 100 (RME Site Worker) 10-6 (All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult male)	RME Norker)) orker)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-44 CALCULATION OF NONCARCINGGENIC AND CARCINGGENIC RISKS FROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)

REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane		1.93E-10	NA	2.00E-01		3.85E-11
Acetone	6.32E-10	100000000000000000000000000000000000000	1.00E-01	NA	6.32E-09	10000000
Benzene	1 575 10	1.40E-10	NA LOOF OL	2.90E-02	1.575.00	4.05E-12
Carbon Disulfide Chloroform	1.57E-10 1.57E-10	5.59E-11	1.00E-01 1.00E-02	NA 6.10E-03	1.57E-09 1.57E-08	3.41E-13
Methylene Chloride	2.35E-10	8.39E-11	6.00E-02	7.50E-03	3.91E-09	6.29E-13
Toluene	5.49E-10	730000000000000000000000000000000000000	2.00E-01	NA	2.75E-09	DAYON GOOM
Xylene (total)	3.33E-10		2.00E+00	NA	1.66E-10	
Semivolatile Organics						
2,4-Dinitrotoluene	1.68E-07		2.00E-03	NA	8.39E-05	
2,6-Dinitrotoluene	1.41E-08		1.00E-03	NA	1.41E-05	
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine	1	0.00E+00	NA	4.50E-01		0.00E+00
3-nitroaniline	The second second		NA	NA		
Acenaphthene	1.69E-07		6.00E-02	NA	2.81E-06	
Acenaphthylene			NA	NA		
Anthracene	1.57E-07	2.01E-07	3.00E-01	NA 7.30E-01	5.25E-07	1.47E-07
Benzo(a)anthracene Benzo(a)pyrene		3.22E-07	NA NA	7.30E+00		2.35E-06
Benzo(b)fluoranthene		2.75E-07	NA	7.30E-01		2.01E-07
Benzo(g,h,i)perylene		THE THE PARTY	NA	NA		COMPANY OF CHEST
Benzo(k)fluoranthene		1.32E-07	NA	7.30E-01	1	9.61E-08
Carbazole		5.23E-08	NA	2.00E-02	1	1.05E-09
Chrysene	5 50F 00	2.42E-07	NA I	7.30E-02	5.59E-07	1.76E-08
Di-n-butylphthalate Dibenz(a,h)anthracene	5.59E-08	6.58E-08	1.00E-01 NA	NA 7.30E+00	5.59E-07	4.80E-07
Dibenzofuran		0.502-00	NA NA	NA NA	1	4.00L-07
Diethylphthalate	1.49E-09		8.00E+00	NA	1.86E-10	
Fluoranthene	8.82E-07		4.00E-02	NA	2.20E-05	
Fluorene	1.36E-07	1 665 05	4.00E-02	NA 7.20F.01	3.39E-06	1 100 05
Indeno(1,2,3-cd)pyrene N-Nitrosodiphenylamine (1)		1.55E-07 1.61E-08	NA NA	7.30E-01 4.90E-03	1	1.13E-07 7.90E-11
Naphthalene		1.01E-08	NA NA	NA	1	7,90E-11
Pentachlorophenol	9.05E-08	3.23E-08	3.00E-02	1.20E-01	3.02E-06	3.88E-09
Phenanthrene	20121010101010		NA	NA		100000000000000000000000000000000000000
Pyrene	9.89E-07		3.00E-02	NA	3.30E-05	
bis(2-Ethylhexyl)phthalate	9.94E-08	3.55E-08	2.00E-02	1.40E-02	4.97E-06	4.97E-10
Pesticides						
4,4'-DDD	3.43E-10	1.22E-10	5.00E-04	2.40E-01	6.85E-07	2.94E-11
4,4'-DDE 4.4'-DDT	7.715.10	2.755.10	NA NA	NA 2 40F 01	L SAF OC	0.225.11
4,4-DD1 Aldrin	7.71E-10 0.00E+00	2.75E-10 0.00E+00	5.00E-04 3.00E-05	3.40E-01 1.70E+01	1.54E-06 0.00E+00	9.37E-11 0.00E+00
Aroclor-1254	0.00E+00	0.00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+00
Aroclor-1260		5.35E-10	NA	7.70E+00		4.12E-09
Dieldrin	3.91E-10	1.40E-10	5.00E-05	1.60E+01	7.82E-06	2.23E-09
Endosulfan I	1.08E-09		6.00E-03	NA	1.80E-07	
Endosulfan II Endosulfan sulfate	2 265 10		NA 5.00E-05	NA NA	6.71E-06	
Endosuitan suitate Endrin	3.36E-10 4.37E-10		3.00E-03	NA NA	1.46E-06	
Endrin aldehyde	100000000000000000000000000000000000000		NA NA	NA	10000000	
Endrin ketone			NA	NA		
Heptachlor	0.00E+00	0.00E+00	5.00E-04	4.50E+00	0.00E+00	0.00E+00
Heptachlor epoxide	1.51E-10	5.41E-11	1.30E-05	9.10E+00	1.17E-05	4.92E-10
Toxaphene	2.29E-10	0.00E+00 8.19E-11	NA 6.00E-05	1.10E+00 1.30E+00	3.82E-06	0.00E+00 1.06E-10
alpha-Chlordane beta-BHC	2.29E-10	6.86E-11	NA NA	1.80E+00	3.02E*00	1.00E-10 1.23E-10
gamma-BHC (Lindane)	0.00E+00	O.OOL II	3.00E-04	NA	0.00E+00	
gamma-Chlordane	**************************************		NA	NA	The second section of the sect	
delta-BHC			NA	NA	1	1

TABLE 6-44 TABLE 6-44 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16 CASE 1

		CA	SE I		_	
Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Nitroaromatics	100000000000000000000000000000000000000	0				
2-amino-4,6-Dinitrotoluene Tetryl	0.00E+00		NA 1.00E-02	NA NA	0.00E+00	
Metals						
Antimony	6.19E-10	0.75	4.00E-04	NA	1.55E-06	
Barium	8.41E-09		7.00E-02	NA	1.20E-07	all the same
Copper	5.99E-09	Late of	4.00E-02	NA	1.50E-07	
Lead			NA	NA		
Mercury	4.25E-11		3.00E-04	NA	1.42E-07	
Selenium	7.20E-11	-	5.00E-03	NA	1.44E-08	
Thallium	1.28E-10		7.00E-05	NA	1.82E-06	
Zinc	8.61E-09		3.00E-01	NA	2.87E-08	
Herbicides	4 1					
2,4,5-T	0.00E+00		1.00E-02	NA	0.00E+00	01.
MCPP	0.00E+00		1.00E-03	NA	0.00E+00	
Totals - HQ & CR					2.06E-04	3.42E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose (Oral)

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor (Oral)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-19
CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL.
FUTURE WORKER EXPOSIURE (FUTURE LAND ISE)
REASONABLE MAXIMUM EXPOSIURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16
CASE 1

11/03/97

Analyte Dose (mg/kg	Volatile Organics	1,1,2,2,-Tetrachloroethane Acetone Benzene	Carbon Disulfide Chloroform Methylene Chloride	Toluene Xylene (total)	Semivolatile Organics	, 4-Dinitrotoluene , 6-Dinitrotoluene t-methylnaphthalene	3,3'-Dichlorobenzidine	Accaphthene	Acenaphthylene Anthracene	Benzo(a)anthracene Benzo(a)nyrene	Benzo(b)fluoranthene	Berzo(k)fluoranthene	Carbazole	Di-n-butylphthalate Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	ndeno(1,2,3-cd)pyrene	Naphthalene	henanthrene	is(2-Ethylhexyl)phthalate	esticides	4,4.000 4,4.00E	drin	Aroclor-1254	Dieldrin	Endosulfan II	Endosulfan sulfate	Endrin aldehyde	Endrin ketone Hentachlor	Improvide	1 oxaphene alpha-Chlordane	gamma-BHC (Lindane)	gamma-Chlordane
Dose (Nc) (mg/kg-day)																																	
Dose (Car) (mg/kg-day)																								1 86F-09									
EPC Sail (mg/kg)		6.89E-03 8.08E-03 5.00E-03	2.00E-03 2.00E-03 3.00E-03	7.02E-03 4.25E-03	**************************************	2.14E+00 1.80E-01 1.23E+00		2.16E+00	3.08E-01 2.01E+00	7.20E+00	9.85E+00	4.71E+00	8.64E+00	7.14E-01 2.35E+00	1.62E+00 1.90E-02	1.13E+01	5.55E+00 5.77E-01	1.95E+00	7.33E+00 1.26E+01	1.27E+00		4,38E-03 1,85E-02	7.025-43	1 91F-02	4.99E-03	4.55E-03	4.29E-03 5 59F-03	2.51E-03	5.58E-03	1,94E-03	2.93E-03	7.435-03	3.17E-03
Conv. Factor (kg/mg)		1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06		1.00E-06 1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.005-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1,00E-06		1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Skin Surface Area Contact (cm²/event)		5,800	5,800 5,800	5,800	8	5,800 5,800 5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800		5,800	5,800	5.800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800
Adherence Factor (mg soil/cm²)		0 0 0 0 0 0 1	222	1.0	3	222	1.0	1.0	0.0	07	0.1	200	0.01	0.01	1.0	1.0	1.0	0.0	0.1	1.0		0.0	0.1	0.0	0.1	1.0	0.0	07	0.0	1.0	200	0.0	1.0
Absorption Factor (unitless)																			11-					90.0									
Exposure Frequency (events/year)		20 20	222	20 20		20 02	20	20	20 20	20	20	222	2 2	2 20	20 20	20	20	20	20	20		2 2 2	2 2	22	20 50	20 20	20 20	20	2 22	20	222	223	20
Exposure Duration (years)		22 22 23	ន្តន	ឧង		ឧឧឧ	22	n	2 23	ม ม	25 25	ង	2 22	ងង	22 23	25	នន	នន	ងង	22		ងងដ	2 22	22 22	22 %	22	22 52	25	2 23	25	3 23 2	121	52
Body Weight (kg)		555	2226	2 2		555	0.00	0.5	0,0	0.07	0,5	2 2 2	2 2	2 0	22	200	5 02	0 0 0 0	07 07	70		555	70	5 5	55	20	6 6	70	2 2	0.5	222	5 6 1	70
Aver Ti (da		9,125 9,125 9,125	9,125 9,125 9,125	9,125		9,125 9,125 9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125		9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125
Averaging Time (days) Car		25.550 25,550 25,550	25,550	25,550	3	25,550 25,550 25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,55	25,550	25,550	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25.33

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL.
FUTURE WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMIN EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16
CASE 1

Analyte Dose (Nc) Dose (Car) Soil (mg/kg-day) (mg/kg-day) (mg/kg) Nitroaromatics 2-amino-4,c-Dinitrotolucne Tetyl Metals Antinony 7,91E-03	Conv. Factor (kg/mg)	Skin Surface Area Contact	Adherence	Absorption	Exposure	Exposure	Body	Aver	anjus
omatics -1,6-Dinitrotolucne		(cm ² /cv.cnt)	(mg soil/cm²)	Factor (unitless)	Frequency (events/year)	Duration (years)	(kg)	T. (da	Time (days)
H, 6-Dinitrotoluene								Nc	Car
	1.00E-06	5,800	071		20	22	70	9,125	25,550
	1.00E-06	2,800	0.1		20	22	70	9,125	25,550
	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
	1.00E-06	5,800	0.1		50	52	20	9,125	25,550
7.50E-02	1.005-06	5,800	0.0		07 02	9 2	0.0	9,125	25,550
	1.00E-06	5.800	01		20	25	20,02	9,125	25.550
Sclenium 9.20E-04	1.00E-06	5.800	1.0		20	25	70	9,125	25.550
hallium 1.63E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
I.10E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Herbicides									
2,4,5-T	1.00E-06	5,800	1.0		20	25	02	9,125	25,550
WCPP	1.00E-06	5,800	0.		50	23	0,	9,125	25,550
EQUATION: Absorbed dose (mg/kg-day) = CSACEASAA	CSACESSAAFAABSAEERED BWAAT	TED TO							1
Variables: Assumptions:			Variables:				Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) Sailo cm² (RME Site W. Area Soil to Sida Abberence Factor (mg/cm²) Compound Specific for 1 ABS = Absorption Factor (unitless)	EPC Soil Data - RME 10-6 5.800 cm* (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCB and Cd	POI	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweipht (kg) AT = Averaging Time (days)	Frequency (c Duration (yea ht (kg) Time (days)	rents/year) rs)		20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	orker) orker) x 365 Adult	(Car)

TABLE 6-46 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics						
national results with the second of the seco						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine	1		NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene	1		NA	1.46E+01		
Benzo(b)fluoranthene		1 1	NA	1.46E+00		
Benzo(g,h,i)perylene		1	NA	NA NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene	1		NA	1.46E-01		
Di-n-butylphthalate	1	1 1	8,50E-02	NA		
Dibenz(a,h)anthracene		1	NA	1.46E+01		
Dibenz(a,n)antiracene Dibenzofuran			NA	NA NA		
Diethylphthalate			8.00E+00	NA NA		
Fluoranthene			4.00E-02	NA NA		
Fluorantnene			4.00E-02 4.00E-02	NA NA		
Indeno(1,2,3-cd)pyrene			4.00E-02 NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA NA	4.90E-03		
N-Nitrosodiphenylamine (1) Naphthalene			NA NA	4.90E-03 NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Pentachiorophenoi Phenanthrene			NA	NA		
			3.00E-02	NA NA		
Pyrene				1.40E-02		
bis(2-Ethylhexyl)phthalate	1		2.00E-02	1.40E-02	1	

TABLE 6-46 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

CASE 1

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
/ # DDD			5.00E-04	2.40E-01		
4,4'-DDD	La tribe 1		NA	NA NA		
4,4'-DDE		10000	5.00E-04	3.40E-01		
4,4'-DDT			3.00E-05	1.70E+01		
Aldrin			1.90E-05	2.11E+00		
Aroclor-1254		1.86E-09	NA	8.11E+00		1.51E-08
Aroclor-1260		1.80E-09	5.00E-05	1.60E+01		1.5112-00
Dieldrin				NA		
Endosulfan I			6.00E-03	832.5		77.71
Endosulfan II			NA	NA		1
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin ketone	144	1 10	NA	NA		
Heptachlor			5.00E-04	4.50E+00	111	
Heptachlor epoxide	1		1.30E-05	9.10E+00		
Toxaphene			NA	1.10E+00		
alpha-Chlordane	200		6.00E-05	1.30E+00		
oeta-BHC			NA	1.80E+00		
gamma-BHC (Lindane)	100		3.00E-04	NA		
gamma-Chlordane	7.4	1111	NA	NA		
delta-BHC			NA	NA	4.2	
Nitroaromatics		197				
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			1.00E-02	NA		100
rettyr			1.002 02		1	
Metals	- 1911	124				
Antimony	18 m		4.00E-04	NA	- 1113	
Antimony Barium			7.00E-03	NA NA		
			2.00E-02	NA NA		
Copper			NA	NA NA		
Lead	10.00		4.50E-05	NA NA		
Mercury			3.00E-03	NA NA		
Selenium			7.00E-05	NA NA		
Γhallium 			1.50E-01	NA NA		
Zinc			1.50E-01	NA		
Herbicides	48					
	140					
2,4,5-T	1 1 1		1.00E-02	NA	-	
MCPP			1.00E-03	NA		
Totals - HQ & CR						1.51E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose (Oral) Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor (Oral)

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CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
	102 5 25	2 2 2 2	385.075 053	129 320		1861 185	50.50	Nc	Car
Volatile Organics									
1,1,2,2-Tetrachloroethane		2.05E-13	2.62E-10	2	50	5	25	1.825	25,550
Acetone		NESTRONAL TRANSPORT	3.07E-10	2	50	5	25	1.825	25,550
Benzene		2.40E-13	3.07E-10	2	50	5	25	1,825	25,550
Carbon Disulfide	2.08E-12		1.90E-10	2	50	5	25	1,825	25,550
Chloroform		5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Methylene Chloride	8.33E-13	5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Toluene	1.25E-12	Same and the	1.14E-10	2	50	5	25	1,825	25,550
Xylene (total)			2.67E-10	2	50	5	25	1,825	25,550
Semivolatile Organics									
2,4-Dinitrotoluene			8.15E-08	2	50	5	25	1,825	25,550
2,6-Dinitrotoluene			6.84E-09	2	50	5	25	1,825	25,550
2-Methylnaphthalene			4.67E-08	2	50	5	25	1,825	25,550
3,3'-Dichlorobenzidine			0.00E+00	2	50	5	25	1,825	25,550
3-nitroaniline		1	0.00E+00	2	50	5	25	1,825	25,550
Acenaphthene			ERR	2	50	5	25	1,825	25,550
Acenaphthylene			8.19E-08	2	50	5	25	1,825	25,550
Anthracene			1.17E-08	2	50	5	25	1,825	25,550
Benzo(a)anthracene			7.64E-08	2	50	5	25	1,825	25,550
Benzo(a)pyrene			2.73E-07	2	50	5	25	1,825	25,550
Benzo(b)fluoranthene			4.38E-07	2	50	5	25	1.825	25,550
Benzo(g,h,i)perylene			3.74E-07	2	50	5	25	1,825	25,550
Benzo(k)fluoranthene			2.24E-07	2	50	5	25	1,825	25,550
Carbazole			7.10E-08	2 2	50	5	25	1,825	25,550
Chrysene			3.28E-07	2	50	5	25	1,825	25,550
Di-n-butylphthalate			2.71E-08	2 2	50	5	25	1,825	25,550
Dibenz(a,h)anthracene			8.94E-08	2	50	5	25	1,825	25,550
Dibenzofuran			ERR	2	50	5	25	1,825	25,550
Diethylphthalate			6.15E-08	2	50	5	25	1,825	25,550
Fluoranthene			7.22E-10	2	50	5	25	1,825	25,550
Fluorene			4.28E-07	2	50	5	25	1,825	25,550
ndeno(1,2,3-cd)pyrene			6.58E-08	2	50	5	25	1,825	25,550
N-Nitrosodiphenylamine (1)	1		2.11E-07	2	50	5	25	1,825	25,550
Naphthalene			2.19E-08	2	50	5	25	1,825	25,550
Pentachlorophenol			7.42E-08	2	50	5	25	1,825	25,550
Phenanthrene			4.39E-08	2	50	5	25	1,825	25,550
Pyrene			2.78E-07	2	50	5	25	1,825	25,550
ois(2-Ethylhexyl)phthalate			4.80E-07	2	50	5	25	1,825	25,550

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime lays)
	(inging any)	((,		Anders Associated			Nc	Car
'esticides								ing to be particular.	
4 000			1.66E-10	2	50	5	25	1,825	25,550
1,4'-DDD			7.02E-10	2	50	5	25	1,825	25,550
1,4'-DDE							25	1,825	25,550
1,4'-DDT	ENT CAPPUIGNAVOUS AND	2.93E-13	3.74E-10	2	50	5			
Aldrin	0.00E+00	0.00E+00	0.00E+00	2	50	5	25	1,825	25,550
Aroclor-1254		0.00E+00	0.00E+00	2	50	5	25	1,825	25,550
Aroclor-1260			7.27E-10	2	50	5	25	1,825	25,550
Dieldrin		1.49E-13	1.90E-10	2	50	5	25	1,825	25,550
Endosulfan I		W. 41.55 C. 17.55 C.	5.24E-10	2	50	5	25	1,825	25,550
Endosulfan II			1.73E-10	2	50	5	25	1,825	25,550
Endosulfan sulfate			1.63E-10	2	50	5	25	1,825	25,550
Endrin			2.12E-10	2	50	5	25	1,825	25,550
Endrin aldehyde			9.56E-11	2	50	5	25	1,825	25,550
			2.12E-10	2	50	5	25	1,825	25,550
Endrin ketone		0.00E+00	0.00E+00	2	50	5	25	1,825	25,550
Heptachlor					50	5	25	1,825	25,550
Heptachlor epoxide		5.76E-14	7.35E-11	2					25,550
Toxaphene		0.00E+00	0.00E+00	2	50	5	25	1,825	
alpha-Chlordane		349406009404	1.11E-10	2	50	5	25	1,825	25,550
beta-BHC		7.30E-14	9.32E-11	2	50	5	25	1,825	25,550
gamma-BHC (Lindane)			0.00E+00	2	50	5	25	1,825	25,550
gamma-Chlordane			1.21E-10	2	50	5	25	1,825	25,550
Nitroaromatics									
2-amino-4,6-Dinitrotoluene			0.00E+00	2	50	5	25	1,825	25,550
Tetryl			0.00E+00	2	50	5	25	1,825	25,550
reayi			0.002.00						
Metals									
Antimony			3.00E-10	2	50	5	25	1,825	25,550
Barium	1.58E-07		1.44E-05	2	50	5	25	1,825	25,550
Copper	1,505 0		3.42E-04	2	50	5	25	1,825	25,550
Lead			1.31E-05	2	50	5	25	1,825	25,550
	4.04E-06		3.69E-04	2	50	5	25	1,825	25,550
Mercury	4.04E-00		4.62E-06	2	50	5	25	1,825	25,550
Selenium					50	5	25	1,825	25,550
Thallium			6.19E-11	2 2	50	5	25	1,825	25,550
Zinc			4.18E-09	2	30	,	23	1,023	25,550
Herbicides									i u
2,4,5-T			0.00E+00	2	50	5	25	1,825	25,550
MCPP			0.00E+00	2	50	5	25	1,825	25,550
EQUATION:	Intake (mg/kg	-day) =	CA x IR x EI	F x ED	30			1,022	
	Variables:					Assumptions:			
						ESTA & VALUE	and the second		
		al Concentratio		m³)		Calculated Air		IME	
		n Rate (m³/day				2 (RME Child)	6		
	EF = Exposur	re Frequency (days/yr)			50			
	ED = Exposur	e Duration (ye	ars)			5 (RME)			
	BW = Bodywo	eight (kg)	35			25 (Child)			
		ng Time (days)				5 x 365 (Nc), 76	0 x 365 (Car)		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics					=	
1,1,2,2-Tetrachloroethane		2.05E-13	NA	2.03E-01		4.16E-14
Acetone			NA	NA		
Benzene		2.40E-13	NA	2.91E-02		6.98E-15
Carbon Disulfide	2.08E-12	91.00192200000000	2.86E-03	NA	7.29E-10	V2/14/2004/17/4/17
Chloroform		5.95E-14	NA	8.05E-02		4.79E-15
Methylene Chloride	8.33E-13	5.95E-14	8.57E-01	1.65E-03	9.72E-13	9.82E-17
Toluene	1.25E-12		1.14E-01	NA	1.09E-11	ACM************************************
Xylene (total)			NA	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		
3-nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Diethylphthalate			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		
bis(2-Ethylhexyl)phthalate			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD			NA	NA		
4,4'-DDE			NA	NA		
4,4'-DDT	1 10 11	2.93E-13	NA	3.40E-01		9.95E-14
Aldrin	0.00E+00	0.00E+00	1.70E+01	1.72E+01	0.00E+00	0.00E+00
Aroclor-1254		0.00E+00	NA	4.00E-01		0.00E+00
Aroclor-1260			NA	NA		
Dieldrin		1.49E-13	NA	1.61E+01		2.39E-12
Endosulfan I		1,2 10	NA	NA		1
Endosulfan II			NA	NA		lie .
Endosulfan sulfate			NA	NA		
Endosurian surrate			NA	NA.		
Endrin aldehyde			NA	NA NA		
Endrin aldenyde Endrin ketone			NA	NA NA		
Heptachlor		0.00E+00	NA	4.55E+00		0.00E+00
Heptachlor epoxide		5.76E-14	NA	9.10E+00		5.24E-13
Toxaphene	1 10	0.00E+00	NA	1.12E+00		0.00E+00
alpha-Chlordane		0.002.00	NA	NA		10.000
beta-BHC		7.30E-14	NA	1.86E+00		1.35E-13
gamma-BHC (Lindane)		7.502 11	NA	NA		
gamma-Chlordane			NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene	78		NA	NA		
Tetryl	100		NA	NA		
Metals						
Antimony	1.00		NA	NA		
Barium	1.58E-07		1.43E-04	NA	1.10E-03	
Copper	STEET SEC.		NA	NA		
Lead			NA	NA		
Mercury	4.04E-06		8.57E-05	NA	4.72E-02	
Selenium	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -		NA	NA		
Thallium			NA	NA		
Zinc			NA	NA		
455.000						
Herbicides						
			2574	27.6		
2,4,5-T			NA	NA NA		
MCPP			NA	NA		
Total HQ & CR					4.83E-02	3.20E-12

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

	SURFACE SOIL	AVERAGE	CONVERSION	AMBIENT AIR	MEASURED	AMBIENT AIR
COMPOUND	EPC Data mg/kg	TSP (ug/m³)	FACTOR (kg/ug)	CALCULATED EPC (mg/m³)	AIR SAMPLES (mg/m³)	EPC (mg/m³)
Volatile Organics						
1,1,2,2-Tetrachloroethane	6.89E-03	3.80E+01	1.00E-09	2.62E-10	1	2.62E-10
Acetone	8.08E-03	3.80E+01	1.00E-09	3.07E-10		3.07E-10
Benzene	5.00E-03	3.80E+01	1.00E-09	3.07E-10		3.07E-10
Carbon Disulfide	2.00E-03	3.80E+01	1.00E-09	1.90E-10		1.90E-10
Chloroform	2.00E-03	3.80E+01	1.00E-09	7.60E-11		7.60E-11
Methylene Chloride	3.00E-03	3.80E+01	1.00E-09	7.60E-11		7.60E-11
Toluene	7.02E-03	3.80E+01	1.00E-09	1.14E-10		1.14E-10
Xylene (total)	4.25E-03	3.80E+01	1.00E-09	2.67E-10		2.67E-10
Semivolatile Organics						
2,4-Dinitrotoluene	2.14E+00	3.80E+01	1.00E-09	8.15E-08		8.15E-08
2.6-Dinitrotoluene	1.80E-01	3.80E+01	1.00E-09	6.84E-09		6.84E-09
2-Methylnaphthalene	1.23E+00	3.80E+01	1.00E-09	4.67E-08	7.84E-05 U	4.67E-08
3,3'-Dichlorobenzidine	SATSEMECK.	3.80E+01	1.00E-09	0.00E+00	\$2,0750.072 (6,0 × 10,75)	0.00E+00
3-nitroaniline		3.80E+01	1.00E-09	0.00E+00		0.00E+00
Acenaphthene	2.16E+00	3.80E+01	1.00E-09	ERR	7.84E-05 U	ERR
Acenaphthylene	3.08E-01	3.80E+01	1.00E-09	8.19E-08		8.19E-08
Anthracene	2.01E+00	3.80E+01	1.00E-09	1.17E-08	7.84E-05 U	1.17E-08
Benzo(a)anthracene	7.20E+00	3.80E+01	1.00E-09	7.64E-08	0.0000000000000000000000000000000000000	7.64E-08
Benzo(a)pyrene	1.15E+01	3.80E+01	1.00E-09	2.73E-07		2.73E-07
Benzo(b)fluoranthene	9.85E+00	3.80E+01	1.00E-09	4.38E-07		4.38E-07
Benzo(g,h,i)perylene	5.89E+00	3.80E+01	1.00E-09	3.74E-07		3.74E-07
Benzo(k)fluoranthene	4.71E+00	3.80E+01	1.00E-09	2.24E-07		2.24E-07
Carbazole	1.87E+00	3.80E+01	1.00E-09	7.10E-08		7.10E-08
Chrysene	8.64E+00	3.80E+01	1.00E-09	3.28E-07		3.28E-07
Di-n-butylphthalate	7.14E-01	3.80E+01	1.00E-09	2.71E-08	7.84E-05 U	2.71E-08
Dibenz(a,h)anthracene	2.35E+00	3.80E+01	1.00E-09	8.94E-08		8.94E-08
Dibenzofuran	1.62E+00	3.80E+01	1.00E-09	ERR	7.84E-05 U	ERR
Diethylphthalate	1.90E-02	3.80E+01	1.00E-09	6.15E-08	7.84E-05 U	6.15E-08
Fluoranthene	1.13E+01	3.80E+01	1.00E-09	7.22E-10	na western stammerss. 1970)	7.22E-10
Fluorene	1.73E+00	3.80E+01	1.00E-09	4.28E-07	7.84E-05 U	4.28E-07
ndeno(1,2,3-cd)pyrene	5.55E+00	3.80E+01	1.00E-09	6.58E-08		6.58E-08
N-Nitrosodiphenylamine (1)	5.77E-01	3.80E+01	1.00E-09	2.11E-07		2.11E-07
Naphthalene	1.95E+00	3.80E+01	1.00E-09	2.19E-08		2.19E-08
Pentachlorophenol	1.16E+00	3.80E+01	1.00E-09	7.42E-08		7.42E-08
Phenanthrene	7.33E+00	3.80E+01	1.00E-09	4.39E-08	7.84E-05 U	4.39E-08
Pyrene	1.26E+01	3.80E+01	1.00E-09	2.78E-07		2.78E-07
ois(2-Ethylhexyl)phthalate	1.27E+00	3.80E+01	1.00E-09	4.80E-07	7.84E-05 U	4.80E-07

TABLE 6-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-16 Remedial Investigation Seneca Army Depot Activity

COMPOUND	SURFACE SOIL EPC Data mg/kg	AVERAGE TSP (ug/m³)	CONVERSION FACTOR (kg/ug)	AMBIENT AIR CALCULATED EPC (mg/m³)	MEASURED AIR SAMPLES (mg/m³)	AMBIENT AIR EPC (mg/m³)
Pesticides						
1,4'-DDD	4.38E-03	3.80E+01	1.00E-09	1.66E-10		1.66E-10
,4'-DDE	1.85E-02	3.80E+01	1.00E-09	7.02E-10		7.02E-10
,4'-DDT	9.85E-03	3.80E+01	1.00E-09	3.74E-10		3.74E-10
Aldrin		3.80E+01	1.00E-09	0.00E+00		0.00E+00
Aroclor-1254		3.80E+01	1.00E-09	0.00E+00	1 10 10	0.00E+00
Aroclor-1260	1.91E-02	3.80E+01	1.00E-09	7.27E-10		7.27E-10
Dieldrin	4.99E-03	3.80E+01	1.00E-09	1.90E-10		1.90E-10
Endosulfan I	1.38E-02	3.80E+01	1.00E-09	5.24E-10		5.24E-10
Endosulfan II	4.55E-03	3.80E+01	1.00E-09	1.73E-10		1.73E-10
Endosulfan sulfate	4.29E-03	3.80E+01	1.00E-09	1.63E-10		1.63E-10
Endrin	5.59E-03	3.80E+01	1.00E-09	2.12E-10	100000	2.12E-10
Endrin aldehyde	2.51E-03	3.80E+01	1.00E-09	9.56E-11		9.56E-11
Endrin ketone	5.58E-03	3.80E+01	1.00E-09	2.12E-10		2.12E-10
Ieptachlor	With the second	3.80E+01	1.00E-09	0.00E+00		0.00E+00
leptachlor epoxide	1.94E-03	3.80E+01	1.00E-09	7.35E-11		7.35E-11
Toxaphene		3.80E+01	1.00E-09	0.00E+00		0.00E+00
lpha-Chlordane	2.93E-03	3.80E+01	1.00E-09	1.11E-10		1.11E-10
peta-BHC	2.45E-03	3.80E+01	1.00E-09	9.32E-11		9.32E-11
gamma-BHC (Lindane)		3.80E+01	1.00E-09	0.00E+00		0.00E+00
gamma-Chlordane	3.17E-03	3.80E+01	1.00E-09	1.21E-10	50	1.21E-10
Nitroaromatics						
2-amino-4,6-Dinitrotoluene		3.80E+01	1.00E-09	0.00E+00		0.00E+00
[사용 : [사용 : [사용 : 1] [사용 : 1] [사용 : [사용 : 1] [사용 : 1		3.80E+01	1.00E-09	0.00E+00		0.00E+00
Tetryl		3.002.01	1,002-03	0.002		
Metals			1 100			
Antimony	7.91E-03	3.80E+01	1.00E-09	3.00E-10	9.80E-06 U	3.00E-10
Barium	1.07E-01	3.80E+01	1.00E-09	4.08E-09	1.44E-05	1.44E-05
Copper	7.66E-02	3.80E+01	1.00E-09	2.91E-09	3.42E-04	3.42E-04
ead	6.30E-01	3.80E+01	1.00E-09	2.39E-08	1.31E-05	1.31E-05
Mercury	5.43E-04	3.80E+01	1.00E-09	2.06E-11	3.69E-04	3.69E-04
Selenium	9.20E-04	3.80E+01	1.00E-09	3.50E-11	4.62E-06	4.62E-06
Challium Challium	1.63E-03	3.80E+01	1.00E-09	6.19E-11	6.50E-06 U	6.19E-11
Cinc	1.10E-01	3.80E+01	1.00E-09	4.18E-09	6.52E-05 U	4.18E-09
Ierbicides	16384					
.4,5-T		3.80E+01	1.00E-09	0.00E+00	the second	0.00E+00
л,4,5-1 МСРР		3.80E+01	1.00E-09	0.00E+00		0.00E+00

Variables:

Assumptions:

TSP = Total Suspended Particulates CF = Conversion Factor

Average value - 38 ug/m3 10-9 kg/ug

U = Compound was not detected above the detection limit shown

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
			S 378 10	20 - 1,9,80	150 300 Miles	1 124 19	3 8 1	Nc	Car
Volatile Organics									
1.1.2.2-Tetrachloroethane		1.46E-12	2.62E-10	20	20	25	70	9,125	25,550
Acetone			3.07E-10	20	20	25	70	9,125	25,550
Benzene		1.72E-12	3.07E-10	20	20	25	70	9,125	25,550
Carbon Disulfide	2.97E-12	G200000-0000	1.90E-10	20	20	25	70	9,125	25,550
Chloroform	Chenerosaloro	4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Methylene Chloride	1.19E-12	4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Toluene	1.78E-12		1.14E-10	20	20	25	70	9,125	25,550
Xylene (total)			2.67E-10	20	20	25	70	9,125	25,550
Semivolatile Organics				1.00					
2,4-Dinitrotoluene			8.15E-08	20	20	25	70	9,125	25,550
2,6-Dinitrotoluene			6.84E-09	20	20	25	70	9,125	25,550
2-Methylnaphthalene			4.67E-08	20	20	25	70	9,125	25,550
3,3'-Dichlorobenzidine			0.00E+00	20	20	25	70	9,125	25,550
3-nitroaniline			0.00E+00	20	20	25	70	9,125	25,550
Acenaphthene			ERR	20	20	25	70	9,125	25,550
Acenaphthylene			8.19E-08	20	20	25	70	9,125	25,550
Anthracene			1.17E-08	20	20	25	70	9,125	25,550
Benzo(a)anthracene			7.64E-08	20	20	25	70	9,125	25,550
Benzo(a)pyrene			2.73E-07	20	20	25	70	9,125	25,550
Benzo(b)fluoranthene	1		4.38E-07	20	20	25	70	9,125	25,550
Benzo(g,h,i)perylene			3.74E-07	20	20	25	70	9,125	25,550
Benzo(k)fluoranthene			2.24E-07	20	20	25	70	9,125	25,550
Carbazole			7.10E-08	20	20	25	70	9,125	25,550
Chrysene			3.28E-07	20	20	25	70	9,125	25,550
Di-n-butylphthalate			2.71E-08	20	20	25	70	9,125	25,550
Dibenz(a,h)anthracene			8.94E-08	20	20	25	70	9,125	25,550
Dibenzofuran			ERR	20	20	25	70	9,125	25,550
Diethylphthalate			6.15E-08	20	20	25	70	9,125	25,550
Fluoranthene			7.22E-10	20	20	25	70	9,125	25,550
Fluorene			4.28E-07	20	20	25	70	9,125	25,550
Indeno(1,2,3-cd)pyrene			6.58E-08	20	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			2.11E-07	20	20	25	70	9,125	25,550
Naphthalene			2.19E-08	20	20	25	70	9,125	25,550
Pentachlorophenol			7.42E-08	20	20	25	70	9,125	25,550
Phenanthrene			4.39E-08	20	20	25	70	9,125	25,550
Pyrene			2.78E-07	20	20	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate			4.80E-07	20	20	25	70	9,125	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging 'ime lays)
	(88)		13 St. 30	3 100	50 50 50 St.			No	Car
Pesticides									
1,4'-DDD			1.66E-10	20	20	25	70	9,125	25,550
4,4'-DDE		10.1	7.02E-10	20	20	25	70	9,125	25,550
4,4'-DDE 4,4'-DDT		2.09E-12	3.74E-10	20	20	25	70	9,125	25,550
	0.00E+00	0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
Aroclor-1254		0.00E+00	7.27E-10	20	20	25	70	9,125	25,550
Aroclor-1260		1.06E-12	1.90E-10	20	20	25	70	9,125	25,550
Dieldrin		1.00E-12	5.24E-10	20	20	25	70	9,125	25,550
Endosulfan I			1.73E-10	20	20	25	70	9,125	25,550
Endosulfan II				20	20	25	70	9,125	25,550
Endosulfan sulfate			1.63E-10		20	25	70	9,125	25,550
Endrin			2.12E-10	20 20	20	25	70	9,125	25,550
Endrin aldehyde			9.56E-11		20	25	70	9,125	25,550
Endrin ketone		0.005:00	2.12E-10	20		25	70	9,125	25,550
Heptachlor		0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
Heptachlor epoxide		4.11E-13	7.35E-11	20	20				25,550
Foxaphene		0.00E+00	0.00E+00	20	20	25	70	9,125	
alpha-Chlordane			1.11E-10	20	20	25	70	9,125	25,550
beta-BHC		5.21E-13	9.32E-11	20	20	25	70	9,125	25,550
gamma-BHC (Lindane)	1 12 4	- 1	0.00E+00	20	20	25	70	9,125	25,550
gamma-Chlordane			1.21E-10	20	20	25	70	9,125	25,550
Nitroaromatics	10.1			120					
2-amino-4,6-Dinitrotoluene			0.00E+00	20	20	25	70	9,125	25,550
Tetryl		17.0	0.00E+00	20	20	25	70	9,125	25,550
Tellyi			0.002.00	20	2.0		1,00		
Metals							100		
						25	20	0.126	25,550
Antimony	F1070470.04-78027		3.00E-10	20	20	25	70	9,125	
Barium	2.25E-07		1.44E-05	20	20	25	70	9,125	25,550
Copper			3.42E-04	20	20	25	70	9,125	25,550
ead			1.31E-05	20	20	25	70	9,125	25,550
Mercury	5.78E-06		3.69E-04	20	20	25	70	9,125	25,550
Selenium			4.62E-06	20	20	25	70	9,125	25,550
Thallium			6.19E-11	20	20	25	70	9,125	25,550
Zinc			4.18E-09	20	20	25	70	9,125	25,550
Herbicides				235					
AST			0.00E+00	20	20	25	70	9,125	25,550
2,4,5-T			0.00E+00	20	20	25	70	9,125	25,550
МСРР			U,00E+00	20	20 -	23		,,,,,,	25,550
EQUATION:	Intake (mg/kg	-day) =	CA x IR x EI BW x AT						
	Variables:					Assumptions:			
	IR = Inhalatio EF = Exposur	nl Concentration n Rate (m³/day re Frequency (c re Duration (year right (kg)) lays/yr)	m³)		Calculated Air 20 (RME All R 20 (RME Site V 25 (RME Site V 70 (Adult Male	teceptors) Worker) Worker)	МЕ	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		1.46E-12	NA	2.03E-01		2.97E-13
Acetone	0.00		NA	NA		1 1100000000000000000000000000000000000
Benzene		1.72E-12	NA	2.91E-02	min alternative and	4.99E-14
Carbon Disulfide	2.97E-12		2.86E-03	NA	1.04E-09	10230200000
Chloroform		4.25E-13	NA	8.05E-02		3.42E-14
Methylene Chloride	1.19E-12	4.25E-13	8.57E-01	1.65E-03	1.39E-12	7.01E-16
Toluene	1.78E-12		1.14E-01	NA	1.56E-11	
Xylene (total)			NA	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		-
3-nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		1
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA.		
Benzo(k)fluoranthene			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Diethylphthalate			NA	NA		
Fluoranthene			NA	NA		1
Fluorene			NA	NA		1
Indeno(1,2,3-cd)pyrene	1000		NA	NA		
N-Nitrosodiphenylamine (1)	1		NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA NA		
Phenanthrene			NA	NA NA		
Pyrene	1		NA	NA NA		
bis(2-Ethylhexyl)phthalate			NA	NA		1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides					177	
4,4'-DDD			NA	NA		
4,4'-DDE	10.0		NA	NA		
4,4'-DDT		2.09E-12	NA	3.40E-01		7.11E-13
Aldrin	0.00E+00	0.00E+00	1.70E+01	1.72E+01	0.00E+00	0.00E+00
Aroclor-1254	30.50.000000000000000000000000000000000	0.00E+00	NA	4.00E-01		0.00E+00
Aroclor-1260	-	17857A531571	NA	NA		Office Services
Dieldrin		1.06E-12	NA	1.61E+01		1.71E-11
Endosulfan I		1.002.12	NA	NA		(RESERVED
Endosulfan II			NA	NA		
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA		
Heptachlor		0.00E+00	NA	4.55E+00		0.00E+00
Heptachlor epoxide	1 000	4.11E-13	NA.	9.10E+00		3.74E-12
Toxaphene		0.00E+00	NA	1.12E+00		0.00E+00
alpha-Chlordane		U.UUL.UU	NA	NA NA		
beta-BHC		5.21E-13	NA	1.86E+00		9.67E-13
gamma-BHC (Lindane)		J.212-13	NA	NA NA		7.0.2.10
gamma-Bric (Ellidane)	7		NA NA	NA NA		
Nitroaromatics						
	1.00					
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	1 20		NA	NA		
Metals	74					
Antimony			NA	NA		
Barium	2.25E-07		1.43E-04	NA	1.58E-03	
Copper	Jan. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19		NA	NA		
Lead			NA	NA		
Mercury	5.78E-06		8.57E-05	NA	6.74E-02	
Selenium			NA	NA		
Thallium			NA	NA		
Zinc	100		NA	NA		
	100					
Herbicides	1 25					
2,4,5-T			NA	NA		
MCPP			NA	NA		
Total HQ & CR					6.90E-02	2.29E-11

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging 'ime lays)
	Designation (Control of Control o	10000000 00 600	25 25 13	50 1745t	(C) 188858 (C)	5772 32	11.7471	Nc	Car
Volatile Organics						=			
1,1,2,2-Tetrachloroethane		7.32E-13	2.62E-10	20	250	1	70	365	25,550
Acetone			3.07E-10	20	250	1	70	365	25,550
Benzene		8.58E-13	3.07E-10	20	250	1	70	365	25,550
Carbon Disulfide	3.72E-11	2000-200-200	1.90E-10	20	250	1	70	365	25,550
Chloroform	3.44.000.00	2.12E-13	7.60E-11	20	250	1	70	365	25,550
Methylene Chloride	1.49E-11	2.12E-13	7.60E-11	20	250	1	70	365	25,550
Toluene	2.23E-11	(4.0.333.25.	1.14E-10	20	250	1	70	365	25,550
Xylene (total)	2.232.11		2.67E-10	20	250	1	70	365	25,550
Aylene (total)			2.071.70	20	250	^		505	25,550
Semivolatile Organics									
2,4-Dinitrotoluene			8.15E-08	20	250	1	70	365	25,550
2.6-Dinitrotoluene			6.84E-09	20	250	1	70	365	25,550
2-Methylnaphthalene			4.67E-08	20	250	i	70	365	25,550
3,3'-Dichlorobenzidine			0.00E+00	20	250	1	70	365	25,550
3-nitroaniline			0.00E+00	20	250	î	70	365	25,550
Acenaphthene			ERR	20	250	1	70	365	25,550
Acenaphthylene			8.19E-08	20	250	1	70	365	25,550
Anthracene			1.17E-08	20	250	1	70	365	25,550
Benzo(a)anthracene			7.64E-08	20	250	î	70	365	25,550
Benzo(a)pyrene			2.73E-07	20	250	i	70	365	25,550
Benzo(b)fluoranthene			4.38E-07	20	250	î	70	365	25,550
Benzo(g,h,i)perylene			3.74E-07	20	250	î	70	365	25,550
Benzo(k)fluoranthene			2.24E-07	20	250	î	70	365	25,550
Carbazole			7.10E-08	20	250	i l	70	365	25,550
Chrysene			3.28E-07	20	250	î	70	365	25,550
Di-n-butylphthalate			2.71E-08	20	250	î	70	365	25,550
Dibenz(a,h)anthracene			8.94E-08	20	250	î	70	365	25,550
Dibenzofuran			ERR	20	250	î	70	365	25,550
Diethylphthalate			6.15E-08	20	250	i	70	365	25,550
Fluoranthene			7.22E-10	20	250	î	70	365	25,550
Fluorantnene			4.28E-07	20	250	1	70	365	25,550
			6.58E-08	20	250	1	70	365	25,550
Indeno(1,2,3-cd)pyrene				20	250	1	70	365	25,550
N-Nitrosodiphenylamine (1)			2.11E-07	7700	100000	1	70	365	5 min 2 min
Naphthalene			2.19E-08	20	250 250	1	70	365	25,550
Pentachlorophenol			7.42E-08	20	0.0000		70	100000000000000000000000000000000000000	25,550
Phenanthrene			4.39E-08	20	250	1	1.00	365	25,550
Pyrene			2.78E-07	20	250	1	70	365	25,550
ois(2-Ethylhexyl)phthalate			4.80E-07	20	250	1	70	365	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 1
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	1	raging Time lays)
	(mg/kg-day)	(IIIg/kg-day)	(1116/1117)	()				Nc	Car
Pesticides									
1,4'-DDD		- /-	1.66E-10	20	250	1	70	365	25,550
1,4'-DDE			7.02E-10	20	250	1	70	365	25,550
		1.05E-12	3.74E-10	20	250	1	70	365	25,550
,4'-DDT	0.00E+00	0.00E+00	0.00E+00	20	250	1	70	365	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	20	250	1	70	365	25,550
Aroclor-1254 Aroclor-1260		0.002.100	7.27E-10	20	250	1	70	365	25,550
		5.30E-13	1.90E-10	20	250	1	70	365	25,550
Dieldrin		3.3015-13	5.24E-10	20	250	I	70	365	25,550
ndosulfan I			1.73E-10	20	250	î	70	365	25,550
indosulfan II			1.63E-10	20	250	i	70	365	25,550
ndosulfan sulfate			2.12E-10	20	250	i	70	365	25,550
indrin			9.56E-11	20	250	i	70	365	25,550
Indrin aldehyde			2.12E-10	20	250	i	70	365	25,550
Endrin ketone		0.00E+00	0.00E+00	20	250	i	70	365	25,550
leptachlor		2.06E-13	7.35E-11	20	250	i	70	365	25,550
Ieptachlor epoxide	1.0	Manager Committee of the Committee of th	0.00E+00	20	250	1	70	365	25,550
Toxaphene		0.00E+00	1.11E-10	20	250	i	70	365	25,550
lpha-Chlordane		2 CIE 12	9.32E-11	20	250	i	70	365	25,550
eta-BHC		2.61E-13	0.00E+00	20	250	i	70	365	25,550
amma-BHC (Lindane) amma-Chlordane			1.21E-10	20	250	î	70	365	25,550
Vitroaromatics				State					
2-amino-4,6-Dinitrotoluene		- 40	0.00E+00	20	250	1	70	365	25,550
etryl			0.00E+00	20	250	1	70	365	25,550
Metals					1		1.5		
Antimony			3.00E-10	20	250	1	70	365	25,550
Barium	2.82E-06		1.44E-05	20	250	1	70	365	25,550
Copper	2.02.0		3.42E-04	20	250	1	70	365	25,550
ead			1.31E-05	20	250	1	70	365	25,550
Mercury	7.22E-05		3.69E-04	20	250	1	70	365	25,550
Selenium	14.5000.00		4.62E-06	20	250	1	70	365	25,550
Thallium			6.19E-11	20	250	1	70	365	25,550
Zinc			4.18E-09	20	250	1	70	365	25,550
Herbicides				1					
2,4,5-T			0.00E+00	20	250	1	70	365	25,550
МСРР			0.00E+00	20	250	1	70	365	25,550
EQUATION:	Intake (mg/kg	g-day) =	CA x IR x E BW x AT				-		
	Variables:					Assumptions:			
	IR = Inhalation EF = Exposus ED = Exposus BW = Bodyw	al Concentration Rate (m³/da; re Frequency (re Duration (ye eight (kg) ing Time (days	y) days/yr) ears)	m³)		20 (all recepto 250 (RME Co	nstruction Wor ad period of Co e)	rkers)	orker)

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

	(Nc) (mg/kg-day)	(Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Quotient	Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		7.32E-13	NA	2.03E-01		1.49E-13
Acetone			NA	NA		124.000.000.00
Benzene		8.58E-13	NA	2.91E-02		2.49E-14
Carbon Disulfide	3.72E-11	AS-COLORO (S-COLOR)	2.86E-03	NA	1.30E-08	
Chloroform		2.12E-13	NA	8.05E-02		1.71E-14
Methylene Chloride	1.49E-11	2.12E-13	8.57E-01	1.65E-03	1.74E-11	3.51E-16
Γoluene	2.23E-11		1.14E-01	NA	1.95E-10	
Xylene (total)	-65.026.046		NA	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3.3'-Dichlorobenzidine			NA	NA		
3-nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Acenaphthylene Anthracene			NA	NA NA		
Anthracene Benzo(a)anthracene			NA	NA NA		
Benzo(a)pyrene			NA	NA		
			NA	NA NA		
Benzo(b)fluoranthene Benzo(g,h,i)perylene			NA.	NA NA		
Benzo(g,n,i)peryiene Benzo(k)fluoranthene			NA	NA		
Carbazole			NA.	NA NA		
			NA NA	NA NA		
Chrysene Di-n-butylphthalate			NA NA	NA NA		
Di-n-butyiphthalate Dibenz(a,h)anthracene			NA NA	NA NA		
Dibenz(a,n)anthracene Dibenzofuran			NA NA	NA NA		
Diethylphthalate			NA NA	NA NA		
Dietnyiphthalate Fluoranthene			NA NA	NA NA		
Fluoranthene Fluorene			NA NA	NA.		
Indeno(1,2,3-cd)pyrene			NA NA	NA NA		
N-Nitrosodiphenylamine (1)			NA NA	NA.		
			NA NA	NA NA		1
Naphthalene Pentachlorophenol			NA NA	NA NA		1
Pentachiorophenoi Phenanthrene			NA.	NA.		
Prienanthrene Pyrene			NA NA	NA		
bis(2-Ethylhexyl)phthalate			NA	NA.		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides					- 7	
4,4'-DDD			NA	NA		
			NA	NA		
4,4'-DDE		1.05E-12	NA.	3.40E-01		3.55E-13
4,4'-DDT	0.00E+00	0.00E+00	1.70E+01	1.72E+01	0.00E+00	0.00E+00
Aldrin	0.00E+00	0.00E+00	NA NA	4.00E-01	0.002	0.00E+00
Aroclor-1254		0.00E+00	NA NA	NA NA		0.002
Aroclor-1260		5 20E 12	NA NA	1.61E+01		8.54E-12
Dieldrin		5.30E-13	NA NA	NA NA		0.542-12
Endosulfan I			NA NA	NA NA		
Endosulfan II			NA NA	NA NA		
Endosulfan sulfate			200.0	NA NA		
Endrin			NA	NA NA		
Endrin aldehyde			NA	0.010.2		
Endrin ketone			NA	NA 4 SSE LOO		0.00E+00
Heptachlor		0.00E+00	NA	4.55E+00		1.87E-12
Heptachlor epoxide		2.06E-13	NA	9.10E+00		20000000000000000000000000000000000000
Toxaphene		0.00E+00	NA	1.12E+00		0.00E+00
alpha-Chlordane		KALMORKKASKI.	NA	NA		4 025 12
beta-BHC		2.61E-13	NA	1.86E+00		4.83E-13
gamma-BHC (Lindane)	3911		NA	NA		
gamma-Chlordane			NA	NA		
Nitroaromatics	11.8			100		
2-amino-4,6-Dinitrotoluene	100		NA	NA		
Tetryl	1 1		NA	NA		
Metals	1 3					
Antimony	1 7		NA	NA		
Barium	2.82E-06		1.43E-04	NA	1.97E-02	
Copper	Ziozz vo		NA	NA		
Lead	1.0		NA	NA		
Mercury	7.22E-05		8.57E-05	NA	8.42E-01	
Selenium	7.225-05		NA	NA		
Thallium	1		NA	NA NA		
Zinc			NA.	NA NA		
Zinc			INA.	1324		
Herbicides				1.000		
2 4 5 TF			NA	NA		
2,4,5-T			NA NA	NA NA		
MCPP			INA	NA.		
Total HQ & CR					8.62E-01	1.14E-11

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration

Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL.
CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SEAD-16 Remedial Investigation
Sereta Army Depot Activity

Analyte	Intake (Nc) (mg/kg-dav)	Intake (Car)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/dav)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Tin (da	Averaging Time (days)	
										NC.	Car	_
Volatile Organics												
1.1.2,2-Tetrachloroethane	00 1100	4.62E-10	6.89E-03	480	1.00E-06	-	250		0.5	365	25,550	
Acetone Acetone	3.79E-08	0.000.000.000.000	8.08E-03	180	1.00E-06		250		5 6	365	25,550	_
Benzene Carbon DicalGda	0 105 00	3.35E-10	5.00E-03	180	1.00E-06		250		6 6	365	25,550	
Chloroform	9.39E-09	1.34E-10	2.00E-03	180	1.00E-06	-	250	-	02	365	25,550	_
Methylene Chloride	1.41E-08	2.01E-10	3.00E-03	180	1.00E-06		250		0 0	365	25,550	
Xylene (total)	2.00E-08		4.25E-03	480	1.00E-06	-	250	-	70	365	25,550	_
Semivolatile Organics												_
2.4-Dinitrotoluene	1.01E-05		2.14E+00	180	1.00E-06	-	250	÷	70	365	25,550	_
2.6-Dinitrotoluene	8.45E-07		1.80E-01	180	1.00E-06		250		20 02	365	25,550	_
		00.000	00.000	001	20 100		036	1/2	ŧ	376	36 660	_
3,3'-Dichlorobenzidine 3-nitroaniline		0.00E+00	0.00E+00	084	1.00E-06		250		2 02	365	25,550	_
Acenaphthene	1.01E-05		2.16E+00	180	1.00E-06		250		20,00	365	25,550	_
Anthracene	9.45E-06		2.01E+00	180	1.00E-06	-	250		20,0	365	25,550	_
Benzo(a)anthracene		4.83E-07	7.20E+00	180	1.00E-06		250		22	365	25,550	_
Benzo(a)pyrene Benzo(b)fluoranthene		7.73E-07 6.61E-07	1.15E+01 9.85E+00	087	1.00E-06	-	250		0,00	365	25,550	_
Benzo(g,h,i)perylene			5.89E+00	180	1.00E-06	-	250	_	02	365	25,550	_
Benzo(k)fluoranthene	90000	3.16E-07	4.71E+00	480	1.00E-06		250		2 2	365	25,550	
Butylbenzylphthalate Carbazole	0.005+00	1.25E-07	1.87E+00	084	1.00E-06		250		2 2	365	25,550	
Chrysene		5.80E-07	8.64E+00	081	1.00E-06		250		2	365	25,550	
Di-n-butylphthalate Dibenzia hlanthracene	3.35E-06	1 58E-07	7.14E-01	087	1.00E-06		250		2 2	365	25,550	
Dibenzofuran	100000000000000000000000000000000000000		1.62E+00	180	1.00E-06	-	250	-	70	365	25,550	_
Diethylphthalate	8.92E-08		1,90E-02	180	1.00E-06		250		2 2	365	25,550	_
Fluorenc	8.13E-06		1.73E+00	180	1.00E-06		250		0,02	365	25,550	_
Indeno(1,2,3-cd)pyrene		3.73E-07	5.55E+00	180	1.00E-06		250		0 %	365	25,550	_
N-Nitrosodipneny lamine (1)		3.875-08	1.95E+00	08+	1.00E-06		250		2 02	365	25,550	
Pentachlorophenol	5.43E-06	7.76E-08	1.16E+00	180	1.00E-06		250		25	365	25,550	_
Phenanthrene	5.94E-05		1.26E+01	084	1.00E-06		250		2 2	365	25,550	_
bis(2-Ethylhexyl)phthalate	5.96E-06	8.52E-08	1.27E+00	180	1.00E-06	-	250	4	70	365	25,550	_
Pesticides												_
dud-it i	2 OKF-08	2 94F.10	1 38F-01	180	1 00F-06	S	250		20	365	25 550	
4,4'-DDE			1.85E-02	081	1.00E-06	-	250	-	02	365	25,550	_
4,4'-DDT	4.63E-08	6.61E-10	9.85E-03	081	1.00E-06		250		6 5	365	25,550	_
Aroclor-1254	0.00E+00	0.005+00	0.00E+00	084	1.00E-06	-	250	-	02	365	25,550	_
Aroclor-1260		1.28E-09	1.91E-02	180	1.00E-06		250		5 5	365	25,550	_
Dieldrin Fndosulfan I	2.34E-08 6.47E-08	3.35E-10	1.38E-02	084	1.00E-06		250		2 2	365	25,550	_
Endosulfan II			4.55E-03	08†	1.00E-06	-	250	-	70	365	25,550	_
Endosulfan sulfate	2.01E-08		4.29E-03	087	1.00E-06		250		5 5	365	25,550	_
Endrin aldehyde	*******		2.51E-03	180	1,00E-06		250		92	365	25,550	_
Endrin ketone			5.58E-03	180	1.00E-06	-	250		2	365	25,550	_
Heptachlor Hentachlor enoxide	0.00E+00	0.00E+00	0.00E+00	180	1.00E-06		250		5 5	365	25,550	
Toxaphene		0.00E+00	0.00E+00	180	1.00E-06	-	250	-	70	365	25,550	_
alpha-Chlordane	1.38E-08	1.97E-10	2.93E-03	180	1.00E-06		250		2	365	25,550	_
beta-BHC	000	1.65E-10	2.45E-03	480	1.00E-06		250		2 5	365	25,550	_
gamma-BHC (Lindane) gamma-Chlordane	0.00=+00		3.17E-03	180	1.00E-06		250		2 2	365	25,550	_
Nitropromotion						i i	1				1000000	_
			Charles Land Co.	3							7	_
2-amino-4,6-Dinitrotoluene Terrel	0.00E+00		0.00E+00	087	1.00E-06		250		5 5	365	25,550	
							-			10000000	-	

CALCULATION OF INTAKE FROM INCESTION OF SURFACE & SUBSURFACE SOIL. CONSTRUCTION WORKER EXPOSINE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSIRE (RME) CASH SEA EXPOSIRE (RME) SERCEA Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Nc) Intake (Car) Total Soils (mg/kg-day) (mg/kg-day) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (d.	Averaging Time (days)
				2000	2000			20 to 10	17,23,10	Nc	Car
Metals											
Antimony	3.71E-05		7.91E+00	180	1.00E-06	-	250	-	70	365	25,550
Barium	5,04E-04		1.07E+02	180	1.00E-06	-	250		70	365	25,550
Copper	3.60E-04		7.66E+01	180	1.00E-06	-	250	-	70	365	25,550
Lead			6.30E+02	180	1.00E-06	-	250	-	20	365	25,550
Mercury	2.55E-06		5.43E-01	180	1.00E-06	-	250	-	70	365	25,550
Selenium	4.32E-06		9.20E-01	180	1.00E-06	-	250	-	70	365	25,550
Thallium	7.65E-06		1.63E+00	180	1.00E-06	-	250	-	70	365	25,550
Zinc	5.17E-04		1.10E+02	780	1.00E-06	-	250	-	70	365	25,550
Herbicides											
2,4,5-T	0.00E+00		0.00E+00	081	1.00E-06	-	250	-	70	365	25.550
MCPP	0.00E+00		0.00E+00	180	1.00E-06	-	250	-	70	365	25,550
EQUATION:	Intake (mg/kg-day) =	cg-day) =	CSIRICFIF	CSxIRACFxFlxEFxED BWxAT	a					1 ==	
	Variables:					Assumptions:	u				
	CS = Chemical Concent IR = Ingestion Rate (ng CF = Conversion Facto FF = Fraction Ingested EF = Exposure Freque ED = Exposure Preque BW = Bodyweight (kg)	CS = Chemical Concentration in Soil (mg soil/kg) En Ingestion Reat (mg soil/day) GF = Conversion Factor (10-6 kg/mg) FF = Fraction Ingested (unitless) EF = Expoure Frequency (days/sear) ED = Expoure Duration (years) ED = Expoure Duration (years) AT = Aversation Time (days)	iliday) iliday) iliday) iliday) ilides) idess) (daya/years) years)	ag soil/kg)		EPC - Total Soil 480 (RME Consti 10-6 1 (All Receptors) 250 (RME Consti 1 (Upper bound I 70 (Adult mal) 1 x 365 (No.) 70)	EPC - Total Soil Data (RME) 480 (RME Construction Worker) 10-6 1 (All Receptors) 1 (Upper bound limit for Construction 1 (Upper bound limit for Construction 1 345 (Ne) 70 x 345 (Car)	PC - Total Soil Data (RME) 10-6 (All Receptors) (All Receptors) (Olyper bound limit for Worker) 10 (Add to the construction Worker) 10 (Maper bound limit for Construction Worker) 12 ASC (Nex) 79 - 365 (Carl)	(orker)		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						-
		TILL TILL	10.20	19824L 00		
1,1,2,2-Tetrachloroethane		4.62E-10	NA	2.00E-01		9.24E-11
2-Butanone	2.35E-08		6.00E-01	NA	3.91E-08	
Acetone	3.79E-08	7070000 000	1.00E-01	NA	3.79E-07	
Benzene	0.0000000	3.35E-10	NA	2.90E-02		9.73E-12
Carbon Disulfide	9.39E-09		1.00E-01	NA	9.39E-08	T 1 (VOID VI
Chloroform	9.39E-09	1.34E-10	1.00E-02	6.10E-03	9.39E-07	8.19E-13
Methylene Chloride	1.41E-08	2.01E-10	6.00E-02	7.50E-03	2.35E-07	1.51E-12
Toluene	3.30E-08		2.00E-01	NA	1.65E-07	PRIT.
Xylene (total)	2.00E-08		2.00E+00	NA	9.98E-09	
Semivolatile Organics						
2,4-Dinitrotoluene	1.01E-05		2.00E-03	NA	5.04E-03	
2.6-Dinitrotoluene	8.45E-07		1.00E-03	NA	8.45E-04	
2-methylnaphthalene	100000000000000000000000000000000000000		NA	NA		-
3,3'-Dichlorobenzidine		0.00E+00	NA	4.50E-01		0.00E+00
3-nitroaniline			NA	NA		
Acenaphthene	1.01E-05		6.00E-02	NA	1.69E-04	
Acenaphthylene	CHARACTER AND		NA	NA		
Anthracene	9.45E-06		3.00E-01	NA	3.15E-05	
Benzo(a)anthracene	and are recovered.	4.83E-07	NA	7.30E-01		3.52E-07
Benzo(a)pyrene		7.73E-07	NA	7.30E+00		5.64E-06
Benzo(b)fluoranthene		6.61E-07	NA	7.30E-01		4.82E-07
Benzo(g,h,i)perylene		200000000000000000000000000000000000000	NA	NA		A0077655
Benzo(k)fluoranthene		3.16E-07	NA	7.30E-01		2.31E-07
Butylbenzylphthalate	0.00E+00	CHARAMOZON'	2.00E+00	NA NA	0.00E+00	
Carbazole		1.25E-07	NA	2.00E-02	and the state of t	2.51E-09
Chrysene		5.80E-07	NA	7.30E-02		4.23E-08
Di-n-butylphthalate	3.35E-06		1.00E-01	NA NA	3.35E-05	
Dibenz(a,h)anthracene	3,75,70	1.58E-07	NA NA	7.30E+00	017000000	1.15E-06
Dibenzofuran		405,555,055,0	NA	NA		.,,,,,,,,
Diethylphthalate	8.92E-08		8.00E+00	NA NA	1.12E-08	
Fluoranthene	5.29E-05		4.00E-02	NA	1.32E-03	
Fluorene	8.13E-06		4.00E-02	NA NA	2.03E-04	
Indeno(1,2,3-cd)pyrene		3.73E-07	NA NA	7.30E-01		2.72E-07
N-Nitrosodiphenylamine (1)		3.87E-08	NA.	4.90E-03		1.90E-10
Naphthalene		2.0.200	NA.	NA NA		
Pentachlorophenol	5.43E-06	7.76E-08	3.00E-02	1.20E-01	1.81E-04	9.31E-09
Phenanthrene	2.102		NA.	NA NA		
Pyrene	5.94E-05		3.00E-02	NA	1.98E-03	
bis(2-Ethylhexyl)phthalate	5.96E-06	8.52E-08	2.00E-02	1.40E-02	2.98E-04	1.19E-09

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD	2.06E-08	2.94E-10	5.00E-04	2.40E-01	4.11E-05	7.05E-11
4,4'-DDE	2.002-00	2.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	NA	NA		
4,4'-DDT	4.63E-08	6.61E-10	5.00E-04	3.40E-01	9.26E-05	2.25E-10
4,4-DD1 Aldrin	0.00E+00	0.00E+00	3.00E-05	1.70E+01	0.00E+00	0.00E+00
	0.00E+00	0.00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+00
Aroclor-1254	0.00L100	1.28E-09	NA NA	7.70E+00		9.89E-09
Aroclor-1260	2.34E-08	3.35E-10	5.00E-05	1.60E+01	4.69E-04	5.36E-09
Dieldrin	6.47E-08	3.33E-10	6.00E-03	NA NA	1.08E-05	
Endosulfan I	0.4/E-08		NA NA	NA NA	1.002.00	
Endosulfan II	2015.00		5.00E-05	NA NA	4.03E-04	100
Endosulfan sulfate	2.01E-08		3.00E-03	NA NA	8.75E-05	
Endrin	2.62E-08		3.00E-04 NA	NA NA	6.75E-05	
Endrin aldehyde			(500.5	NA NA		
Endrin ketone	50.5000000000		NA	1000000	0.00E+00	0.00E+00
Heptachlor	0.00E+00	0.00E+00	5.00E-04	4.50E+00		1.18E-09
Heptachlor epoxide	9.09E-09	1.30E-10	1.30E-05	9.10E+00	6.99E-04	A SOUTH THE STATE
Toxaphene		0.00E+00	NA	1.10E+00	2 205 04	0.00E+00
alpha-Chlordane	1.38E-08	1.97E-10	6.00E-05	1.30E+00	2.29E-04	2.56E-10
beta-BHC	0.0000000000000000000000000000000000000	1.65E-10	NA	1.80E+00		2.96E-10
gamma-BHC (Lindane)	0.00E+00		3.00E-04	NA	0.00E+00	
gamma-Chlordane			NA	NA		
Nitroaromatics		17 23	100			
2-amino-4,6-Dinitrotoluene			NA	NA NA		
Tetryl	0.00E+00		1.00E-02	NA	0.00E+00	
retryi	0.002.00		1,002 02			
Metals						
Antimony	3.71E-05	Town Indiges	4.00E-04	NA	9.28E-02	on a
Barium	5.04E-04	The state of the s	7.00E-02	NA	7.21E-03	. 0
Copper	3.60E-04		4.00E-02	NA	8.99E-03	AU.
Lead		100	NA	NA		3.00
Mercury	2.55E-06		3.00E-04	NA	8.50E-03	
Selenium	4.32E-06		5.00E-03	NA	8.64E-04	
Thallium	7.65E-06		7.00E-05	NA	1.09E-01	
Zinc	5.17E-04		3.00E-01	NA	1.72E-03	
Herbicides		1 8 8		1 1948		
2,4,5-T	0.00E+00	10.6	8.00E-03	NA	0.00E+00	
2,4,5-1 MCPP	0.00E+00		1.00E-03	NA	0.00E+00	
	0.002.00		**************************************	203957	2 42E 01	8.21E-06
Totals - HQ & CR			Ver 1		2.42E-01	0.21E-00

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF ABSORBED DOSE FROM DERNAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM AXIMUM SUBSE (RME)
SEAD-16 Readful investigation
SEAD-16 Readful investigation

	1 1	_			_		_	_		_		_																_											_	_	_	_	_	_	_		_	
Averaging Time (days)	Car		25,550	25,550	25.550	25,550	25,550	25,550			25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,530	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		11/2000	25,550
Aver Tii (da	ž		365	365	365	365	365	365			365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365		365	365	365	365	365	365	365	365	365	365	365	365	365	à		365
Body Weight			0 2	02	70	2 2	20	8 6			2 2	70	70	2.5	2 2	200	2	2 2	2 02	0/	2 2	5 6	20	6 6	0/	2 5	2 2	0,2	20	6 E	0,0		70	5 6	0,5	0.02	0,5	5 6	0.5	5 2	0.5	5 6	22	202	55		17.000	66
Exposure Duration (vears)			22						ř			_	-				-			_					-				_																	j.		
Exposure Frequency (days/year)			250	250	250	250	250	250			250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250		250	250	250	250	250	250	250	250	250	250	250	250	250			250
Absorption Factor (unitless)																							Ī												200	90.0	0.000											
Adherence Factor (mg soil/cm²)			0.0	1.0	0.0	10	1.0	0.01			0 0	1.0	1.0	0.0	0.01	1.0	1.0	0 0	1.0	1.0	0.1	0	1.0	0 01	1.0	0.1	0.1	1.0	1.0	1.0	0.1		071	0.01	0.0	0.1	0.0	10	1.0	1.0	1.0	0.1	0.0	1.0	1.0		4	0 0
Skin Surface Area Contact (cm²)			5,800	5,800	5,800	5.800	5,800	5,800			5,800	5,800	5.800	5,800	5,800	5.800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800		5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800			5,800
Conv. Factor (kg/mg)			1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06			1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.005-06	1.00E-06	1.00E-06	1.00E-06	1,00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.005-06	1.00E-06	1.00E-06	1,00E-06	1.00E-06	1.00E-06			1.00E-06 1.00E-06
EPC Total Soils (mg/kg)			6.89E-03	8.08E-03	5.00E-03	2.00E-03	3,00E-03	7.02E-03			2.14E+00	1.23E+00		4 1/100	3.08E-01	2.01E+00	7.20E+00	0.15E+01	5.89E+00	4.71E+00	1 875+00	8.64E+00	7.14E-01	2.35E+00 1.62E+00	1.90E-02	1.13E+01	5.55E+00	5.77E-01	1.16E+00	7.33E+00	1.27E+00		4.38E-03	9.85E-03		1.91E-02	4.99E-03	4.55E-03	4.29E-03	2.51E-03	5.58E-03	1.94E-03	7 93F-013	2.45E-03	3.17E-03			
Dose (Car) (mg/kg-day)																																				9.31E-10						I						
Dose (Nc) (mg/kg-day)																																																
Analyte	olatile Oreanice	dame Organics	1,2,2-Tetrachloroethane	cetone	enzene enzene Dieutsche	hloroform	lethylene Chloride	ylene (total)	amicolatile Organica	minimum or Ferman	4-Dinitrotoluene 6-Dinitrotoluene	methylnaphthalene	3'-Dichlorobenzidine	nitroaniline	cenaphinene	nthracene	enzo(a)anthracene	enzo(a)pyrene	nzo(g,h,i)perylene	enzo(k)fluoranthene	utylbenzylphthalate	hrysene	i-n-buty lphthalate	ibenz(a,h)anthracene ibenzofuran	icthylphthalate	noranthene	deno(1,2,3-cd)pyrene	-Nitrosodiphenylamine (1)	entachlorophenol	henanthrene	s(2-Ethylhexyl)phthalate	esticides	4-000	4-DDT	Jdrin	roctor-1260	ieldrin	ndosulfan II	ndosulfan sulfate	ndrin aldehyde	ndrin ketone	eptachlor epoxide	oxaphene	cta-BHC	mma-BHC (Lindane)	itroaromatics		amino-4,6-Dinitrotoluene etryl

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL
CONSTRUCTION WORKER RE XZPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM XZPOSURE (RME)
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Metals	000000000000000000000000000000000000000	25 25 25 25 25 25 25 25 25 25 25 25 25 2				(days)
les 10N;		256 256 256 256 256 256 256 256 256			Nc	Car
les 100%;		250 250 250 250 250 250 250 250		-	****	1
los:		250 250 250 250 250 250 250		70	365	25,550
les 100%;		250 250 250 250 250 250 250 250 250 250	_	70	365	25,550
les TON:		230 230 230 230 230		70	365	25,550
les TON:		250 250 250 250 250	-	70	365	25,550
les TON:		250 250 250 250	_	70	365	25.550
ies TON;		250	-	70	365	25,550
les 10N:		250	_	20	365	25,550
les 10N:			-	70	365	25,550
ION:						
JON:		036		ç	375	26 660
	00 100	250		2 2	365	25,550
Variables:		Variables:		Assemptions		
CS = Chemical Concentration in Soil (mg soil/kg) EPC - Total Soil Data (RME) EF CF = Conversion Factor (10-6 kg/mg) 10-6 SA = Surface Area Contact (cm²) SW0 (RME Adult Worker) BW AF = Soil to Skin Adherence Factor (mg/cm²) 1.0 (RME - All Receptors) AT	(RME) rker) ors)	EF = Exposure Frequency (days/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	(days/year) cars)	250 (RME Construction Worker) 1 (Upper bound limit for CW) 70 (Adult Male) 1 x 365 (Ne) 70 x 365 (Car)	150 (RME Construction Work (Upper bound limit for CW) (Oddult Male) (X 365 (Nc) 70 x 365 (Car)	(ca)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane			NA	2.00E-01		
2-Butanone			6.00E-01	NA NA		
Acetone			1.00E-01	NA NA		
Benzene			NA NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA NA		
			2.00E+00	NA NA		
Xylene (total)			2.00L100	I INA		
Semivolatile Organics						
2,4-Dinitrotoluene	and the		2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
2 monty maphinatoric						
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline		la l	NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01	*	
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene		1	4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)		1	NA	4.90E-03		
Naphthalene		1	NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene	1		3.00E-02	NA		
bis(2-Ethylhexyl)phthalate	1		2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
			5.00E-04	2.40E-01		Halle St.
4,4'-DDD				NA NA		
4,4'-DDE			NA 5.00E-04	3.40E-01		
4,4'-DDT			3.00E-04 3.00E-05	1.70E+01		
Aldrin	100			2.11E+00		
Aroclor-1254		0.015.10	1.90E-05			7.55E-09
Aroclor-1260		9.31E-10	NA 5 00F 05	8.11E+00		7.55E-09
Dieldrin	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		5.00E-05	1.60E+01		THE GLA
Endosulfan I	1 1 1		6.00E-03	NA		1100
Endosulfan II			NA	NA		THE STATE OF
Endosulfan sulfate	1 1 1 1 1 1 1 1		5.00E-05	NA		
Endrin	4 10 10 10		3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA 4 50F: 00		
Heptachlor	10.00		5.00E-04	4.50E+00		William A.
Heptachlor epoxide			1.30E-05	9.10E+00		The All Inc.
Toxaphene			NA	1.10E+00		50.796
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC	1 1 1 1 1 1		NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA		15-16-16-16-16-16-16-16-16-16-16-16-16-16-
gamma-Chlordane	1 77		NA	NA		Lipes of
Nitroaromatics						contra .
2-amino-4,6-Dinitrotoluene	19		NA	NA		7.40
Tetryl			1.00E-02	NA		
Metals	at the					
Antimony			4.00E-04	NA		
Barium			7.00E-03	NA		
Copper			2.00E-02	NA		-c-lu
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium		- Book	3.00E-03	NA		
Thallium	7 4 10		7.00E-05	NA		
Zinc		11	1.50E-01	NA		
				(2)220		randa -
Herbicides			P15	1 1000		
2,4,5-T			8.00E-03	NA NA		
MCPP	-		1.00E-03	NA		
Totals - HQ & CR	4.0					7.55E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation

Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD	3.43E-10	1.22E-10	5.00E-04	2.40E-01	6.85E-07	2.94E-11
4,4'-DDE			NA	NA		
4,4'-DDT	7.71E-10	2.75E-10	5.00E-04	3.40E-01	1.54E-06	9.37E-11
Aldrin	0.00E+00	0.00E+00	3.00E-05	1.70E+01	0.00E+00	0.00E+00
Aroclor-1254	0.00E+00	0.00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+00
Aroclor-1260		5.35E-10	NA	7.70E+00		4.12E-09
Dieldrin	3.91E-10	1.40E-10	5.00E-05	1.60E+01	7.82E-06	2.23E-09
Endosulfan I	1.08E-09		6.00E-03	NA	1.80E-07	
Endosulfan II	300000000000	1	NA	NA		
Endosulfan sulfate	3.36E-10		5,00E-05	NA	6.71E-06	
Endrin	4.37E-10		3.00E-04	NA	1.46E-06	
Endrin aldehyde	Availabeorawa		NA	NA		
Endrin ketone			NA	NA		
Heptachlor	0,00E+00	0.00E+00	5.00E-04	4.50E+00	0.00E+00	0.00E+00
Heptachlor epoxide	1.51E-10	5.41E-11	1.30E-05	9.10E+00	1.17E-05	4.92E-10
Гохарнепе	242020000	0.00E+00	NA	1.10E+00	100000000000000000000000000000000000000	0.00E+00
alpha-Chlordane	2.29E-10	8.19E-11	6.00E-05	1.30E+00	3.82E-06	1.06E-10
oeta-BHC		6.86E-11	NA	1.80E+00	0.10.000.000	1.23E-10
gamma-BHC (Lindane)	0.00E+00	010020 11	3.00E-04	NA	0.00E+00	1.002.10
gamma-Chlordane	0.002.00		NA	NA		
delta-BHC			NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	0.00E+00		1.00E-02	NA	0.00E+00	
Metals						
	5005705		072023727			
Antimony	6.19E-10		4.00E-04	NA	1.55E-06	
Barium	8.41E-09		7.00E-02	NA	1.20E-07	
Copper	5.99E-09		4.00E-02	NA	1.50E-07	
ead			NA	NA	200	
Mercury	4.25E-11		3.00E-04	NA	1.42E-07	
Selenium	7.20E-11		5.00E-03	NA	1.44E-08	
Thallium	1.28E-10		7.00E-05	NA	1.82E-06	
Zine	8.61E-09		3.00E-01	NA	2.87E-08	
Herbicides						
2,4,5-T	0.00E+00		1.00E-02	NA	0.00E+00	
MCPP	0.00E+00		1.00E-03	NA	0.00E+00	
Totals - HQ & CR					2.06E-04	3.42E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 6-22
CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL
SITE WORKER EVENCER (CURRENT LAND US)
REASONABLE MAXIMUM GASOSTRE (RME)
SEADL IS Remedial in restigation
SEADL IS Remedial in restigation
Seneca Amy Depar Activity

Anniyte	Volatile Organics 14.1.2.2Tetrachlorochime 14.1.2.2Tetrachlorochime Sezzene Sezzene Gerzene Methylene Chloride Methylene Chloride Tollome	Semivolatile Organics 2.4-Dinitrotoluene 2.6-Dinitrotoluene 2-methylnaphthalene	3.3. Dichlorobernidine 3.4. Dichlorobernidine Accumphicate Accumphicate Accumphicate Accumphicate Bearcol of partnered Bearcol of phreme B	Pesticides 4,7.DBD 4,7.DBD 4,7.DBD 4,7.DBC 4,7.DDT Aredon-1254 Aredon-1254 Aredon-1259 Dickin all Endousilian II Endousilian Selector Endisis ketore Endisis	Nitroaromatics 2-amino-4.6-Dinitrotoluene
Dose (Nc) (mg/kg-day)		M.			- V
Dose (Car) (mg/kg-day)	47	ď.		1.86E.09	
EPC Soil (mg/kg)	6.89E-03 8.08E-03 2.00E-03 2.00E-03 2.00E-03 7.00E-03 7.02E-03	2.14E+00 1.80E-01 1.23E+00	2.16E-40 2.01E-40 1.15E-41 1.15E-40 1.15E-40 5.88E-40 5.88E-40 1.71E-40 1.7	4.38E-03 1.85E-03 9.85E-03 1.91E-02 1.36E-03 1.36E-03 2.50E-03 2.5	
Conv. Factor (kg/mg)	1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06	1.00E-06 1.00E-06 1.00E-06	1,00E-56 1,0	100E-06 100E-0	1.00E-06
Skin Surface Area Contact (cm²/event)	5,800 5,800 5,800 5,800 5,800 5,800 5,800	5,800 5,800 5,800	5,800 5,800	5,880 5,80 5,	5,800
Adherence Factor (mg soil/cm³)	9999999	100	222222222222222222222222222222222222222	22222222222222222222	07
Absorption Factor (unitless)				900	
Exposure Frequency (events/year)	2222222	500	**********************	222222222222222222222222222222222222222	88
Duration (years)	паппппппппппппппппппппппппппппппппппппп	ลลล	กลกลกลกลกลกลกลกลกลกลกลกลกลก	па	25
Weight (kg)	2222222	222	222222222222222222222222222222222222222	222222222222222222222222222222222222222	2,5
Time (days)	9,125 9,125 9,125 9,125 9,125 9,125 9,125	9,125 9,125 9,125			9,125
S) Car	25,530 25,530 25,530 25,530 25,530 25,530 25,530 25,530 25,530	25,550 25,550 25,550	25.50 25.50	15.50 15.50	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EVOSURE (CURRENT LAND USE) REASON ABLE MAXIMUM GASE 2 SCOSURE (RME) SEASON ADD 16 Remedial Investigation Server Army Depot Activity

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	Soil (mp/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Aver Th	Averaging Time (days)
						No Market Control of the Control of	The state of the s		2000	100000	Nc	Car
Metals												
Artimony			7.91E-03	1.00E-06	5,800	1.0		20	52	70	9,125	25,550
Barium			1.07E-01	1.00E-06	5,800	0.1		20	25	92	9,125	25,550
opper			7.66E-02	1.00E-06	5,800	0.1		20	25	02	9,125	25,550
Lead			6.30E-01	1.00E-06	5,800	1.0		20	22	20	9,125	25,550
derous			5.43E-04	1.00E-06	5,800	0.1		20	23	70	9,125	25,550
Schnium			9.20E-04	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Thallium			1.63E-03	1.00E-06	5,800	1.0		20	25	20	9,125	25,550
Zinc			1.10E-01	1.00E-06	5,800	1.0		20	SI.	02	9,125	25,550
Rerbicides												
2.4.5-T				1.00E-06	5,800	1.0		20	25	92	9,125	25,550
MCPP				1.00E-06	5,800	1.0		20	22	P	9.125	25,550
EQUATION:	Absorbed dose	Absorbed dose (mg/kg-day) = CS.1.CE.1.SA.1.AE.1.ABS.1.EE.1.ED	CSICEISA	METABSTE	FrED							
Variables:			Assumptions:				Variables:			Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (16-6 kg/mg) SA = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor (mg/cm²)	ion in Soil (mg soil 0-6 kg/mg) t (cm²) e Factor (mg/cm²)	IVE)	EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.0 (RME all receptors)	EPC Soil Data - RME 18-6, 800 cm² (RME Site Worker) 1.0 (RME all receptors)	-		EF = Exposure Frequency (e ED = Exposure Duration (yes BW = Bodyweight (kg) AT = Averaging Time (dayy)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	ts/year)	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	Worker) Worker) 1) 70 x 365 Adult ((Car)

EPA, 1992b (Default Assumption 0% = 0.0) Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		Salar I
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics				74 1	100	
Secure Secure Security Securit			2.005.02	NA.		
2,4-Dinitrotoluene			2.00E-03	NA NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
3.3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene	-		NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA	-	
Diethylphthalate			8.00E+00	NA		
Fluoranthene	1		4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)	1		NA	4.90E-03		
Naphthalene	1 1		NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
ois(2-Ethylhexyl)phthalate	1		2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation Sease A row, Depart Activity

Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides	(
1,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA		
1.4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1254	1		1.90E-05	2.11E+00		
Aroclor-1260		1.86E-09	NA	8.11E+00		1.51E-08
Dieldrin		1.00107	5.00E-05	1.60E+01		1.512 00
Endosulfan I			6.00E-03	NA NA		
Endosulfan II			NA	NA NA		
Endosulfan fil			5.00E-05	NA NA		
Endrin			3.00E-04	NA NA		
Endrin Endrin aldehyde			NA NA	NA NA		
Endrin ketone			NA NA	NA NA		
Heptachlor			5.00E-04	4.50E+00		
Heptachlor epoxide			1.30E-05	9.10E+00		
Toxaphene			NA NA	1.10E+00		1111
loxapnene alpha-Chlordane			6.00E-05	1.30E+00		
npna-Chlordane beta-BHC			NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA NA		
gamma-Chlordane			NA NA	NA NA		227
delta-BHC			NA NA	NA NA		
зена-вис			INA.	BA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			1.00E-02	NA		
Metals						
Antimony			4.00E-04	NA		
Barium			7.00E-03	NA		
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Challium			7.00E-05	NA		
Zinc			1.50E-01	NA		
Herbicides		-				
			198623323	200		
2,4,5-T			1.00E-02	NA		
MCPP			1.00E-03	NA		
				7.1		

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS
INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REAGONABLE MAXIMUM EXPOSURE (RME)
SERECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

11/03/97

Analyte	Intake (Nc)	Intake (Car)	EPC	Ingestion Rate	Conv. Factor	Fraction	Exposure	Exposure	Body	Aven	Averaging
	(mg/kg-day)	(mg/kg-day)	(тр/кд)	(mg soil/day)	(kg/mg)	(unidess)	(days/year)	(vears)	(kg)	(days)	vs) Car
Volatile Organics											
1,1,2,2,-Tetrachloroethane		1.93E-10	6.89E-03	100	1.00E-06	=	20	22	70	9,125	25,550
Acetone Benzene	6.32E-10	1.40E-10	8.08E-03	8 8	1.00E-06		2 2	ដ ដ	0 02	9,125	25,550
Carbon Disulfide	1.57E-10		2.00E-03	100	1.00E-06		20	n	70	9,125	25,550
Chloroform Methylene Chloride	2.35E-10	8.39E-11	3.00E-03	8 20	1.00E-06		2 2	ង ង	2 2	9,125	25,550
Toluene Xylene (total)	5.49E-10 3.33E-10		7.02E-03 4.25E-03	100	1.00E-06 1.00E-06		50 20	ងង	5 07	9,125	25,550
Semivolatile Organics		į		1							
2,4-Dinitrotoluene	1.68E-07		2.14E+00	100	1.00E-06	-	20	22	70	9,125	25,550
2.6-Dinitrololuene 2-methylnaphthalene	1.41E-08		1.23E+00	8 8	1.00E-06 1.00E-06		2 2	22.22	88	9,125	25,550
3,3-Dichlorobenzidine		0.00E+00	0.00E+00	100	1.00E-06	1	20	25	70	9,125	25,550
3-nitroaniline	1,400,07		0.00E+00	001	1.00E-06		20	25	0 F	9,125	25,550
Acenaphthylene	1,075-01		3.08E-01	801	1.00E-06		20 20	2 22	0,02	9,125	25,550
Anthracene	1.57E-07	30 0000	2.01E+00	100	1.00E-06	_	20	25	70	9,125	25,550
Benzo(a)anthracene Benzo(a)ovrene		3.22E-07	7.20E+00	8 8	1.00E-06		20 20	nn	0,02	9,125	25,550
Benzo(b)fluoranthene		2.75E-07	9.85E+00	100	1.00E-06	-	20	22	70	9,125	25,550
Benzo(g,h,i)perylene Benzo(k)fluoranthene		1.32E-07	5.89E+00	00 00	1.00E-06		2 20	22	2 2	9.125	25,550
Carbazole		5.23E-08	1.87E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Chrysene Di a humbahahalara	6 605 08	2,42E-07	8.64E+00	8 8	1.00E-06		2 2	¥1 ¥	2 5	9,125	25,550
Dibenz(a,h)anthracene	2.235.00	6.58E-08	2.35E+00	8 8	1.00E-06		22	a xa	2 2	9,125	25.550
Dibenzofuran	00 101 1		1.62E+00	001	1.00E-06		20	52 5	0 20	9,125	25,550
Pluoranthene Fluoranthene	8.82E-07		1.13E+01	8 8	1.00E-06		2 2	១ ភា	5 5	9,125	25,550
Fluorene	1.36E-07		1.73E+00	001	1.00E-06		20	ង	2 2	9,125	25,550
N-Nitrosodiphenylamine (1)		1.61E-08	5.77E-01	8 00	1.00E-06		2 2	3 23	5 5	9,125	25,550
Naphthalene	80.55.00	1 225.08	1.95E+00	9 2	1.00E-06		2 2	n	2 5	9,125	25,550
Phenanthrene	2000		7.33E+00	100	1.00E-06		20	121	2 2	9,125	25,550
Pyrene bis(2-Ethylhexyl)phthalate	9.89E-07 9.94E-08	3.55E-08	1.26E+01 1.27E+00	100	1.00E-06 1.00E-06		2 22	ងង	66	9,125	25.550
Pesticides											
						16		3			
4,4-DDE	3,43E-10	1.22E-10	1.85E-02	8 8	1.00E-06		20 20	ដ ដ	2 2	9,125	25,550
t.tDDT	7.71E-10	2.75E-10	9.85E-03	100	1.00E-06	_	20	Z)	0,	9,125	25,550
Aldrin Amelog 1361	0.00E+00	0.00E+00	0.00E+00	001	1.00E-06		30	52 52	9 2	9,125	25,550
Aroclor-1254	0.005400	5.35E-10	1.91E-02	100	1.00E-06		20 20	9 23	2 2	9.125	25.550
Dieldrin	3.91E-10	1,40E-10	4.99E-03	100	1.00E-06	-	20	25	20	9,125	25,550
Endosulfan I	1.08E-09		1.38E-02	9 5	1.00E-06		2 2	22 2	2 2	9,125	25,550
Endosulfan sulfate	3.36E-10		4.29E-03	100	1.00E-06	-	50	2 22	2 2	9,125	25,550
Endrin	4.37E-10		5.59E-03	00 5	1.00E-06		20	23	0,0	9,125	25,550
Endrin ketone			5.58E-03	8 8	1.00E-06		20 20	25	0 0	9,125	25,550
Heptachlor	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Heptachlor epoxide	1.51E-10	5.41E-11	0.001100	0 2	1.00E-06		30	25	70	9,125	25,550
alpha-Chlordane	2.29E-10	8.19E-11	2.93E-03	100	1.00E-06		20	23	70	9,125	25,550
beta-BHC	000000	6.86E-11	2,45E-03		1.00E-06		20	25	0,00	9,125	25,550
gamma-Chlordane	0.00		3.17E-03	8 8	1.00E-06		2 2	2 23	5 6	9,125	25,550
delta-BHC			1.92E-03		1.00E-06		20	36	30	0 135	2000

TABLE 6-13
CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS
INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

					CASE &							
Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-dav)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Til	Averaging Time (davs)	
						A North Control of the	Medical Control			Nc	Car	
vitroaromatics												
-amino-4,6-Dinitrotoluene			0.00E+00	100	1.00E-06	-	20	n	70	9.125	25,550	
fetryl	0.00E+00		0.00E+00	100	1.00E-06	-	20	23	70	9,125	25,550	
Metals												
Antimony	6.19E-10		7.91E-03	100	1.00E-06		20	25	70	9.125	25.550	
Jarium	8.41E-09		1.07E-01	100	1.00E-06	-	20	25	20	9,125	25,550	
Oppor	5.99E-09		7.66E-02	100	1.00E-06	-	20	25	70	9,125	25,550	
cad	0		6,30E-01	100	1.00E-06	-	20	25	20	9,125	25,550	
Mercury	4,25E-11		5,43E-04	100	1.00E-06	-	20	25	70	9,125	25,550	
selenium	7.20E-11		9.20E-04	100	1.00E-06	-	20	25	20	9,125	25,550	
hallium	1.28E-10		1.63E-03	100	1.00E-06	-	20	25	70	9,125	25,550	
Zinc	8.61E-09		1.10E-01	100	1.00E-06	-	20	25	70	9,125	25,550	
Terbicides												
1,4,5-T	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	70	9.125	25.550	
ИСРР	0.00E+00		0.00E+00	100	1.00E-06	-	50	22	70	9,125	25,550	
EQUATION:	Intake (mp/kg-day) = CSAIRACEAFIAEFAED BWaAT	CSAIRACEAF	LEFLED									
	Variables:				~	Assumptions:						
	CS = Chemical Concentration in Soil (ang soil/kg) The Inspection Atter (an soil/day) CF = Conversion Factor (10-6 kg/mg) FF = Textoin Inspected (unitless) EF = Exposure Frequency (days/sear) EF = Exposure Prequency (days/sear) SW = Bodyweight (ga) AT = Arceraging Time ((days)	centration in Soil (mg soil/day) actor (10-6 kg/mg) ted (unitless) quency (days/year- attion (years) kg) ne (days)	(mg soil/kg)		a-esamen	EPC Soil Data - RME 100 (RME Site Worker) 10-6 (All Receptors) 20 (RME Site Worker) 22 (RME Site Worker) 70 (Adult male) 25 x 365 (Nc) 70 x 365 (Car)	RME Vorker)) orker) orker) orker)					

TABLE 6-44 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
		1.93E-10	NA	2.00E-01		3.85E-11
1,1,2,2,-Tetrachloroethane	6.32E-10	1.93E-10	1.00E-01	NA NA	6.32E-09	5.052
Acetone	0.32E-10	1.40E-10	NA NA	2.90E-02	0.526 07	4.05E-12
Benzene Code Division	1.57E-10	1.402-10	1.00E-01	NA NA	1.57E-09	
Carbon Disulfide	1.57E-10	5.59E-11	1.00E-02	6.10E-03	1.57E-08	3.41E-13
Chloroform Methylene Chloride	2.35E-10	8.39E-11	6.00E-02	7.50E-03	3.91E-09	6.29E-13
Foluene	5.49E-10	0.57L-11	2.00E-01	NA	2.75E-09	- A-4-036-CH
Xylene (total)	3.33E-10		2.00E+00	NA	1.66E-10	
	5.552 10		720000000000000000000000000000000000000		-	
Semivolatile Organics					22737334	
2,4-Dinitrotoluene	1.68E-07		2.00E-03	NA	8.39E-05	
2,6-Dinitrotoluene	1.41E-08		1.00E-03	NA	1.41E-05	
2-methylnaphthalene		1.0	NA	NA		
3,3'-Dichlorobenzidine		0.00E+00	NA	4.50E-01		0.00E+0
3-nitroaniline			NA COOF 02	NA	2.81E-06	
Acenaphthene	1.69E-07		6.00E-02	NA	2.81E-00	
Acenaphthylene			NA 2 00F 01	NA	5.25E-07	
Anthracene	1.57E-07	2015.05	3.00E-01	NA 7.20F.01	5.25E-07	1.47E-0
Benzo(a)anthracene		2.01E-07	NA NA	7.30E-01		2.35E-0
Benzo(a)pyrene		3.22E-07	NA	7.30E+00		2.01E-0
Benzo(b)fluoranthene		2.75E-07	NA NA	7.30E-01		2.01E-0
Benzo(g,h,i)perylene		1 225 07	NA	NA 7.30E-01		9.61E-08
Benzo(k)fluoranthene		1.32E-07	NA NA	2.00E-02		1.05E-09
Carbazole		5.23E-08	NA NA			1.76E-08
Chrysene	5 500 00	2.42E-07	NA NA	7.30E-02 NA	5.59E-07	1.70E-0
Di-n-butylphthalate	5.59E-08	C COT 00	1.00E-01	7.30E+00	3.39E-07	4.80E-0
Dibenz(a,h)anthracene		6.58E-08	NA NA	NA		4.00L-0
Dibenzofuran	1.49E-09		8.00E+00	NA	1.86E-10	
Diethylphthalate	8.82E-07		4.00E-02	NA	2.20E-05	
Fluoranthene Fluorene	1.36E-07		4.00E-02	NA	3.39E-06	
Indeno(1,2,3-cd)pyrene	1.502-07	1.55E-07	NA NA	7.30E-01	0.072.70	1.13E-0
N-Nitrosodiphenylamine (1)		1.61E-08	NA	4.90E-03		7.90E-1
Naphthalene		1.012 00	NA	NA		- (N.J.) N. (N. (N. (N. (N. (N. (N. (N. (N. (N.
Pentachlorophenol	9.05E-08	3.23E-08	3.00E-02	1.20E-01	3.02E-06	3.88E-09
Phenanthrene	3,002.00		NA	NA		
Pyrene	9.89E-07		3.00E-02	NA	3.30E-05	
bis(2-Ethylhexyl)phthalate	9.94E-08	3.55E-08	2.00E-02	1.40E-02	4.97E-06	4.97E-10
Pesticides						
4.4'-DDD	3.43E-10	1.22E-10	5.00E-04	2.40E-01	6.85E-07	2.94E-1
4,4'-DDE			NA	NA	0.0000	12.50
4,4'-DDT	7.71E-10	2.75E-10	5.00E-04	3.40E-01	1.54E-06	9.37E-1
Aldrin	0.00E+00	0.00E+00	3.00E-05	1.70E+01	0.00E+00	0.00E+0
Aroclor-1254	0.00E+00	0,00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+0
Aroclor-1260		5.35E-10	NA	7.70E+00		4.12E-0
Dieldrin	3.91E-10	1.40E-10	5.00E-05	1.60E+01	7.82E-06	2.23E-0
Endosulfan I	1.08E-09		6.00E-03	NA	1.80E-07	
Endosulfan II	5,488,504,2855,6355		NA	NA		
Endosulfan sulfate	3.36E-10		5.00E-05	NA	6.71E-06	
Endrin	4.37E-10		3.00E-04	NA	1.46E-06	
Endrin aldehyde			NA	NA		
Endrin ketone	2 222 22	0.005.05	NA NA	NA 4 50E+00	0.00E+00	0.00E+0
Heptachlor	0.00E+00	0.00E+00	5.00E-04	4.50E+00	1.17E-05	4.92E-1
Heptachlor epoxide	1.51E-10	5.41E-11	1.30E-05	9.10E+00	1.17E=03	0.00E+0
Toxaphene	2 205 10	0.00E+00	NA 6 00E 05	1.10E+00 1.30E+00	3.82E-06	1.06E-1
alpha-Chlordane	2.29E-10	8.19E-11	6.00E-05	1.80E+00	3.62E*00	1.00E-1
beta-BHC	0.005.00	6.86E-11	NA 3.00E-04	1.80E+00 NA	0.00E+00	1.232-1
gamma-BHC (Lindane)	0.00E+00		COARST AND AND A STATE OF	NA NA	U.UUE TUU	
gamma-Chlordane			NA NA	NA NA		
delta-BHC			NA	1373		1

TABLE 6-44 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

		CA	SE 2			
Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	0.00E+00		1.00E-02	NA	0.00E+00	
Tetryi	0.002100		1.002-02	IIA.	0.002.00	
Metals						
Antimony	6.19E-10		4.00E-04	NA	1.55E-06	
Barium	8.41E-09		7.00E-02	NA	1.20E-07	
Copper	5.99E-09	Contract of	4.00E-02	NA	1.50E-07	
Lead	POSST-558-00-554		NA	NA		
Mercury	4.25E-11		3.00E-04	NA	1.42E-07	
Selenium	7.20E-11		5.00E-03	NA	1.44E-08	
Thallium	1.28E-10		7.00E-05	NA	1.82E-06	
Zinc	8.61E-09		3.00E-01	NA	2.87E-08	
Herbicides						
2,4,5-T	0.00E+00		1.00E-02	NA	0.00E+00	
MCPP	0.00E+00		1.00E-03	NA	0.00E+00	
Totals - HQ & CR	10.00				2.06E-04	3.42E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose (Oral)

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor (Oral)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL. FUTURE WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16 CASE 2 CASE 2

11/03/97

Valuatic Organics 6.88E-01 1.00E-66 5.800 1.0 Because Because Carbon Disabilities 6.88E-03 1.00E-66 5.800 1.0 Because Carbon Disabilities 2.00E-03 1.00E-66 5.800 1.0 Chalco Disabilities 2.00E-03 1.00E-66 5.800 1.0 Chalco Disabilities 2.00E-03 1.00E-66 5.800 1.0 All Charles Charles Charles 1.00E-66 5.800 1.0 All Charles Charles 1.00E-66 5.800 1.0	Dose (Nc) Dose (Car) Soil (mg/kg-day) (mg/kg)	Factor (kg/mg)	Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti Ti	Averaging Time (days) Car
1,00E-66 5,800 1,00E-66										
inci (1) 2.14E-00 1.00E-06 5.800 1.0	6.89E-03 8.08E-03	1.00E-06 1.00E-06	5,800	99		20	มม	0,00	9,125	25,550
100E-06 100E-06 100E-06 15800 110E-06 110E-06 110E-0	5.00E-03 2.00E-03	1.00E-06 1.00E-06	5,800	01		20	ងង	0 D	9,125	25,550
inc	2.00E-03 3.00E-03	1.00E-06 1.00E-06	5,800	91		20 20	នន	5 6	9,125	25,550
2.11E+00	7.02E-03 4,25E-03	1.00E-06 1.00E-06	5,800	1.0		20	22 22	07 07	9,125	25,550
2.14E+00										
1.37E-400 1.00E-46 5.800 1.00E-46 5.	2.14E+00	1.00E-06	5,800	07.	lų.	20	n	25	9,125	25,550
1,00E-d6 5,800 1,00E-d6	1.23E+00	1.00E-06	5,800	1.0		3.2	2 23	5 2	9,125	25,550
2.16E-00 1.00E-06 5.800 2.00E+00 1.00E-06 5.800 2.00E+00 1.00E-06 5.800 2.00E+00 1.00E-06 5.800 2.00E+00 1.00E-06 5.800 2.30E+00 1.00E-06 5.800 2.30E-00 1.00E-06 5.800 2.30E-		1.00E-06	5,800	0.1		50	22	07	9,125	25,550
3.00E-40	2.16E+00	1.00E-06	5,800	0.1		20 20	2 23	5 5	9,125	25,550
1,13E-01	3.08E-01	1.00E-06	5,800	0.1		20	22	2 5	9,125	25,550
115E+01 100E-06 5800 100E-06 5800 187E+00 100E-06 5800 100E-06	7.20E+00	1.005-06	5,800	1.0		20	9 23	2 2	9,125	25,550
\$585-00 \$585-00 \$585-00 \$585-00 \$585-00 \$5800	1.15E+01	1.00E-06	5,800	0.1		20	22 2	6 5	9,125	25,550
1775-00 100E-06 5800 155E-03 100E-	5.89E+00	1.00E-06	5,800	0.1		20	9 23	5 6	9,125	25.550
Section Control Cont	4.71E+00	1.00E-06	5.800	1.0		2 2	22 2	0.5	9,125	25,550
1,325+00	1.8/E+00 8.64E+00	1.00E-06	5,800	0.1		20 20	a XI	2 2	9,125	25,550
1.00	7.145-01	1.00E-06	5,800	0.0		20	22 %	5 5	9,125	25,550
1,11E-01 1,00E-06 5,800 1,11E-01 1,00E-06 5,800 1,11E-01 1,00E-06 5,800 1,11E-01 1,00E-06 5,800 1,10E-01 1,10E-06 5,800 1,10E-01 1,10E-06 5,800 1,10E-01 1,10E-06 5,800 1,10E-01 1,10E-06 5,800	1.62E+00	1.00E-06	5,800	07		70	3 23	2 2	9,125	25,550
Typerion Type-40 Typ	1.90E-02	1.00E-06	5,800	10		2 2	22 2	2 6	9,125	25,550
Applitudate	1.735+00	1.00E-06	5,800	0.01		202	a xa	2 2	9,125	25,550
100E-66 180E-60 100E-66 1800 100E-66 1800 100E-60 180E-60 100E-66 1800 120E-60 100E-66 1800 120E-60 100E-60 180E-60 120E-60 180E-60 180E-6	5.55E+00 5.77E-01	1.00E-06	5,800	0.1		20 20	22 22	6 6	9,125	25,550
1.16E-40 1.00E-66 5.800 1.30E-40 1.30E-40 1.00E-66 5.800 1.30E-40 1.30E-60 5.800 1.30E-60 5.800 1.30E-40 1.30E-60 5.800 1.30E-60	1.95E+00	1.00E-06	5,800	1.0		50	25	2	9,125	25,550
1.26E+01 1.00E-06 5.800 1.27E+00 1.00E-06 5.800 1.27E+00 1.00E-06 5.800 1.27E+00 1.00E-06 5.800 1.27E+01 1.20E-06 5.800 1.22E+01 1.22E+0	1.16E+00 7.33E+00	1.00E-06	5,800	10		20	ກກ	5 5	9,125	25,550
186E-09 18EE-02 1.00E-06	1.26E+01	1.00E-06	5,800	1.0		20 5	22 %	2 5	9,125	25,550
186E-03 100E-06 5800		00-700-1	0000			3	1	2		2000
186E-43 1.00E-66 5.800 186E-43 1.00E-66 5.800 186E-43 1.00E-66 5.800 186E-49 1.91E-42 1.00E-66 5.800 196E-49 1.91E-42 1.00E-66 5.800 186E-49 1.91E-42 1.00E-66 5.800 186E-49 1.91E-42 1.00E-66 5.800 186E-49 1.00E-66 5.800 186E-49 1.00E-66 5.800 186E-41 1.00E-										
186E-09 191E-02 1.00E-66 5.800	1.85E-03	1.00E-06	5,800	1.0		2, 23	22 22	6 C	9,125	25.550
186E-49 191E-42 1.00E-66 5.800	9.85E-03	1.00E-06	5.800	1.0		20	22	02	9,125	25,550
186E-09 191E-02 1.00E-06 5.800		1.00E-06	5,800	1.0	90 0	20	22 22	6 6	9,125	25,550
138E-03 100E-66 5800 138E-03 130E-66 5800 130E-63 130E-63 130E-64 5800 130E-63 130E-	-	1.00E-06	5,800	1.0	90'0	20	25	02	9,125	25,550
100E-06 100E	1,99E-03	1.00E-06	5,800	1.0		20 00	22 22	0 02	9,125	25,550
4.29E-43 100E-66 5.800 5.89E-43 100E-66 5.800 5.81E-43 100E-66 5.800 5.88E-43 100E-66 5.800 5.89E-43 100E-66 5.800 5.8	4.55E-03	1.00E-06	5,800	1.0		20	22	20	9,125	25,550
100 100	4.29E-03	1.00E-06	5,800	0.1		20 20	22	0.5	9,125	25,550
1,00E-06 5,800 5,800 1,00E-06 1,0	2.51E-03	1.00E-06	5,800	10		20 20	2 23	5 5	9,125	25,550
1,94E-03 1.00E-06 5.800 1.00E-06 5.800 2.99E-03 1.00E-06 5.800 2.49E-03 1.00E-06 5.800 1.17E-03 1.00E-06 5.800 1.92E-03	5.58E-03	1,00E-06	5,800	0.1		20	52	0.1	9,125	25,550
2,93E-03 1,00E-06 5,800 2,45E-03 1,00E-06 5,800 3,17E-03 1,00E-06 5,800 1,92E-03 1,00E-06 5,800 1,92E-03 1,00E-06 5,800	1.946-03	1.00E-06	5,800	1.0		20 20	22 22	5 5	9,125	25,550
2,9E-03 1,00E-06 5,800 2,45E-03 1,00E-06 5,800 1,7E-03 1,00E-06 5,800 1,92E-03		1.00E-06	5,800	1.0		20	22	07	9,125	25,550
3,17E-03 1,00E-06 5,800 1,92E-03 1,00E-06 5,800	2,93E-03	1.00E-06	5,800	0.0		20	22 %	5 5	9,125	25,550
3.17E-03 1.00E-06 5.800 1.92E-03 1.00E-06 5.800		1.00E-06	5,800	1.0		50	1 23	70	9,125	25.550
1.92E-03 1.00E-06 5,800	3.17E-03	1.00E-06	5,800	1.0		20	52	0,	9,125	25,550
	1,945-03	LOUE-US	5,800	0.1		0.7	Q	10	9,125	75,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL.
FUTURE WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RNE)
SENECA ARMY DEPOT, ROULUS, NEW YORK - SEAD 16

Analyte	Dose (Nc)	Dose (Car)	Soil (me/kg)	Conv. Factor (ke/me)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unidess)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Aver Tir (da	Averaging Time (days)
	(ing.kg-dai)	(Company)	948	(G Gu)		9			,		Nc	Car
Nitroaromatics											4	8
2-amino-4,6-Dinitrotoluene Tetryl				1.00E-06 1.00E-06	5,800	1.0		20,00	នន	70 07	9,125	25,550
Metals												
Antimons			7.91E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25.550
Barium			1.07E-01	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Соррет			7.66E-02	1.00E-06	5,800	0.1		20 50	27 %	70	9,125	25,550
Lead			6,30E-01	1,005-06	5,800	10		20	25 (70	9,125	25,550
Marcury			9.20E-04	1.00E-06	5.800	1.0		20	25	70	9,125	25,550
Thalling			1.63E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Zinc			1,105-01	1.00E-06	5,800	1.0		20	22	70	9,125	25,550
Herbicides												
7.4 C.T.				1.00E-06	5,800	1.0		20	22	70	9,125	25,550
MCPP				1.00E-06	2,800	0.1		20	23	70	9.125	25,550
EQUATION:	Absorbed dose (mg/kg-day) =	(mg/kg-day) =	CSICFISAL	CS. CF. SA. AF. ABS. EF. ED. BW. AT.	ED							
Variables:			Assumptions:			Variables:				Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (19-6 kg/mg) AS = Surface Area Contact (mn) AF = Soil to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitless)	tion in Soil (mg soi 10-6 kg/mg) 11 (cm²) ce Factor (mg/cm²) (unitless)	il/kg)	EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs	EPC Soil Data - RME 10-6, 5800 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd	d Cd	EF = Exposure Frequency ((ED = Exposure Duration (ye BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) SW = Bodyweight (kg) AT = Averaging Time (days)	vents/year) rs)		20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	orker) orker) x 365 Adult	(Car)

TABLE 6-46 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics		1 3		148.15		
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA		
Benzene	1		NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1,20E-01	NA		
Xylene (total)			2.00E+00	NA		
Ayrene (total)				No. (S. Co.)		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
2-metnymaphthalene			144	4.00.0		
3,3'-Dichlorobenzidine	1		NA	4.50E-01		
3-nitroaniline		3 5 4 5 1	NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00	2 4.11	
Benzo(a)pyrene		1	NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA NA		
Benzo(k)fluoranthene	183		NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran	1		NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene	1		4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		100
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

TABLE 6-46 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Pesticides 4,4'-DDD 4,4'-DDE 4,4'-DDT Aldrin Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin ketone Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl Metals	S	(mg/kg-day)	5.00E-04 NA 5.00E-04 3.00E-05 1.90E-05 NA 5.00E-05 6.00E-03 NA 5.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	(mg/kg-day)-1 2.40E-01 NA 3.40E-01 1.70E+01 2.11E+00 8.11E+00 1.60E+01 NA NA NA NA NA NA NA 1.50E+00 9.10E+00 1.30E+00		1.51E-08
4,4'-DDE 4,4'-DDT Aldrin Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan I Endosulfan II Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1.86E-09	NA 5.00E-04 3.00E-05 1.90E-05 NA 5.00E-05 6.00E-03 NA 5.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	NA 3.40E-01 1.70E+01 2.11E+00 8.11E+00 1.60E+01 NA NA NA NA NA NA 1.50E+00 9.10E+00 1.10E+00 1.30E+00		1.51E-08
4,4'-DDE 4,4'-DDT Aldrin Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan I Endosulfan II Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1.86E-09	NA 5.00E-04 3.00E-05 1.90E-05 NA 5.00E-05 6.00E-03 NA 5.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	NA 3.40E-01 1.70E+01 2.11E+00 8.11E+00 1.60E+01 NA NA NA NA NA NA 1.50E+00 9.10E+00 1.10E+00 1.30E+00		1.51E-08
4,4'-DDT Aldrin Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan II Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1.86E-09	5.00E-04 3.00E-05 1.90E-05 NA 5.00E-05 6.00E-03 NA 5.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	3.40E-01 1.70E+01 2.11E+00 8.11E+00 1.60E+01 NA NA NA NA NA NA 1.50E+00 9.10E+00 1.10E+00 1.30E+00		1.51E-08
Aldrin Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1.86E-09	3.00E-05 1.90E-05 NA 5.00E-05 6.00E-03 NA 5.00E-05 3.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	1.70E+01 2.11E+00 8.11E+00 1.60E+01 NA NA NA NA NA 1.50E+00 9.10E+00 1.10E+00 1.30E+00		1.51E-08
Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan II Endosulfan II Endosulfan III Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1.86E-09	1.90E-05 NA 5.00E-05 6.00E-03 NA 5.00E-05 3.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	2.11E+00 8.11E+00 1.60E+01 NA NA NA NA NA NA 1.50E+00 9.10E+00 1.10E+00 1.30E+00		1.51E-08
Aroclor-1260 Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1.86E-09	NA 5.00E-05 6.00E-03 NA 5.00E-05 3.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	8.11E+00 1.60E+01 NA NA NA NA NA NA 4.50E+00 9.10E+00 1.10E+00 1.30E+00		1.51E-08
Dieldrin Endosulfan I Endosulfan II Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1.602-09	5.00E-05 6.00E-03 NA 5.00E-05 3.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	1.60E+01 NA NA NA NA NA NA 4.50E+00 9.10E+00 1.10E+00 1.30E+00		
Endosulfan I Endosulfan II Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor eopxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			6.00E-03 NA 5.00E-05 3.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	NA NA NA NA NA 4.50E+00 9.10E+00 1.10E+00 1.30E+00		
Endosulfan II Endosulfan sulfate Endrin Endrin Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			NA 5.00E-05 3.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	NA NA NA NA 4.50E+00 9.10E+00 1.10E+00 1.30E+00		
Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			5.00E-05 3.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	NA NA NA A.50E+00 9.10E+00 1.10E+00 1.30E+00		
Endrin Endrin aldehyde Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene			3.00E-04 NA NA 5.00E-04 1.30E-05 NA 6.00E-05	NA NA NA 4.50E+00 9.10E+00 1.10E+00 1.30E+00		
Endrin aldehyde Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			NA NA 5.00E-04 1.30E-05 NA 6.00E-05	NA NA 4.50E+00 9.10E+00 1.10E+00 1.30E+00		
Endrin ketone Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene			NA 5.00E-04 1.30E-05 NA 6.00E-05	NA 4.50E+00 9.10E+00 1.10E+00 1.30E+00		
Heptachlor Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			5.00E-04 1.30E-05 NA 6.00E-05	4.50E+00 9.10E+00 1.10E+00 1.30E+00		
Heptachlor epoxide Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			1.30E-05 NA 6.00E-05	9.10E+00 1.10E+00 1.30E+00		
Toxaphene alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			NA 6.00E-05	1.10E+00 1.30E+00		
alpha-Chlordane beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			6.00E-05	1.30E+00	1	
beta-BHC gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl						
gamma-BHC (Lindane) gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl					1	
gamma-Chlordane delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl			NA	1.80E+00		
delta-BHC Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1	3.00E-04	NA	1	1
Nitroaromatics 2-amino-4,6-Dinitrotoluene Tetryl		1	NA	NA		
2-amino-4,6-Dinitrotoluene Tetryl			NA	NA		
Tetryl						
Tetryl			NA	NA		
Metals		1 1	1.00E-02	NA		
Metals						
Antimony			4.00E-04	NA	1	
Barium			7.00E-03	NA		
Copper		1	2.00E-02	NA		
Lead		1 1	NA	NA		
Mercury			4.50E-05	NA	1	
Selenium			3.00E-03	NA	1	
Thallium			7.00E-05	NA		
Zinc			1.50E-01	NA		
Herbicides						
2,4,5-T			1.00E-02	NA		
MCPP			1.00E-03	NA		
						1.51E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose (Oral)
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor (Oral)

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXINUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation Senecta Army Depot Activity

													_																								
Averaging Time (days)	Car		25.550	25.550	25,550	25,550	25,550	25,550	25,550	25,550		25,550	25 550	25,550	25,550	25 550	36 660	26 650	36 660	25 550	36 660	25,550	25.550	25.550	25.550	25,550	25,550	25.550	25,550	25,550	25,550	25,550	25,550	25.550	25,550	25.550	25.550
Aven Tir (da	Nc		1.825	1.825	1.825	1.825	1.825	1,825	1.825	1,825		1.825	1 825	1,825	1.825	1 825	1 875	3001	2001	278	100	1 875	1.825	1.825	1.825	1,825	1.825	1.825	1,825	1,825	1,825	1,825	1.825	1.825	1,825	1,825	1.825
Body Weight (kg)			25	25	25	25	25	25	25	25		25	25	21	23	25	1 %	1 %	24	3 %	1 7	3 %	25	25	25	22	25	25	25	22	25	25	25	25	22	25	25
Exposure Duration (years)			S	8	8	8	S	s	8	2		8	\$	'n	×	٠	. •		. •	•		· •	'n	. 5	٧,	s	9	9	8	8	2	s	\$	2	2	\$	*
Exposure Frequency (days/year)	North State And State St		20	50	50	20	50	50	50	20		50	20	20	20	50	8 5	2 4	00	200	2	8 9	50	50	50	50	50	50	50	20	90	20	20	50	20	50	50
Fraction Ingested (unitless)	20 20 20 20 20 20 20 20 20 20 20 20 20 2			-	-	-	-	-	-	-		-	-	-	-	-								-	-	-	-		1		-	-	-	-	-		-
Conv. Factor (kg/mg)	NO PROGRAMMENT		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1 00E-06	1.00E-06	1.00E-06	1 00E-06	1 00 5 06	1 000 000	1.005-06	1.00E-06	2000	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Ingestion Rate (mg soil/day)			200	200	200	200	200	200	200	200		200	200	200	200	200	200	200	200	200	000	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Soil (mg/kg)	100,000,000		6.89E-03	8.08E-03	5.00E-03	2.00E-03	2.00E-03	3.00E-03	7.02E-03	4.25E-03		2.14E+00	180F-01	1.23E+00	2.16E+00	3 08F-01	3012700	27000	100.00	0.85E+00	6000000	4.71F+00	1.87E+00	8.64E+00	7.14E-01	2.35E+00	1.62E+00	1.90E-02	1.13E+01	1.73E+00	5.55E+00	5.77E-01	1.95E+00	1.16E+00	7.33E+00	1,26E+01	1 27E+00
Intake (Car) (mg/kg-day)	CONTROL DESCRIPTION		\$ 39E-10		3.91E-10		1.57E-10	2.35E-10									1 675 07	6 625 07	0.025-07	7.022-07	40000	3 69E-07	1.46E-07		5.59E-08				100000000000000000000000000000000000000	1.36E-07	4.35E-07	CARTON CAR	1.53E-07	ADSOLD ST. N. S. L.		9.89E-07	9 94E-08
Intake (Nc) (mg/kg-day)				8.85E-09		2.19E-09	2.19E-09	3.29E-09	7.69E-09	4.66E-09		2.35E-06	1 97E-07			3 38F-07	100000							9.47E-06			1.77E-06	2.08E-08	1.23E-05				2.14E-06	70000 TO 10000	8.03E-06	1.39E-05	1 39E-06
Analyte		olatile Organics	1 2 2 -Tetrachloroethane	cetone	cuzene	arbon Disulfide	hloroform	fethylene Chloride	olucne	ylene (total)	emivolatile Organics	4-Dinitrotoluene	6-Dinitrotolisene	-methylnaphthalene	cenaphthene	cenanhthylene	orthogonal arthur	muracene	enzo(a)anintacene	enzo(a)pyrene	Carried Communication	enzo(g,n,ı)peryiene	arbazole	hrysene	n-n-butylohthalate	ibenz(a,h)anthracene	ibenzofuran	viethvlphthalate	luoranthene	luorene	ndeno(1,2,3-cd)pyrene	1-Nitrosodiphenylamine (1)	laphthalene	centachlorophenol	henanthrene	vrene	s(2-Ethylhexyl)phthalate

CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation Seneca Army Depot Activity

C In O Analyte (mg/k	Pesticides	4,4-DDD 2.02 4,4-DDT 1.08	Aroclor-1260 2.10 Dieldrin 5.47	fan II fan sulfate	Endrin aldehyde Endrin ketone 6.1	Heptachlor Heptachlor epoxide	Toxaphene alpha-Chlordane beta-BHC 2.6	gamma-Chlordane delta-BHC	Merals		Autimony 8.0 Barium 1.1	Lead 69 Mercury 5.9 Selenium 1.0 Thallium 1.7 Zine 1.1	N	EQUATION: Intake (mg/k	Var	S # P T B B #
Child Intake (Nc) (mg/kg-day)		2.02E-08 1.08E-08	2.10E-08 5.47E-09	4.98E-09 4.70E-09	6.11E-09		2.69E-09	2.10E-09		-	1.18E-07	6.91E-07 5.95E-10 1.01E-09 1.79E-09 1.21E-07		kg-day) =	Variables:	= Chemi = Ingesti = Conve = Fractio = Expos
Child Intake (Car) (mg/kg-day)		1,45E-09 7,71E-10	1.50E-09		4.37E-10	1.51E-10	2.29E-10	1.50E-10				8.61E-09		Intake (mg/kg-day) = CSXIRACEXFIXEEXED BWXAT		CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) EC = Conversion Rate (rule, 6 kg/mg) EI = Fraction Ingested (unitess) EF = Exposure Frequency (days/years) EP = Exposure Duridon (years) BW = Bodysviept (kg)
EPC Soil (mg/kg)		4.38E-03 1.85E-02 9.85E-03	1.91E-02 4.99E-03 1.38E-02	4.55E-03 4.29E-03	2.51E-03 5.58E-03	1.94E-03	2.93E-03 2.45E-03	3.17E-03 1.92E-03	- 14	10101	1.07E-01	6.30E-01 5.43E-04 9.20E-04 1.63E-03 1.10E-01		EXFLEE		tion in Soil (oil/day) 10-6 kg/mg) nitless) y (days/year) (years)
Child Ingestion Rate (mg soil/day)		200 200 200	200 200 200	200	200	200	200 200 200	200	h	905	200	200 200 200 200 200		- 3		mg soil/kg)
Conv. Factor (kg/mg)		1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06 1.00E-06	1.00E-06 1.00E-06		20 2001	1.00E-06	1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06			Assumptions:	EPC Soil Data - RME 200 (RME Child) 10-6 50 (RME) 50 (RME) 25 (Child)
Fraction Ingested (unitless)										•					18:	ata - RME Child)
Exposure Frequency (days/year)		50 50 50	50 50 50	2 2 2	28.83	2 8 8	2 2 2	20 00		9	20	20 20 20 20 20 20 20 20 20 20 20 20 20 2				
Child Exposure Duration (years)		888	200	en en en	i vo vo v	n w v	n 40 40	50.50		•	· v	*****				
Child Body Weight (kg)		ឧឧឧ	ងងង	ឯឯឯ	រងងរ	0 22 X	រងង	នន		36	n	มมมมม				
Averaging Time (days) Nc C		1,825 1,825 1,825	1,825	1,825	1,825	28.1	1,825	1,825	14	1 875	1,825	1,825 1,825 1,825 1,825 1,825				
ging ne (3) Car		25,550 25,550 25,550	25,550 25,550 25,550	25,550	25,550	25,550	25,550	25,550	14	25.550	25,550	25,550 25,550 25,550 25,550 25,550				

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						***
1,1,2,2,-Tetrachloroethane		5.39E-10	NA	2.00E-01		1.08E-10
Acetone	8.85E-09	Lineanicate (VC)	1.00E-01	NA	8.85E-08	20/10/4/2020
Benzene	300000000000	3.91E-10	NA	2.90E-02		1.14E-11
Carbon Disulfide	2.19E-09		1.00E-01	NA	2.19E-08	
Chloroform	2.19E-09	1.57E-10	1.00E-02	6.10E-03	2.19E-07	9.55E-13
Methylene Chloride	3.29E-09	2.35E-10	6.00E-02	7.50E-03	5.48E-08	1.76E-12
Toluene	7.69E-09		2.00E-01	NA	3.84E-08	
Xylene (total)	4.66E-09		2.00E+00	NA	2.33E-09	
Semivolatile Organics						
2,4-Dinitrotoluene	2.35E-06		2.00E-03	NA	1.18E-03	
2,6-Dinitrotoluene	1.97E-07	1 1	1.00E-03	NA	1.97E-04	
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene	3.38E-07		NA	NA		
Anthracene	1.20 300000000000000000000000000000000000	1.57E-07	3.00E-01	NA		
Benzo(a)anthracene		5.63E-07	NA	7.30E-01		4.11E-07
Benzo(a)pyrene		9.02E-07	NA	7.30E+00		6.58E-06
Benzo(b)fluoranthene			NA	7.30E-01		0.002
Benzo(g,h,i)perylene		4.61E-07	NA	NA		
Benzo(k)fluoranthene		3.69E-07	NA	7.30E-01		2.69E-07
Carbazole		1.46E-07	NA	2.00E-02		2.93E-09
Chrysene	9.47E-06		NA	7.30E-02		2.722.07
Di-n-butylphthalate		5.59E-08	1.00E-01	NA NA		
Dibenz(a,h)anthracene			NA	7.30E+00		
Dibenzofuran	1.77E-06		NA	NA		
Diethylphthalate	2.08E-08		8.00E+00	NA	2.60E-09	
Fluoranthene	1.23E-05		4.00E-02	NA	3.09E-04	
Fluorene		1.36E-07	4.00E-02	NA		
Indeno(1,2,3-cd)pyrene	100	4.35E-07	NA	7.30E-01		3.17E-07
N-Nitrosodiphenylamine (1)		- CONTRACTOR OF THE PARTY	NA	4.90E-03		7010101707070
Naphthalene	2.14E-06	1.53E-07	NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene	8.03E-06		NA	NA NA		
Pyrene	1.39E-05	9.89E-07	3.00E-02	NA NA	4.62E-04	
bis(2-Ethylhexyl)phthalate	1.39E-06	9.94E-08	2.00E-02	1.40E-02	6.96E-05	1.39E-09

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Pesticides						
4 4 DDD			5.00E-04	2.40E-01		The state of
4,4'-DDD	2.02E-08	1.45E-09	NA NA	NA NA		
4,4'-DDE 4,4'-DDT	1.08E-08	7.71E-10	5.00E-04	3.40E-01	2.16E-05	2.62E-10
4,4-DD1 Aldrin	1.002-00	7.71L-10	3.00E-05	1.70E+01	21102 00	
Aroclor-1254			2.00E-05	2.00E+00		
Aroclor-1260	2.10E-08	1.50E-09	NA NA	7.70E+00		1.15E-08
Dieldrin	5.47E-09	1.502-07	5.00E-05	1.60E+01	1.09E-04	2,512,575,775
	3.476-09		6.00E-03	NA	1.072 01	
Endosulfan I Endosulfan II	4.98E-09		NA NA	NA NA		
Endosulfan 11 Endosulfan sulfate	4.70E-09		5.00E-05	NA NA	9.40E-05	
	4.70E-09		3.00E-04	NA NA	7.40L-03	
Endrin			NA	NA NA		
Endrin aldehyde	C 11E 00	4.37E-10	NA	NA NA		
Endrin ketone	6.11E-09	4.37E-10	5.00E-04	4.50E+00		
Heptachlor		1.615.10	1.30E-05	9.10E+00		1.38E-09
Heptachlor epoxide		1.51E-10	NA	1.10E+00		1.3615-09
Гохарhene		2 205 10	6.00E-05	1.30E+00		2.98E-10
alpha-Chlordane	2 (07 00	2.29E-10				2.96E-10
oeta-BHC	2.69E-09		NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA NA		+
gamma-Chlordane	0.107.00	1.505.10	NA			
delta-BHC	2.10E-09	1.50E-10	NA	NA		
Nitroaromatics	1 5 3 3 3	W 14				
2-amino-4,6-Dinitrotoluene		Se 5	NA	NA		
[etryl			1.00E-02	NA		
Metals	1381			C. M		
. 131	8.67E-09		4.00E-04	NA	2.17E-05	
Antimony	1.18E-07		7.00E-02	NA NA	1.68E-06	
Barium	1.18E-07		4.00E-02	NA NA	1.000-00	
Copper	6.91E-07		NA	NA NA		
Lead	5.95E-10		3.00E-04	NA NA	1.98E-06	
Mercury	1.01E-09	1	5.00E-04 5.00E-03	NA NA	2.02E-07	1 5 5
Selenium	1.01E-09 1.79E-09		7.00E-05	NA NA	2.55E-05	
Thallium	12 / Color Color (1)	8.61E-09	3.00E-03	NA NA	4.02E-07	
Zinc	1.21E-07	8.01E-09	3,00E-01	NA.	4.0215-07	
Herbicides	100	23				1
2,4,5-T			1.00E-02	NA		
2,4,5-1 MCPP			1.00E-03	NA NA		
WICTT			.,002,00			
Γotals - HQ & CR					2.49E-03	7.60E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

11/03/97

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL
REASONABLE MAXIMUM SERSOIRE (RME)
SEAD-16 Remedial inscription
Serces Army Deput Activity

Analyte	olatile Organics	1,2,2,-Tetrachloroethane	cnzene	arbon Disulfide Moroform	Methylene Chloride	ylene (total)	emivolatile Organics	4-Dinitrotoluene 6-Dinitrotoluene	-methylnaphthalene	3Dichlorobenzidine nitroaniline	cenaphthene	nthracene	enzo(a)anthracene enzo(a)avrene	enzo(b)fluoranthene	enzo(k)fluoranthene	arbazole	h-n-butylphthalate	nbenz(a,n)anthracene	hethylphthalate	luorene	-Nitrosodiphenylamine (1)	entachlorophenol	henanthrene yrene ist2.Fibvibevv liphthalate	esticides	4-DDD	4-DDT	Idrin roclor-1254	roclor-1260 vieldrin	ndosulfan I	ndosulfan sulfate	ndrin aldehyde	ndrin ketone eptachlor	eptachlor epoxide	pha-Chlordane	eta-BHC amma-BHC (Lindane)	amma-Chlordane elta-BHC	itroaromatics	-amino-4,6-Dinitrotoluene
Absorbed Dose (Nc) (mg/kg-day)																																ľ						
Absorbed Dose (Car) (mg/kg-day)																												1.03E-09										
EPC Soil (mg/kg)		6.89E-03	8.08E-03	2.00E-03 2.00E-03	3.00E-03	4.25E-03		2.14E+00 1.80E-01	1.23£+00	Second of the second	2.16E+00	2.01E+00	7.20E+00	9.85E+00	4.71E+00	1.87E+00	7.14E-01	1.62E+00	1.90E-02	1.73E+00	S.77E-01	1.16E+00	7.33E+00 1.26E+01		4.38E-03	9.85E-03	V 1000000	1.91E-02 4.99E-03	1.38E-02 4.55E-03	4.29E-03	2.51E-03	5.58E-03	1.94E-03	2.93E-03	2.45E-03	3.17E-03 1.92E-03	- CONSTRUCTION	
Conv. Factor (kg/mg)		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06 1.00E-06	1.005-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.005-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06 1.00E-06		1.00E-06
Skin Surface Area Contact (cm²/event)		2,300	2,300	2,300	2,300	2,300		2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300		2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	31	2,300
Adherence Factor (mg soil/cm²)		1.0	0.0	1.0	0.5	10		0.01	0.1	0.01	0.1	20	0 0	0.0	2 2	0 0	91	0 01	0.0	0.0	22	0.0	0 0 0		1.0	99	0.01	0 0	0.1	1.0	0.1	0.01	1.0	10	0.0	1.0		1.0
Absorption Factor (unitless)																											90.0	90'0										
Exposure Frequency (events/year)		90	2 8	2 2	9.9	202		20 20	20	2 2	9.9	2 2	88	9, 9	2 2	9, 5	20	2 8	8,5	8.8	281	28	225		95	88	88	88	8.8	200	2 8	8 8	8 8	2 2	20 20	20 20		92
Exposure Duration (years)		5	n vo	so so	w w	n vn		10.10	n	so so	vs v	n vn	yn yn	90 9	0.40	s, s	· so :	n vo	ww	· vs ·	n vo	0.50	w w w	o:	v.	n n	w w	50 50	on or	1 90 1	n m	so so	10.11	n vn	v, v	en en	3	90.0
Body Weight (kg)		22	ឧឧ	ន្តន	22.2	an		ងង	23	ងង	22.2	ង	22 22	22	323	25	121	2 22	22.22	123	921	92	ឧឧឧ		x	22.23	ងង	ងង	22 22	121	22	នន	25	าม	ลห	ฆฆ		52.7
Averaging Time (days) Nc C		1,825	1,825	1,825	1.825	528.1		1,825	1,825	1,825	1,825	1,825	1.825	1,825	1,825	1,825	1.825	28.1	1.825	1,825	1,825	1,825	28.25		1,825	28.53	1,825	1,825	1.825	1.825	1,825	1,825	1,825	1,825	1.825	1,825		1,825
ging se .s) Car		25,550	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25.550	25.550	25,550	25,550	25,550	25.550	25,550	25.550	25.550		25,550

Page 1 of 3

TABLE 6-26

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL. FUTURE TRESSFANSER (Child) REASONABLE MAXIMUM EXPOSIBE (RME) SEAD-16 Remedial Inscription Seneca Army Depot Activity

EPC Conv. Sils Suffice Atherence Absorption Exposure Exposure Body Sall Factor Arres Constant Pactor Factor Frequency Duration Weight (marks) (critical (mar		1.0 50 5	1.00E-06	1.00E-06 2,300 1.0 50 5	1.00E-06 2,300 1.0 50 5	1,00E-06 2,300 1.0 50 5	1.00E-06 2,300 1.0 50 5	1.00E-06 2,300 1.0	1.0		1,00E-06 2,300 1.0 250 5 25	1.0	AFIANS KEFLED VI	Assumptions: Assumptions:	III (mg soil/kg) EPC Soil Data - RME EF = Exposure Prequency (events/car) 50 (RME) 16-6 2-300 (RME Child) EW = Bodyweight (kg) 25 kg (child) 10 (RME all receptor) AT = Averaging Time (days) 5 x 365 (Vc), 70 x 365 (Car) Compound Specific PCBs and Cd (EPA, 1992b)
Child Child Absorbed Absorbed Dose (Nc) Dose (Car) (mg/kg-day)													Absorbed Dose (mg/kg-day) = CS.LCF.LSA.LAF.LABS.LEF.LED BW.LAT	Variables:	CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Pactor (10-6 kg/mg) SA = Suffece Area Contact (cm) AF = Soil to State Adverse Feator (mg/cm²) ABS = Absorption Factor (mg/cm²)
Analyte	Metals	Antiminy	Barium	Copper	Lead	Mercury	Selenium	Thallium	Zinc	Herbicides	2.4,5-T	MCPP	EQUATION: Ab		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation

Seneca Army Depot Activity

1.00	Child CDI	Child CDI	Dermal RfD	Dermal Slope Factor	Child Hazard Ouotient	Cancer Risk
Analyte	(Nc) (mg/kg-day)	(Car) (mg/kg-day)	(mg/kg-day)	(mg/kg-day)-1	Quotient	Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene	1		NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides		11150 PENGH				
2014 and 2014			5.00E-04	2.40E-01		
4,4'-DDD			NA.	NA		
1,4'-DDE			5.00E-04	3.40E-01		
1,4'-DDT			3.00E-05	1.70E+01		
Aldrin			1.90E-05	2.11E+00		
Aroclor-1254		1.03E-09	NA	8.11E+00		8.38E-09
Aroclor-1260		1.03E-09	5.00E-05	1.60E+01		A CONTRACTOR
Dieldrin			THE PROPERTY OF THE PARTY OF TH	NA NA		
Endosulfan I			6.00E-03	NA NA		
Endosulfan II		1	NA 5 00F 05	NA NA		
Endosulfan sulfate			5.00E-05	F-10-15-15-15		
Endrin			3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin ketone		100	NA	NA		
Heptachlor	. 10		5.00E-04	4.50E+00		
Heptachlor epoxide	100	1	1.30E-05	9.10E+00		
Гохарһепе			NA	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
peta-BHC	and the		NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA		
gamma-Chlordane			NA	NA		
delta-BHC			NA	NA		
Nitroaromatics			T. In Co.			
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			1.00E-02	NA		
Metals	4 4					
200400000	1 F.		4.00E-04	NA		
Antimony			7.00E-03	NA NA		
Barium			2.00E-02	NA NA		
Copper			NA	NA NA		
Lead			4.50E-05	NA NA		
Mercury			3.00E-03	NA NA		
Selenium			7.00E-05	NA NA		
Thallium			1.50E-01	NA NA		
Zinc			1.502-01	11/4		
Herbicides						
2,4,5-T			1.00E-02	NA		
MCPP			1.00E-03	NA		
Totals - HQ & CR						8.38E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSUBE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSUBE (RME) S.E.D.-1. Remedial Investigation Serics Army Depol Activity TABLE 6-16

	(me/ke-day)	Intake (Car) (mg/kg-day)	Soll (mg/kg)	Rate (mg soil/dav)	Factor (kg/mg)	Ingested (unitless)	(days/year)	Duration (vears)	Weight (kg)	Time (davs)	(davs)
			222	es.						Nc	Car
Volatile Organics											
.1.2.2,-Tetrachloroethane	*****	1.93E-10	6.89E-03	001	1.00E-06	-	20	22	28	9.125	25,550
Benzene	01-376-0	1.40E-10	5.00E-03	8 8	1.00E-06	100	202	3 23	2 8	9,125	25,550
Carbon Disulfide	1.57E-10		2.00E-03	100	1.00E-06	-	50	22.2	21	9,125	25,550
Chloroform Methylene Chloride	1.57E-10 2.15F-10	8.39E-11	3.00E-03	8 8	1.00E-06	0.00	2 2	ล ห	2 2	9,125	25.550
Coluene	5.49E-10		7.02E-03	00 1	1.00E-06		50	zi ż	25	9,125	25,550
(viene (total)	3.335-10		4.435-43	90	1.ME-100	-	07	1	2	2.5	00000
Semivolatile Organics											
4-Dinitrotoluene	1.68E-07		2.14E+00	100	1.00E-06	-	20	25	02	9,125	25.550
.6-Dinitrotoluene	1.41E-08		1.80E-01	0 2	1.00E-06		2 5	22 22	5 5	9,125	25,550
				000				1 3			
3-Dichlorobenzidine		0.00E+00	0.00E+00	8 2	1.00E-06		0 5	55 55	5 6	9,125	25,550
Accompliance	1 695.07		2.16F+00	901	1.00F-06		20	25	202	9.125	25.550
Acenaphthylene	100000000000000000000000000000000000000		3.08E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Anthracene	1.57E-07		2.01E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(a)anthracene		2.01E-07	7.20E+00	001	1.00E-06	-	20	52	2 2	9,125	25,550
Benzo(a)pyrene		3.22E-07	1.15E+01	001	1.00E-06		20	6	2 4	9,125	25,550
Benzo(b)fluoranthene		2.75E-07	9.85E+00	8 9	1.00E-06	4.	20	a x	2 2	9,125	25,330
Benzo(g.h.) perylene		1 135 07	4715400	88	1 005 06		9 00	3 %	2 5	9,125	25 55
Denzo(k)Huorimuene		1.32E-0/	1 075-00	2 5	90 300 1		2 6	3 %	2 5	2010	35 550
Chrysne		2.42E-07	8.64E+00	90	1 00E-06		20	25	2 2	9.125	25.550
Di-n-buty lobthalate	5.59E-08	2000000	7.14E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenz(a,h)anthracene		6.58E-08	2.35E+00	100	1.00E-06	-	20	25	2	9,125	25,550
Dibenzofuran			1.62E+00	001	1.00E-06		50	22	28	9,125	25.550
Dethyphthalate	8 87E-07		1 138+01	8 8	1.00E-06		20	35	2 6	9.125	25.550
Fluorene	1.36E-07		1.73E+00	100	1.00E-06		20	123	2	9,125	25,550
ndeno(1,2,3-cd)pyrene		1.55E-07	5.55E+00	100	1.00E-06	-	20	25	20	9,125	25,550
N-Nitronodiphenylamine (1)		1.61E-08	S.77E-01	00 1	1.00E-06		20	52	21	9,125	25,550
Naphthalene	9.05F.08	1215.08	1.16F+00	8.6	1.00E-06		20 20	3 %	2 2	9,125	25.550
henanthrene			7.33E+00	100	1.00E-06	-	50	52	20	9,125	25.550
yrene	9.89E-07	000000000000000000000000000000000000000	1.26E+01	100	1.00E-06	-	20	25	2	9,125	25.55
is(2-Ethylhexyl)phthalate	9.94E-08	3.55E-08	1.27E+00	100	1.00E-06	4	20	2	2	9,125	75,559
esticides											
		200000	1	1000		19	3	8	j		7000
4-DDD	3.43E-10	1.22E-10	4.38E-03	9 9	1.00E-06		2 2	21 22	2 6	9,125	25,550
4,4-DDE	7.71F-10	2.75F-10	9.85F.03	8 8	1 00E-06		2 22	22	2 2	9.125	25.550
Aldrin	0.00E+00	0.00E+00	0.00E+00	90	1.00E-06		50	52	20	9,125	25.55
oclor-1254	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06		20	25	20	9,125	25.550
Aroclor-1260	The state of the s	5.35E-10	1.91E-02	001	1.00E-06	_	20	52	2	9,125	25,55
Dieldrin	3.91E-10	1.40E-10	4.99E-03	001	1.00E-06		20	52	2 5	9,125	25,550
Endosulian I	1.08E-09		4 66E 03	8.8	1.005-06		8 2	36	2 6	0.175	25,550
Endoanifan mifate	1 36E.10		4.79F.03	8 8	1 00F.06		02	35	202	9.125	25.550
Endrin	4 37F-10		\$ 59E-03	001	1.00E-06		20	25	202	9,125	25.550
Endrin aldehyde			2.51E-03	100	1.00E-06	_	20	25	20	9,125	25.550
Endrin ketone	100000000000000000000000000000000000000	A 100 TO	5.58E-03	100	1.00E-06	_	20	25	20	9,125	25,550
leptachlor	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06	_	20	25	20	9,125	25,550
leptachlor epoxide	1.51E-10	5.41E-11	1.94E-03	100	1.00E-06	_	20	22	2	9,125	25,550
Foxaphene	The systems	0.00E+00	0.00E+00	001	1.00E-06		50	22	20	9,125	25,550
Ipha-Chlordane	2.29E-10	8.19E-11	2.93E-03	8 9	1.00E-06	٥.	2 5	9 1	2 5	9,125	055,550
eta-BHC		6.86E-11	2.43E-03	88	1.00E-06		2 6	97	2 6	27.175	75.53
gamma-BHC (Lindane)	0.00E+00		0.00E+00	800	1.00E-06		2 5	9,7	5 6	9,125	76,530
amma-Chlordane			1 97E-03	88	1.00E-06		02	3 %	2 2	9.125	25.550
THE DOLL					200		2				
Vitrouromatics											
			0000000	901	1 OOE OF	2	ş	ř	ě	261.0	122.25
2-amino-4,6-Dinitrotoluene	000000		0.00E+00	8 9	1.00E-06		20 50	0 %	2 2	9.125	25,550
	1000		do bearing								

TABLE 6-16
CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS
SITE WORKER EXPOSURE (CURRENT LAND USE)
REAGONABLE MAXIMUM EXPOSURE (RME)
SEAD-16 Reachal Investigation
Serices A.m.y Depot Activity

or country.	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Th (da	Averaging Time (days)	
Metals							N INNOVA		8	Nc	Car	
	V2000000		The state of the s	2000	PER STREET, ST.	*		- 20		0.000	10000000	-
Antimony	6.19E-10		7.91E-03	100	1.00E-06	-	20	23	20	9,125	25,550	-
Barrium	8.41E-09		1.07E-01	100	1.00E-06	-	20	25	2	9,125	25,550	_
Copper	5.99E-09		7.66E-02	100	1.00E-06	-	20	25	2	9,125	25,550	_
Lead			6.30E-01	100	1.00E-06	-	20	25	20	9,125	25,550	-
Mercury	4.25E-11		\$.43E-04	100	1.00E-06	-	20	25	20	9,125	25,550	_
Selenium	7.20E-11		9.20E-04	100	1.00E-06	-	20	22	20	9,125	25,550	_
Thellism	1.28E-10		1.63E-03	100	1.00E-06	-	20	25	20	9,125	25,550	_
Zinc	8.61E-09		1.10E-01	100	1.00E-06	-	20	22	20	9,125	25,550	_
Herbiddes							j					
7.4 S.T.	0.005+00		0.00E+00	100	1.00E-06	-	20	22	70	9,125	25,550	
MCPP	0.00E+00		0.00E+00	100	1.00E-06	-	20	23	02	9,125	25,550	
EQUATION:	Intake (mg/kg-day) =	-(day) -	CSLIRIC	CS.IR.CF.FILEFLED BW.AT	a					W		
	Variables:					Assumptions.	н					
	CS = Chemical Concent IR = ingestion Rate (m) CF = Conversion Facto FI = Fraction Ingested EF = Exposure Freque ED = Exposure Preque BW = Bodyweight (kg)	CS = Chemical Concentration in Soil (mg soil/kg) R= ingestion Rente (mg oil/day) (TS = Conversion Rente (mg oil/day) R1 = Fraction Ingested (mitless) R2 = Reposure Frequency (days/sers) R3 = Reposure Duration (sear) R3 = Reposure Duration (sear) A1 = Axtendon Time (clava)	in Soil (mg lay) kg/mg) ss) sydycars) rs)	sett/kg)		EPC Soil Data - RME 100 (RME Site Worker 10-6 11 (All Receptors) 20 (RME Site Worker) 22 (RME Site Worker) 70 (Adult male) 23 x 365 (Nc) 70 x 365	EPC Soil Data - RME 100 (RME Site Worker) 10-6 1 (All Receptors) 20 (RME Site Worker) 22 (RME Site Worker) 70 (Adult maile) 23 x 355 (No?) 70 x 355 (Car)	Ē				

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2
SEAD-16 Remedial Investigation
Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane		1.93E-10	NA	2.00E-01		3.85E-11
Acetone	6.32E-10		1.00E-01	NA	6.32E-09	100000000000000000000000000000000000000
Benzene	N-1001 NATIONAL	1.40E-10	NA	2.90E-02		4.05E-12
Carbon Disulfide	1.57E-10		1.00E-01	NA	1.57E-09	
Chloroform	1.57E-10	5.59E-11	1.00E-02	6.10E-03	1.57E-08	3.41E-13
Methylene Chloride	2.35E-10	8.39E-11	6.00E-02	7.50E-03	3.91E-09	6.29E-13
Toluene	5.49E-10		2.00E-01	NA	2.75E-09	
Xylene (total)	3.33E-10		2.00E+00	NA	1.66E-10	
Semivolatile Organics						
2.4-Dinitrotoluene	1.68E-07		2.00E-03	NA	8.39E-05	
2,6-Dinitrotoluene	1.41E-08		1.00E-03	NA	1.41E-05	
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine		0.00E+00	NA	4.50E-01		0.00E+00
3-nitroaniline			NA	NA		
Acenaphthene	1.69E-07		6.00E-02	NA	2.81E-06	
Acenaphthylene	111 02574231534		NA	NA		
Anthracene	1.57E-07		3.00E-01	NA	5.25E-07	
Benzo(a)anthracene		2.01E-07	NA	7.30E-01		1.47E-07
Benzo(a)pyrene		3.22E-07	NA	7.30E+00		2.35E-06
Benzo(b)fluoranthene		2.75E-07	NA	7.30E-01		2.01E-07
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		1.32E-07	NA	7.30E-01		9.61E-08
Carbazole		5.23E-08	NA	2.00E-02		1.05E-09
Chrysene		2.42E-07	NA	7.30E-02		1.76E-08
Di-n-butylphthalate	5.59E-08	- Charlestanolog	1.00E-01	NA	5.59E-07	CAN 682-1923/03/03
Dibenz(a,h)anthracene		6.58E-08	NA	7.30E+00		4.80E-07
Dibenzofuran			NA	NA		
Diethylphthalate	1.49E-09		8.00E+00	NA	1.86E-10	
Fluoranthene	8.82E-07		4.00E-02	NA	2.20E-05	
Fluorene	1.36E-07		4.00E-02	NA	3.39E-06	
Indeno(1,2,3-cd)pyrene	11 500 11 17 17 17 17 17	1.55E-07	NA	7.30E-01		1.13E-07
N-Nitrosodiphenylamine (1)		1.61E-08	NA	4.90E-03		7.90E-11
Naphthalene			NA	NA		overweenth of
Pentachlorophenol	9.05E-08	3.23E-08	3.00E-02	1.20E-01	3.02E-06	3.88E-09
Phenanthrene		1	NA	NA		0.0000000000000000000000000000000000000
Pyrene	9.89E-07		3.00E-02	NA	3.30E-05	
bis(2-Ethylhexyl)phthalate	9.94E-08	3.55E-08	2.00E-02	1.40E-02	4.97E-06	4.97E-10

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CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation

Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T (d	raging ime ays)
								Nc	Car
Volatile Organics									
1,1,2,2-Tetrachloroethane		2.05E-13	2.62E-10	2	50	5	25	1,825	25,550
Acetone		2.032-13	3.07E-10	2	50	5	25	1,825	25,550
Benzene		2.40E-13	3.07E-10	2	50	5	25	1,825	25,550
Carbon Disulfide	2.08E-12	2.102.15	1.90E-10	2	50	5	25	1,825	25,550
Chloroform	2.001.12	5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Methylene Chloride	8.33E-13	5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Toluene	1.25E-12	J.JJL-14	1.14E-10	2	50	5	25	1,825	25,550
Xylene (total)	1.2315-12		2.67E-10	2	50	5	25	1,825	25,550
Aylelle (total)			2.07E-10		30	9	23	1,023	23,330
Semivolatile Organics					_				
2,4-Dinitrotoluene			8.15E-08	2	50	5	25	1,825	25,550
2,6-Dinitrotoluene			6.84E-09	2	50	5	25	1,825	25,550
2-Methylnaphthalene			4.67E-08	2	50	5	25	1,825	25,550
3,3'-Dichlorobenzidine			0.00E+00	2	50	5	25	1,825	25,550
3-nitroaniline			0.00E+00	2	50	5	25	1,825	25,550
Acenaphthene			ERR	2	50	5	25	1,825	25,550
Acenaphthylene			8.19E-08	2	50	5	25	1,825	25,550
Anthracene			1.17E-08	2	50	5	25	1,825	25,550
Benzo(a)anthracene			7.64E-08	2	50	5	25	1,825	25,550
Benzo(a)pyrene			2.73E-07	2	50	5	25	1,825	25,550
Benzo(b)fluoranthene			4.38E-07	2	50	5	25	1,825	25,550
Benzo(g,h,i)perylene			3.74E-07	2	50	5	25	1,825	25,550
Benzo(k)fluoranthene			2.24E-07	2	50	5	25	1,825	25,550
Carbazole			7.10E-08	2	50	5	25	1,825	25,550
Chrysene			3.28E-07	2	50	5	25	1,825	25,550
Di-n-butylphthalate			2.71E-08	2	50	5	25	1,825	25,550
Dibenz(a,h)anthracene			8.94E-08	2	50	5	25	1,825	25,550
Dibenzofuran			ERR	2	50	5	25	1,825	25,550
Diethylphthalate			6.15E-08	2	50	5	25	1,825	25,550
Fluoranthene			7.22E-10	2	50	5	25	1,825	25,550
Fluorene			4.28E-07	2	50	5	25	1,825	25,550
Indeno(1,2,3-cd)pyrene			6.58E-08	2	50	5	25	1,825	25,550
N-Nitrosodiphenylamine (1)			2.11E-07	2	50	5	25	1,825	25,550
Naphthalene			2.19E-08	2	50	5	25	1,825	25,550
Pentachlorophenol			7.42E-08	2	50	5	25	1,825	25,550
Phenanthrene			4.39E-08	2	50	5	25	1,825	25,550
Pyrene			2.78E-07	2	50	5	25	1,825	25,550
pis(2-Ethylhexyl)phthalate			4.80E-07	2	50	5	25	1,825	25,550

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)		
	(mg/kg-day) (mg/kg	(mg/kg-uay)	(mgm)	(iii /day)				Nc	Car	
Pesticides										
			1 cm 10		50	5	25	1,825	25,550	
1,4'-DDD			1.66E-10	2		5	25	1,825	25,550	
1,4'-DDE			7.02E-10	2	50				11 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
1,4'-DDT		2.93E-13	3.74E-10	2	50	5	25	1,825	25,550	
Aldrin	0.00E+00	0.00E+00	0.00E+00	2	50	5	25	1,825	25,550	
Aroclor-1254		0.00E+00	0.00E+00	2	50	5	25	1,825	25,550	
Aroclor-1260		0.002	7.27E-10	2	50	5	25	1,825	25,550	
		1.49E-13	1.90E-10	2	50	5	25	1,825	25,550	
Dieldrin		1.496-13	5.24E-10	2	50	5	25	1,825	25,550	
Endosulfan I					50	5	25	1,825	25,550	
Endosulfan II			1.73E-10	2	15000	5	25	1,825	25,550	
Endosulfan sulfate			1.63E-10	2	50				1,500,000,000	
Endrin			2.12E-10	2	50	5	25	1,825	25,550	
Endrin aldehyde			9.56E-11	2	50	5	25	1,825	25,550	
Endrin ketone			2.12E-10	2	50	5	25	1,825	25,550	
Heptachlor		0.00E+00	0.00E+00	2	50	5	25	1,825	25,550	
		5.76E-14	7.35E-11	2	50	5	25	1,825	25,550	
Heptachlor epoxide		0.00E+00	0.00E+00	2	50	5	25	1,825	25,550	
Toxaphene		0.002700		2	50	5	25	1,825	25,550	
alpha-Chlordane			1.11E-10		1910/00	5	25	1,825	25,550	
beta-BHC		7.30E-14	9.32E-11	2	50				25,550	
gamma-BHC (Lindane)			0.00E+00	2	50	5	25	1,825		
gamma-Chlordane			1.21E-10	2	50	5	25	1,825	25,550	
Nitroaromatics										
2-amino-4,6-Dinitrotoluene			0.00E+00	2	50	5	25	1,825	25,550	
Tetryl			0.00E+00	2	50	5	25	1,825	25,550	
Metals	1 1						- 5	I Hall a se		
A material const			3.00E-10	2	50	5	25	1,825	25,550	
Antimony	1.58E-07		1.44E-05	2	50	5	25	1,825	25,550	
Barium	1.58E-07		3.42E-04	2	50	5	25	1,825	25,550	
Copper					50	5	25	1,825	25,550	
Lead	1878 1872 1875 1875		1.31E-05	2	17.0	5	25	1,825	25,550	
Mercury	4.04E-06		3.69E-04	2	50					
Selenium			4.62E-06	2	50	5	25	1,825	25,550	
Thallium			6.19E-11	2	50	5	25	1,825	25,550	
Zinc			4.18E-09	2	50	5	25	1,825	25,550	
			ALEMENT STORY							
Herbicides					Several Control				25.555	
2,4,5-T			0.00E+00	2	50	5	25	1,825	25,550	
МСРР			0.00E+00	2	50	5	25	1,825	25,550	
EQUATION:	Intake (mg/kg	;-day) =	CA x IR x E BW x AT							
	Variables:					Assumptions:				
	CA = Chemical Concentration in Air (mg/m³) IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr) ED = Exposure Duration (years) BW = Bodyweight (kg)					Calculated Air EPC Data - RME 2 (RME Child) 50 5 (RME) 25 (Child)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		2.05E-13	NA	2.03E-01		4.16E-14
Acetone			NA	NA		
Benzene		2.40E-13	NA	2.91E-02		6.98E-15
Carbon Disulfide	2.08E-12	ACCES ACCESSAGED.	2.86E-03	NA	7.29E-10	
Chloroform	1 200040040040040	5.95E-14	NA	8.05E-02	12-19-5-98-1-9-5	4.79E-15
Methylene Chloride	8.33E-13	5.95E-14	8.57E-01	1.65E-03	9.72E-13	9.82E-17
Toluene	1.25E-12		1.14E-01	NA	1.09E-11	J.OLD 17
Xylene (total)			NA	NA	1.022 11	
Semivolatile Organics						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		
3-nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA NA		
Benzo(b)fluoranthene	1 1		NA	NA NA		
Benzo(g,h,i)perylene			NA	NA NA		
Benzo(k)fluoranthene			NA	NA NA		
Carbazole			NA	NA NA		
Chrysene			NA.	NA NA		
Di-n-butylphthalate	1		NA NA	NA NA		
Dibenz(a,h)anthracene			NA NA	NA NA		
Dibenzofuran			NA	NA NA		
Diethylphthalate			NA	NA NA		
Fluoranthene			NA NA	NA NA		
Fluorene			NA NA	NA NA		
Indeno(1,2,3-cd)pyrene			NA NA	NA NA		
N-Nitrosodiphenylamine (1)			NA	NA NA		
Naphthalene			NA NA	NA NA		
Pentachlorophenol			NA NA	NA NA		
Phenanthrene			NA NA	NA NA		
Pyrene			NA NA	NA NA		
pis(2-Ethylhexyl)phthalate			NA NA	NA NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4,4'-DDD		1000	NA	NA		
4,4'-DDE	100		NA	NA		
		2.93E-13	NA	3.40E-01		9.95E-14
4,4'-DDT	0.00E+00	0.00E+00	1.70E+01	1.72E+01	0.00E+00	0.00E+00
Aldrin	0.002.00	0.00E+00	NA	4.00E-01		0.00E+00
Aroclor-1254	make to	0.00E100	NA.	NA		- Silenken
Aroclor-1260		1.49E-13	NA NA	1.61E+01		2.39E-12
Dieldrin		1.496-13	NA NA	NA NA		
Endosulfan I			NA NA	NA NA		
Endosulfan II			NA NA	NA NA		
Endosulfan sulfate			NA NA	NA NA		
Endrin			NA NA	NA NA		
Endrin aldehyde			(55,4.210)	NA NA		
Endrin ketone			NA	4.55E+00		0.00E+00
Heptachlor		0.00E+00	NA	7.5 T. D. S. S. W. T. S. S. S. S.		5.24E-13
Heptachlor epoxide		5.76E-14	NA	9.10E+00		0.00E+00
Toxaphene		0.00E+00	NA	1.12E+00		0.00E+00
alpha-Chlordane		2010-0210-030	NA	NA		1 265 12
beta-BHC		7.30E-14	NA	1.86E+00		1.35E-13
gamma-BHC (Lindane)			NA	NA		
gamma-Chlordane			NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	34 34 11		NA	NA		
Metals						
Los			NA	NA NA		
Antimony	1 500 05		1.43E-04	NA NA	1.10E-03	
Barium	1.58E-07		1.43E-04 NA	NA NA	1.102-03	
Copper			(5/4/6)	NA NA		
Lead	1047005		NA 9.57F.05	NA NA	4.72E-02	7
Mercury	4.04E-06		8.57E-05	6.000	4.72E-02	
Selenium			NA	NA NA		
Thallium			NA	NA NA		
Zinc			NA	NA		
Herbicides						
2,4,5-T			NA	NA		
MCPP			NA	NA		
Total HQ & CR					4.83E-02	3.20E-12

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration

Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-16 Remedial Investigation Seneca Army Depot Activity

	SURFACE SOIL	AVERAGE	CONVERSION	AMBIENT AIR	MEASURED	AMBIENT AIR	
COMPOUND	EPC Data mg/kg	TSP (ug/m³)	FACTOR (kg/ug)	CALCULATED EPC (mg/m³)	AIR SAMPLES (mg/m³)	EPC (mg/m³)	
Volatile Organics							
1,1,2,2-Tetrachloroethane	6.89E-03	3.80E+01	1.00E-09	2.62E-10	- 1	2.62E-10	
Acetone	8.08E-03	3,80E+01	1.00E-09	3.07E-10		3.07E-10	
Benzene	5.00E-03	3.80E+01	1.00E-09	3.07E-10		3.07E-10	
Carbon Disulfide	2.00E-03	3.80E+01	1.00E-09	1.90E-10		1.90E-10	
Chloroform	2.00E-03	3.80E+01	1.00E-09	7.60E-11		7.60E-11	
Methylene Chloride	3.00E-03	3.80E+01	1.00E-09	7.60E-11		7.60E-11	
Toluene	7.02E-03	3.80E+01	1.00E-09	1.14E-10		1.14E-10	
Xylene (total)	4.25E-03	3.80E+01	1.00E-09	2.67E-10		2.67E-10	
Semivolatile Organics	4.00			-			
2,4-Dinitrotoluene	2.14E+00	3.80E+01	1.00E-09	8.15E-08		8.15E-08	
2,6-Dinitrotoluene	1.80E-01	3.80E+01	1.00E-09	6.84E-09		6.84E-09	
2-Methylnaphthalene	1.23E+00	3.80E+01	1.00E-09	4.67E-08	7.84E-05 U	4.67E-08	
3,3'-Dichlorobenzidine		3.80E+01	1.00E-09	0.00E+00		0.00E+00	
3-nitroaniline		3.80E+01	1.00E-09	0.00E+00	1	0.00E+00	
Acenaphthene	2.16E+00	3.80E+01	1.00E-09	ERR	7.84E-05 U	ERR	
Acenaphthylene	3.08E-01	3.80E+01	1.00E-09	8.19E-08		8.19E-08	
Anthracene	2.01E+00	3.80E+01	1.00E-09	1.17E-08	7.84E-05 U	1.17E-08	
Benzo(a)anthracene	7.20E+00	3.80E+01	1.00E-09	7.64E-08	Colorado Col	7.64E-08	
Benzo(a)pyrene	1.15E+01	3.80E+01	1.00E-09	2.73E-07		2.73E-07	
Benzo(b)fluoranthene	9.85E+00	3.80E+01	1.00E-09	4.38E-07	1	4.38E-07	
Benzo(g,h,i)perylene	5.89E+00	3.80E+01	1.00E-09	3.74E-07		3.74E-07	
Benzo(k)fluoranthene	4.71E+00	3.80E+01	1.00E-09	2.24E-07		2.24E-07	
Carbazole	1.87E+00	3.80E+01	1.00E-09	7.10E-08		7.10E-08	
Chrysene	8.64E+00	3.80E+01	1.00E-09	3.28E-07	The state of the s	3.28E-07	
Di-n-butylphthalate	7.14E-01	3.80E+01	1.00E-09	2.71E-08	7.84E-05 U	2.71E-08	
Dibenz(a,h)anthracene	2.35E+00	3.80E+01	1.00E-09	8.94E-08	200000000000000000000000000000000000000	8.94E-08	
Dibenzofuran	1.62E+00	3.80E+01	1.00E-09	ERR	7.84E-05 U	ERR	
Diethylphthalate	1.90E-02	3.80E+01	1.00E-09	6.15E-08	7.84E-05 U	6.15E-08	
Fluoranthene	1.13E+01	3.80E+01	1.00E-09	7.22E-10		7.22E-10	
Fluorene	1.73E+00	3.80E+01	1.00E-09	4.28E-07	7.84E-05 U	4.28E-07	
Indeno(1,2,3-cd)pyrene	5.55E+00	3.80E+01	1.00E-09	6.58E-08	100 miles 100 mi	6.58E-08	
N-Nitrosodiphenylamine (1)	5.77E-01	3.80E+01	1.00E-09	2.11E-07	1	2.11E-07	
Naphthalene	1.95E+00	3.80E+01	1.00E-09	2.19E-08		2.19E-08	
Pentachlorophenol	1.16E+00	3.80E+01	1.00E-09	7.42E-08	1	7.42E-08	
Phenanthrene	7.33E+00	3.80E+01	1.00E-09	4.39E-08	7.84E-05 U	4.39E-08	
Pyrene	1.26E+01	3.80E+01	1.00E-09	2.78E-07	AND STATE OF THE PARTY OF THE P	2.78E-07	
bis(2-Ethylhexyl)phthalate	1.27E+00	3.80E+01	1.00E-09	4.80E-07	7.84E-05 U	4.80E-07	

TABLE 6-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation

Seneca Army Depot Activity

COMPOUND	SURFACE SOIL EPC Data	AVERAGE TSP	CONVERSION FACTOR	AMBIENT AIR CALCULATED EPC	MEASURED AIR SAMPLES	AMBIENT AIR EPC (mg/m³)			
	mg/kg	(ug/m³)	(kg/ug)	(mg/m³)	(mg/m³)	(mg/m·)			
esticides									
# PPP	4.38E-03	3.80E+01	1.00E-09	1.66E-10	10000	1.66E-10			
,4'-DDD		3.80E+01	1.00E-09	7.02E-10		7.02E-10			
,4'-DDE	1.85E-02	3.80E+01	1.00E-09	3.74E-10		3.74E-10			
,4'-DDT	9.85E-03		1.00E-09	0.00E+00		0.00E+00			
Aldrin		3.80E+01	5.74.16.775.183.153	0.00E+00		0.00E+00			
Aroclor-1254		3.80E+01	1.00E-09	7.27E-10		7.27E-10			
Aroclor-1260	1.91E-02	3.80E+01	1.00E-09	APPROPRINTS SAVE		1.90E-10			
Dieldrin	4.99E-03	3.80E+01	1.00E-09	1.90E-10	0.750	5.24E-10			
Endosulfan I	1.38E-02	3.80E+01	1.00E-09	5.24E-10		1.73E-10			
Endosulfan II	4.55E-03	3.80E+01	1.00E-09	1.73E-10					
Endosulfan sulfate	4.29E-03	3.80E+01	1.00E-09	1.63E-10		1.63E-10			
Endrin	5.59E-03	3.80E+01	1.00E-09	2.12E-10		2.12E-10			
Endrin aldehyde	2.51E-03	3.80E+01	1.00E-09	9.56E-11		9.56E-11			
Endrin ketone	5.58E-03	3.80E+01	1.00E-09	2.12E-10		2.12E-10			
Heptachlor	0.000	3.80E+01	1.00E-09	0.00E+00		0.00E+00			
	1.94E-03	3.80E+01	1.00E-09	7.35E-11		7.35E-11			
Heptachlor epoxide	1.041-00	3.80E+01	1.00E-09	0.00E+00		0.00E+00			
Гохарhene	2.93E-03	3.80E+01	1.00E-09	1.11E-10		1.11E-10			
alpha-Chlordane	2.45E-03	3.80E+01	1.00E-09	9.32E-11		9.32E-11			
beta-BHC	2.45E-03		1.00E-09	0.00E+00		0.00E+00			
gamma-BHC (Lindane)	0.475.00	3.80E+01	1.00E-09	1.21E-10		1.21E-10			
gamma-Chlordane	3.17E-03	3.80E+01	1.00E-09	1.215-10		18.8m 6 m (C.T.)			
Nitroaromatics	1 300		1757						
		3.80E+01	1.00E-09	0.00E+00		0.00E+00			
2-amino-4,6-Dinitrotoluene		3.80E+01	1.00E-09	0.00E+00		0.00E+00			
Γetryl		3,802.101	1.002-07	0.002					
Metals									
		2 005 01	1.00E-09	3.00E-10	9.80E-06 U	3.00E-10			
Antimony	7.91E-03	3.80E+01	FCS5012207444	4.08E-09	1.44E-05	1.44E-05			
Barium	1.07E-01	3.80E+01	1.00E-09	2.91E-09	3.42E-04	3.42E-04			
Copper	7.66E-02	3.80E+01	1.00E-09		1.31E-05	1.31E-05			
Lead	6.30E-01	3.80E+01	1.00E-09	2.39E-08	01000000000000000000000000000000000000	3.69E-04			
Mercury	5.43E-04	3.80E+01	1.00E-09	2.06E-11	3.69E-04	4.62E-06			
Selenium	9.20E-04	3.80E+01	1.00E-09	3.50E-11	4.62E-06				
Thallium	1.63E-03	3.80E+01	1.00E-09	6.19E-11	6.50E-06 U	6.19E-11			
Zinc	1.10E-01	3.80E+01	1.00E-09	4.18E-09	6.52E-05 U	4.18E-09			
Herbicides	11000	100	HARLE .						
		2 007 0	1.000.00	0.00E+00		0.00E+00			
2,4,5-T		3.80E+01	1.00E-09	University Control		0.00E+00			
MCPP		3.80E+01	1.00E-09	0.00E+00		0.0015			
EQUATION:	Calculated Air EPC	(mg/m3) = Soil l	EPC x TSP x CF						
	Variables:		Assumptions:						
	TSP = Total Suspend		Average value - 38 ug/m3 10-9 kg/ug						
	U = Compound was								

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T (d	raging ime ays)
Volatile Organics							750.00	Nc	Car
· omine organics									
1,1,2,2-Tetrachloroethane		1.46E-12	2.62E-10	20	20	25	70	9,125	25,550
Acetone			3.07E-10	20	20	25	70	9,125	25,550
Benzene		1.72E-12	3.07E-10	20	20	25	70	9,125	25,550
Carbon Disulfide	2.97E-12		1.90E-10	20	20	25	70	9,125	25,550
Chloroform		4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Methylene Chloride	1.19E-12	4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Toluene	1.78E-12	NEXCESCION.	1.14E-10	20	20	25	70	9,125	25,550
Xylene (total)			2.67E-10	20	20	25	70	9,125	25,550
Semivolatile Organics								- Mass	
2,4-Dinitrotoluene			8.15E-08	20	20	25	70	9.125	25,550
2,6-Dinitrotoluene			6.84E-09	20	20	25	70	9,125	
2-Methylnaphthalene			4.67E-08	20	20	25	70		25,550
3,3'-Dichlorobenzidine			0.00E+00	20	20	25	70	9,125	25,550
3-nitroaniline	1		0.00E+00	20	20	25	70	9,125	25,550
Acenaphthene			ERR	20	20	25	70	9,125	25,550
Acenaphthylene			8.19E-08	20	20			9,125	25,550
Anthracene			1.17E-08	20	20	25	70	9,125	25,550
Benzo(a)anthracene			7.64E-08	20		25	70	9,125	25,550
Benzo(a)pyrene	1 1		2.73E-07	20	20 20	25	70	9,125	25,550
Benzo(b)fluoranthene	1 1	1	4.38E-07	20		25	70	9,125	25,550
Benzo(g,h,i)perylene	1 1		3.74E-07	20	20	25	70	9,125	25,550
Benzo(k)fluoranthene	1	9		20	20	25	70	9,125	25,550
Carbazole		- 1	2.24E-07		20	25	70	9,125	25,550
Chrysene			7.10E-08	20	20	25	70	9,125	25,550
Di-n-butylphthalate		- 4	3.28E-07	20	20	25	70	9,125	25,550
Di-n-outyiphthalate Dibenz(a,h)anthracene			2.71E-08	20	20	25	70	9,125	25,550
Dibenz(a,n)anthracene Dibenzofuran		1	8.94E-08	20	20	25	70	9,125	25,550
Diethylphthalate			ERR	20	20	25	70	9,125	25,550
Fluoranthene			6.15E-08	20	20	25	70	9,125	25,550
Fluorantnene Fluorene			7.22E-10	20	20	25	70	9,125	25,550
			4.28E-07	20	20	25	70	9,125	25,550
ndeno(1,2,3-cd)pyrene			6.58E-08	20	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			2.11E-07	20	20	25	70	9,125	25,550
Naphthalene			2.19E-08	20	20	25	70	9,125	25,550
Pentachlorophenol			7.42E-08	20	20	25	70	9,125	25,550
Phenanthrene			4.39E-08	20	20	25	70	9,125	25,550
Pyrene			2.78E-07	20	20	25	70	9,125	25,550
ois(2-Ethylhexyl)phthalate	1		4.80E-07	20	20	25	70	9,125	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime lays)
	(mg/kg day)	(mg ng any)	()	(,,,,,,	Nc	Car
'esticides								a Harman	
4' DDD			1.66E-10	20	20	25	70	9,125	25,550
,4'-DDD			7.02E-10	20	20	25	70	9,125	25,550
,4'-DDE		2.09E-12	3.74E-10	20	20	25	70	9,125	25,550
,4'-DDT	0.005.00	57.0.579.0770.0700		20	20	25	70	9,125	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	5232	55.50	125.353			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Aroclor-1254		0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
Aroclor-1260			7.27E-10	20	20	25	70	9,125	25,550
Dieldrin	73	1.06E-12	1.90E-10	20	20	25	70	9,125	25,550
Indosulfan I	10.0		5.24E-10	20	20	25	70	9,125	25,550
indosulfan II			1.73E-10	20	20	25	70	9,125	25,550
Endosulfan sulfate			1.63E-10	20	20	25	70	9,125	25,550
Endrin			2.12E-10	20	20	25	70	9,125	25,550
Endrin aldehyde			9.56E-11	20	20	25	70	9,125	25,550
Endrin ketone			2.12E-10	20	20	25	70	9,125	25,550
		0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
Heptachlor		4.11E-13	7.35E-11	20	20	25	70	9,125	25,550
Heptachlor epoxide					20	25	70	9,125	25,550
Toxaphene		0.00E+00	0.00E+00	20	27576	130/01/	0.3600		25,550
lpha-Chlordane			1.11E-10	20	20	25	70	9,125	
eta-BHC		5.21E-13	9.32E-11	20	20	25	70	9,125	25,550
gamma-BHC (Lindane)			0.00E+00	20	20	25	70	9,125	25,550
amma-Chlordane			1.21E-10	20	20	25	70	9,125	25,550
litroaromatics	1.3			1210	- 1		200		
2-amino-4,6-Dinitrotoluene			0.00E+00	20	20	25	70	9,125	25,550
Tetryl			0.00E+00	20	20	25	70	9,125	25,550
cuyi			0.002.00	20			1000		977881705
Metals	10.3			THE P					
Antimony			3.00E-10	20	20	25	70	9,125	25,550
Barium	2.25E-07		1.44E-05	20	20	25	70	9,125	25,550
	2.2315-07		3.42E-04	20	20	25	70	9,125	25,550
Copper			1.31E-05	20	20	25	70	9,125	25,550
ead	5 705 06				20	25	70	9,125	25,550
Mercury	5.78E-06		3.69E-04	20			1 2 2 2 2 2		USS 47 TO RESERVE
Selenium			4.62E-06	20	20	25	70	9,125	25,550
Thallium			6.19E-11	20	20	25	70	9,125	25,550
Zinc			4.18E-09	20	20	25	70	9,125	25,550
Ierbicides				954					
4.5.77			0.00E+00	20	20	25	70	9,125	25,550
,4,5-T			0.00E+00 0.00E+00	20	20	25	70	9,125	25,550
ИСРР			U.UUETUU	20	20	23	,,,	7,123	25,550
EQUATION:	Intake (mg/kg	-day) =	CA x IR x EI BW x AT						
	Variables:					Assumptions:			
	G1 G1 1					Calculated 4:-	EPC Data P	ME	
		al Concentratio		m-)		Calculated Air		IVIE	
		n Rate (m³/day	The Davidson			20 (RME All R			
		re Frequency (o				20 (RME Site V			
	ED = Exposur	e Duration (yes	ars)			25 (RME Site V			
	BW = Bodywe	eight (kg)				70 (Adult Male			
	AT = Averagi	ng Time (days)				25 x 365 (Nc), '	70 x 365 (Car)		

BW = Bodyweight (kg)

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation

Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		1.46E-12	NA	2.03E-01		2.97E-13
Acetone		000000000000000000000000000000000000000	NA	NA		
Benzene		1.72E-12	NA	2.91E-02		4.99E-14
Carbon Disulfide	2.97E-12	22.000.00000000000000000000000000000000	2.86E-03	NA	1.04E-09	
Chloroform		4.25E-13	NA	8.05E-02		3.42E-14
Methylene Chloride	1.19E-12	4.25E-13	8.57E-01	1.65E-03	1.39E-12	7.01E-16
Toluene	1.78E-12		1.14E-01	NA	1.56E-11	17
Xylene (total)			NA	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			NA	NA		
2.6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3.3'-Dichlorobenzidine			NA	NA		
3-nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene	_		NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate		1	NA	NA		1
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Diethylphthalate			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		1
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		1
Pyrene			NA	NA		
bis(2-Ethylhexyl)phthalate	1		NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides					- 10-sh	
A AL DOD	100	100	NA	NA		
4,4'-DDD	100		NA	NA		
4,4'-DDE		2.09E-12	NA	3.40E-01		7.11E-13
4,4'-DDT	0.00E+00	0.00E+00	1.70E+01	1.72E+01	0.00E+00	0.00E+00
Aldrin	0.00E+00	0.00E+00	NA	4.00E-01		0.00E+00
Aroclor-1254		0.00E100	NA.	NA		W-990-0-40-0-778-70-0
Aroclor-1260		1.06E-12	NA.	1.61E+01		1.71E-11
Dieldrin		1.00E-12	NA NA	NA NA		111.400
Endosulfan I			NA.	NA NA		
Endosulfan II			NA NA	NA NA		
Endosulfan sulfate			NA NA	NA NA		
Endrin			NA NA	NA NA		
Endrin aldehyde			NA NA	NA NA		
Endrin ketone		0.007.00	NA NA	4.55E+00		0.00E+00
Heptachlor		0.00E+00	(2-25)7)	9.10E+00		3.74E-12
Heptachlor epoxide		4.11E-13	NA			0.00E+00
Toxaphene	79	0.00E+00	NA	1.12E+00		0.00E+00
alpha-Chlordane		VIII BANDARY	NA	NA		9.67E-13
beta-BHC	100.00	5.21E-13	NA	1.86E+00		9.0/E-13
gamma-BHC (Lindane)			NA	NA		
gamma-Chlordane	100		NA	NA		
Nitroaromatics						
				NA		
2-amino-4,6-Dinitrotoluene			NA	NA NA		1
Tetryl			NA	NA		
Metals						
			NA	NA		
Antimony	2.255.05		1.43E-04	NA NA	1.58E-03	
Barium	2.25E-07		1.43E-04 NA	NA NA	1,301-03	
Copper			2000.0	NA NA		
Lead			NA 9 57E 05	NA NA	6.74E-02	
Mercury	5.78E-06		8.57E-05	NA NA	0.74E-02	
Selenium			NA	(500000000		
Thallium			NA	NA NA		
Zinc			NA	NA		
Herbicides	4.1					
2,4,5-T			NA	NA		
МСРР			NA	NA		
Total HQ & CR					6.90E-02	2.29E-11

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T (d	raging ime ays)
								Nc	Car
Volatile Organics									
.1.2.2-Tetrachloroethane		7.32E-13	2.62E-10	20	250	1	70	365	25,550
Acetone		Material	3.07E-10	20	250	1	70	365	25,550
Benzene	1	8.58E-13	3.07E-10	20	250	1	70	365	25,550
Carbon Disulfide	3.72E-11		1.90E-10	20	250	1	70	365	25,550
Chloroform		2.12E-13	7.60E-11	20	250	1	70	365	25,550
Methylene Chloride	1.49E-11	2.12E-13	7.60E-11	20	250	i	70	365	25,550
Foluene	2.23E-11	2.12.2	1.14E-10	20	250	1	70	365	25,550
Kylene (total)	2.2.76-11		2.67E-10	20	250	i	70	365	25,550
Aylene (total)			2.07L-10	20	250		,,,	303	25,550
Semivolatile Organics									
2,4-Dinitrotoluene			8.15E-08	20	250	1	70	365	25,550
2,6-Dinitrotoluene			6.84E-09	20	250	1	70	365	25,550
2-Methylnaphthalene			4.67E-08	20	250	1	70	365	25,550
3,3'-Dichlorobenzidine			0.00E+00	20	250	1	70	365	25,550
3-nitroaniline			0.00E+00	20	250	1	70	365	25,550
Acenaphthene			ERR	20	250	1	70	365	25,550
Acenaphthylene			8.19E-08	20	250	1	70	365	25,550
Anthracene	1		1.17E-08	20	250	1	70	365	25,550
Benzo(a)anthracene			7.64E-08	20	250	1	70	365	25,550
Benzo(a)pyrene			2.73E-07	20	250	1	70	365	25,550
Benzo(b)fluoranthene			4.38E-07	20	250	1	70	365	25,550
Benzo(g,h,i)perylene	1		3.74E-07	20	250	1	70	365	25,550
Benzo(k)fluoranthene			2.24E-07	20	250	i l	70	365	25,550
Carbazole			7.10E-08	20	250	ì	70	365	25,550
Chrysene			3.28E-07	20	250	i	70	365	25,550
Di-n-butylphthalate			2.71E-08	20	250	i	70	365	25,550
Dibenz(a,h)anthracene			8.94E-08	20	250	î	70	365	25,550
Dibenzofuran	1		ERR	20	250	i	70	365	25,550
Diethylphthalate			6.15E-08	20	250	î	70	365	25,550
Fluoranthene			7.22E-10	20	250	î	70	365	25,550
Fluorene			4.28E-07	20	250	i	70	365	25,550
Indeno(1,2,3-cd)pyrene			6.58E-08	20	250	i	70	365	25,550
N-Nitrosodiphenylamine (1)			2.11E-07	20	250	î	70	365	25,550
Naphthalene			2.11E-07 2.19E-08	20	250	î	70	365	25,550
Pentachlorophenol			7.42E-08	20	250	î	70	365	25,550
Phenanthrene			4.39E-08	20	250	i	70	365	25,550
Pyrene			2.78E-07	20	250	i	70	365	25,550
ois(2-Ethylhexyl)phthalate			4.80E-07	20	250	1	70	365	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	1	raging `ime lays)
	(667)	77	300000000000000000000000000000000000000	***************************************		AMOUNTS OVER		Nc	Car
Pesticides									
1,4'-DDD			1.66E-10	20	250	1	70	365	25,550
4,4'-DDE		34	7.02E-10	20	250	1	70	365	25,550
4,4'-DDT		1.05E-12	3.74E-10	20	250	1	70	365	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	20	250	i	70	365	25,550
Aroclor-1254	0.002100	0.00E+00	0.00E+00	20	250	ì	70	365	25,550
Aroclor-1254 Aroclor-1260		0.002100	7.27E-10	20	250	î	70	365	25,550
		5.30E-13	1.90E-10	20	250	i	70	365	25,550
Dieldrin		3.30E-13	5.24E-10	20	250	i	70	365	25,550
Endosulfan I				20	250	i	70	365	25,550
Endosulfan II			1.73E-10		250	i	70	365	25,550
Endosulfan sulfate			1.63E-10	20	100000	1 1	70		25,550
Endrin		100	2.12E-10	20	250	1 2 1	100000000000000000000000000000000000000	365	
Endrin aldehyde			9.56E-11	20	250	1	70	365	25,550
Endrin ketone			2.12E-10	20	250	1	70	365	25,550
Heptachlor		0.00E+00	0.00E+00	20	250	1	70	365	25,550
Heptachlor epoxide		2.06E-13	7.35E-11	20	250	1	70	365	25,550
Гохарhene		0.00E+00	0.00E+00	20	250	1	70	365	25,550
alpha-Chlordane			1.11E-10	20	250	1	70	365	25,550
eta-BHC		2.61E-13	9.32E-11	20	250	1	70	365	25,550
gamma-BHC (Lindane)		73-7736-000-00	0.00E+00	20	250	1	70	365	25,550
gamma-Chlordane			1.21E-10	20	250	1	70	365	25,550
Nitroaromatics				44.1					
2-amino-4,6-Dinitrotoluene			0.00E+00	20 .	250	1	70	365	25,550
Tetryl			0.00E+00	20	250	1	70	365	25,550
Metals							100		
Antimony			3.00E-10	20	250	1	70	365	25,550
Barium	2.82E-06		1.44E-05	20	250	1	70	365	25,550
Copper	2.022	1.19	3.42E-04	20	250	1	70	365	25,550
Lead		441	1.31E-05	20	250	1	70	365	25,550
Mercury	7.22E-05		3.69E-04	20	250	i	70	365	25,550
	7.22E-03		4.62E-06	20	250	i i	70	365	25,550
Selenium				20	250	î	70	365	25,550
Thallium Zinc			6.19E-11 4.18E-09	20	250	1	70	365	25,550
				2213	420000	32	2000		1
Herbicides				592	5000 200		200	02/02/7	794701400
2,4,5-T			0.00E+00	20	250	1	70	365	25,550
МСРР			0.00E+00	20	250	1.	70	365	25,550
EQUATION:	Intake (mg/kg	-day) =	CA x IR x EI BW x AT						
	Variables:					Assumptions:			
	IR = Inhalatio EF = Exposur	nl Concentration n Rate (m³/day re Frequency (c e Duration (yea ight (kg)) lays/yr)	n³)		Calculated Air 20 (all receptor 250 (RME Con 1 (Upper bound 70 (Adult Male	s) struction Wor d period of Co	kers)	orker)

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		7.32E-13	NA	2.03E-01		1.49E-13
Acetone		0.0000000000000000000000000000000000000	NA	NA		
Benzene		8.58E-13	NA	2.91E-02		2.49E-14
Carbon Disulfide	3.72E-11		2.86E-03	NA	1.30E-08	
Chloroform		2.12E-13	NA	8.05E-02		1.71E-14
Methylene Chloride	1.49E-11	2.12E-13	8.57E-01	1.65E-03	1.74E-11	3.51E-16
Toluene	2.23E-11		1.14E-01	NA	1.95E-10	
Xylene (total)	OAKSPAN SA		NA	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		
3-nitroaniline			NA	NA		
Acenaphthene		1	NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Diethylphthalate			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		
bis(2-Ethylhexyl)phthalate		1	NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides					1 - 7	
4,4'-DDD			NA	NA NA		
4,4'-DDE			NA	NA		
		1.05E-12	NA	3.40E-01		3.55E-13
4,4'-DDT	0.00E+00	0.00E+00	1.70E+01	1.72E+01	0.00E+00	0.00E+00
Aldrin Aroclor-1254	0.002100	0.00E+00	NA	4.00E-01		0.00E+00
		0.002100	NA NA	NA NA		0.5480.630.634
Aroclor-1260		5.30E-13	NA NA	1.61E+01		8.54E-12
Dieldrin		3.30E-13	NA NA	NA NA		0.5 15 15
Endosulfan I			NA NA	NA NA		
Endosulfan II			NA NA	NA NA		
Endosulfan sulfate			10000000	NA NA		
Endrin			NA	NA NA		
Endrin aldehyde			NA	1,0,000		
Endrin ketone		22.00	NA	NA .		0.00E+00
Heptachlor		0.00E+00	NA	4.55E+00		T 100 A
Heptachlor epoxide		2.06E-13	NA	9.10E+00		1.87E-12
Toxaphene		0.00E+00	NA	1.12E+00		0.00E+00
alpha-Chlordane		500000000000000000000000000000000000000	NA	NA		
beta-BHC		2.61E-13	NA	1.86E+00		4.83E-13
gamma-BHC (Lindane)			NA	NA		
gamma-Chlordane			NA	NA		
Nitroaromatics	1 7 74					
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	1000		NA	NA		
Touy!	100					
Metals						
Antimony			NA	NA		
Barium	2.82E-06		1.43E-04	NA	1.97E-02	
Copper	EX. CIT		NA	NA		
Lead			NA	NA		
Mercury	7.22E-05		8.57E-05	NA	8.42E-01	
Selenium	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		NA	NA		
Thallium			NA	NA		
Zinc			NA	NA		
Zinc	THE STATE OF		, and			
Herbicides						
2,4,5-T			NA	NA		
МСРР			NA	NA		
					8.62E-01	1.14E-11

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

No. of No. of

		74.0	Valid Re	Rejected No. of							Lognormal 95th UCL	95th UCL	
Class	Parameter	Units	Analyses SC	SQLs 1	Hits I	Freq. (%) Mean	Mean	Std. Dev.	Max. Hit	Normal?	3		EPC
VOLATILE ORGANICS	1,1,2,2-Tetrachloroethane	UG/KG	31	0	1	3.2%	6.492	3.876	7.750	FALSE	FALSE	7.042	7.042
VOLATILE ORGANICS	2-Butanone	UG/KG	29	2	-	3.4%	5.560	0.611	5.000	FALSE	FALSE	5.742	5.000
VOLATILE ORGANICS	Acetone	UG/KG	31	0	-	3.2%	7.573	8.119	46.000	FALSE	FALSE	8.382	8.382
VOLATILE ORGANICS	Benzene	UG/KG	29	2	4	13.8%	5.250	1.264	5.000	FALSE	FALSE	5.962	5.000
VOLATILE ORGANICS	Carbon disulfide	UG/KG	29	2	7	%6.9	5.362	1.101	2.000	FALSE	FALSE	5.952	2.000
VOLATILE ORGANICS	Chloroform	UG/KG	29	7	7	%6.9	4.060	1.429	2.000	FALSE	FALSE	4.667	2.000
VOLATILE ORGANICS	Methylene chloride	UG/KG	29	2	1	3.4%	5.491	0.769	3.000	FALSE	FALSE	5.774	3.000
VOLATILE ORGANICS	Toluene	UG/KG	31	0	10	32.3%	6.016	4.409	10.000	FALSE	FALSE	7.333	7.333
VOLATILE ORGANICS	Total Xylenes	UG/KG	29	2	1	3.4%	5.543	0.648	4.250	FALSE	FALSE	5.743	4.250
SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	30	1	5	16.7%	753.133	1295.428	2200.000	FALSE	FALSE	1124.766	1124.766
SEMIVOLATILE ORGANIC	2,6-Dinitrotoluene	UG/KG	20	11	2	10.0%	188.750	22.992	180.000	FALSE	TRUE	197.680	180.000
SEMIVOLATILE ORGANIC	2-Methylnaphthalene	UG/KG	31	0	4	12.9%	1181.194	3532.286	19000.000	FALSE	FALSE	1379.513	1379.513
SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	31	0	9	19.4%	2876.871	12889.129	72000.000	FALSE	FALSE	2548.938	2548.938
SEMIVOLATILE ORGANIC	Acenaphthylene	UG/KG	25	9	7	28.0%	208.240	123.418	310.000	FALSE	FALSE	281.946	281.946
SEMIVOLATILE ORGANIC	Anthracene	UG/KG	31	0	00	25.8%	4423.935	21485.741	120000.000	FALSE	FALSE	2058.642	2058.642
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	31	0	16	21.6%	7768.903	39409.203	220000.000	FALSE	FALSE	7267.556	7267.556
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	31	0	18	58.1%	7280.452	35796.473	200000.000	FALSE	TRUE	12667.853	12667.853
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	31	0	16	21.6%	7352.613	35784.830	200000.000	FALSE	TRUE	10664.034	10664.034
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	31	0	15	48.4%	4356.516	17915.767	100000.000	FALSE	FALSE	6207.288	6207.288
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	31	0	13	41.9%	6104.968	30444.698	170000.000	FALSE	FALSE	4683.030	4683.030
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate		30	П	4	13.3%	594.817	1292.011	2100.000	FALSE	FALSE	1447.572	1447.572
SEMIVOLATILE ORGANIC	Carbazole	UG/KG	31	0	9	19.4%	3432.710	15929.230	89000.000	FALSE	FALSE	2246.915	2246.915
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	31	0	21	%1.79	7725.065	39417.684	220000.000	FALSE	FALSE	8967.543	8967.543
SEMIVOLATILE ORGANIC	Cresols (-o)	UG/KG	19	12	1	5.3%	185.789	26.991	120.000	FALSE	FALSE	197.736	120.000
SEMIVOLATILE ORGANIC	Di-n-butylphthalate	UG/KG	30	-	7	23.3%	565.967	1261.729	1300.000	FALSE	FALSE	750.058	750.058
SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG	31	0	Ξ	35.5%	2225.516	8774.376	49000.000	FALSE	FALSE	2449.722	2449.722
SEMIVOLATILE ORGANIC	Dibenzofuran	UG/KG	31	0	3	6.7%	2192.226	8958.863	50000.000	FALSE	FALSE	1902.098	1902.098
SEMIVOLATILE ORGANIC	Diethyl phthalate	UG/KG	19	12	Н	5.3%	180.211	44.594	19.000	FALSE	FALSE	249.493	19.000
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	31	0	21	%1.7%	17755.548		530000.000	FALSE	FALSE	10710.489	10710.489
SEMIVOLATILE ORGANIC	Fluorene	UG/KG	31	0	3	6.7%	3097.129	13956.439	78000.000	FALSE	FALSE	2038.211	2038.211
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG	31	0	13	41.9%	4191.258	17874.490	100000.000	FALSE	FALSE	5925.788	5925.788
SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	29	2	9	20.7%	381.207	369.913	680.000	FALSE	FALSE	565.592	565.592
SEMIVOLATILE ORGANIC	Naphthalene	UG/KG	31	0	2	16.1%	2694.516	11814.514	000.00099	FALSE	FALSE	2315.511	2315.511
SEMIVOLATILE ORGANIC	Pentachlorophenol	UG/KG	28	3	1	3.6%	878.750	730.309	1200.000	FALSE	FALSE	1103.737	1103.737
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	31	0	16	21.6%	16361.710	87912.513	490000.000	FALSE	FALSE	7372.615	7372.615
SEMIVOLATILE ORGANIC	Pyrene	UG/KG	31	0	22	71.0%	12336.323	64537.989	360000.000	FALSE	FALSE	12528.037	12528.037
PESTICIDES/PCB	4,4'-DDD	UG/KG	31	0	7	6.5%	2.937	3.932	5.000	FALSE	FALSE	3.210	3.210
PESTICIDES/PCB	4,4'-DDE	UG/KG	31	0	17	54.8%	12.049	25.404	140.000	FALSE	FALSE	18.076	18.076

			No. of N	No. of										
			Valid R	Rejected No. of	No. of						Lognormal 95th UCL	95th UCL		
Class	Parameter	Units	Analyses S	SQLs	Hits	Freq. (%) Mean		Std. Dev. 1	Max. Hit	Normal?		of Mean I	EPC	
PESTICIDES/PCB	4,4'-DDT	UG/KG	31	0	16	51.6%	6.382	8.473	43.000	FALSE	FALSE	8.713	8.713	
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	31	0	ч	12.9%	1.911	2.304	8.600	FALSE	FALSE	2.286	2.286	
PESTICIDES/PCB	Aroclor-1260	UG/KG	53	2	_	3.4%	18.500	1.488	22.000	FALSE	FALSE	19.145	19.145	
PESTICIDES/PCB	Beta-BHC	UG/KG	31	0	_	3.2%	1.824	3.670	20.000	FALSE	FALSE	1.821	1.821	
PESTICIDES/PCB	Delta-BHC	UG/KG	31	0	-	3.2%	1.510	2.013	2.200	FALSE	FALSE	1.644	1.644	
PESTICIDES/PCB	Dieldrin	UG/KG	31	0	63	3 9.7%	3.339	4.851	26.000	FALSE	FALSE	3.771	3.771	
PESTICIDES/PCB	Endosulfan I	UG/KG	31	0	11	32.3%	17.823	76.864	430.000	FALSE	FALSE	13.988	13.988	
PESTICIDES/PCB	Endosulfan II	UG/KG	31	0	е,	3 9.7%	3.050	3.925	5.000	FALSE	FALSE	3.380	3.380	
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	31	0		3.2%	2.926	4.239	20.000	FALSE	FALSE	3.122	3.122	
PESTICIDES/PCB	Endrin	UG/KG	31	0	7	12.9%	4.084	7.883	43.000	FALSE	FALSE	4.333	4.333	
PESTICIDES/PCB	Endrin aldehyde	UG/KG	30	_		3.3%	2.382	2.870	3.000	FALSE	FALSE	2.543	2.543	
PESTICIDES/PCB	Endrin ketone	UG/KG	31	0	7	12.9%	4.719	12.627	71.000	FALSE	FALSE	4.297	4.297	
PESTICIDES/PCB	Gamma-Chlordane	UG/KG	31	0	•	3 9.7%	2.081	2.690	9.400	FALSE	FALSE	2.511	2.511	
PESTICIDES/PCB	Heptachlorepoxide	UG/KG	31	0		6.5%	1.523	2.011	2.100	FALSE	FALSE	1.666	1.666	
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	31	0	3(%8.96 (0.250	0.311	1.400	FALSE	TRUE	0.628	0.628	
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	31	0	5	3 29.0%	2810.968	13252.036	74000.000	FALSE	FALSE	1831.574	1831.574	
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	31	0	-	6.5%	130.081	256.619	900.000	FALSE	FALSE	131.208	131.208	
METALS	Aluminum	MG/KG	31	0	32	3 90.3%	10295.484	3352.436	14600.000	FALSE	FALSE	12130.212	12130.212	
METALS	Antimony	MG/KG	31	0	2	3 58.1%	2.077	3.112	17.100	FALSE	TRUE	3.772	3.772	
METALS	Arsenic	MG/KG	31	0	31	100.0%	4.826	0.980	008.9	TRUE	TRUE	5.124	5.124	
METALS	Barium	MG/KG	31	0	3		78.582	38.568	168.000	FALSE	TRUE	94.080	94.080	
METALS	Beryllium	MG/KG	31	0	3	100.0%		0.150	0.750	TRUE	FALSE	0.453	0.453	
METALS	Cadmium	MG/KG	31	0	16	9 61.3%	0.215	0.126	0.500	TRUE	FALSE	0.254	0.254	
METALS	Calcium	MG/KG	31	0	3	100.0%	45890.645	61481.799	260000.000	FALSE	TRUE	74841.526	74841.526	
METALS	Chromium	MG/KG	31	0	3(%8.96 (_	5.506	28.400	TRUE	TRUE	19.206	19.206	
METALS	Cobalt	MG/KG	31	J	3	100.0%	9.655	3.058	17.800	TRUE	TRUE	10.586	10.586	
METALS	Copper	MG/KG	31	0	3	100.0%	43.552	35.866	204.000	FALSE	FALSE	51.599	51.599	
METALS	Cyanide	MG/KG	31	_		1 3.2%	0.280	0.053	0.520	FALSE	FALSE	0.294	0.294	
METALS	Iron	MG/KG	31	_	3	100.0%	21796.129	5444.075	30400.000	FALSE	FALSE	24330.675	24330.675	
METALS	Lead	MG/KG	31	_	3	100.0%	114.829	122.639	460.000	FALSE	TRUE	192.212	192.212	
METALS	Magnesium	MG/KG	31	_	3	100.0%	8720.806	6551.714	34900.000	FALSE	TRUE	10385.694	10385.694	
METALS	Manganese	MG/KG	31	J	3	100.0%	441.387	150.800	948.000	FALSE	TRUE	490.572	490.572	
METALS	Mercury	MG/KG	31	_	2	71.0%	0.194	0.305	1.200	FALSE	FALSE	0.389	0.389	
METALS	Nickel	MG/KG	31	_	3	1 100.0%	28.981	10.340	53.500	FALSE	TRUE	32.543	32.543	
METALS	Potassium	MG/KG	31	_	3	1 100.0%	1257.194	370.522	2280.000	TRUE	TRUE	1370.039	1370.039	
METALS	Selenium	MG/KG	31	_	. 1	8 58.1%	0.588	0.474	1.600	FALSE	TRUE	0.994	0.994	
METALS	Silver	MG/KG	31		_	6 19.4%	, 0.250	0.147	0.370	FALSE	FALSE	0.309	0.309	
METALS	Sodium	MG/KG	31		2.	2 71.0%	85.258	71.193	383.000	FALSE	TRUE	111.243	111.243	

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			No. of Valid	No. of Rejected No. of	No. of						Lognormal 95th UCL	95th UCL		
Class	Parameter	Units	Analyses	SQLs	Hits	Freq. (%) Mean	Mean	Std. Dev.	Max. Hit	Normal?			EPC	
VOLATILE ORGANICS	1,1,2,2-Tetrachloroethane	UG/KG	31	0	_	3.2%	6.492	3.876	7.750	FALSE	FALSE	7.042	7.042	
VOLATILE ORGANICS	2-Butanone	UG/KG	29	2	-	3.4%	5.560	0.611	5.000	FALSE	FALSE	5.742	5.000	
VOLATILE ORGANICS	Acetone	UG/KG	31	0	1	3.2%	7.573	8.119	46.000	FALSE	FALSE	8.382	8.382	
VOLATILE ORGANICS	Benzene	UG/KG	29	2	4	13.8%	5.250	1.264	5.000	FALSE	FALSE	5.962	5.000	
VOLATILE ORGANICS	Carbon disulfide	UG/KG	29	2	2	%6.9	5.362	1.101	2.000	FALSE	FALSE	5.952	2.000	
VOLATILE ORGANICS	Chloroform	UG/KG	29	2	2	%6.9	4.060	1.429	2.000	FALSE	FALSE	4.667	2.000	
VOLATILE ORGANICS	Methylene chloride	UG/KG	29	2	-	3.4%	5.491	0.769	3.000	FALSE	FALSE	5.774	3.000	
VOLATILE ORGANICS	Toluene	UG/KG	31	0	10	32.3%	910.9	4.409	10.000		FALSE	7.333	7.333	
VOLATILE ORGANICS	Total Xylenes	UG/KG	29	2	-	3.4%	5.543	0.648	4.250		FALSE	5.743	4.250	
SEMIVOLATILE ORGANIC	2,4-Dinitrotoluene	UG/KG	30	_	S	16.7%	753.133	1295.428	2200.000	FALSE	FALSE	1124.766	1124.766	
SEMIVOLATILE ORGANIC	2,6-Dinitrotoluene	UG/KG	20		2	10.0%	188.750	22.992	180.000	FALSE	TRUE	197.680	180.000	
SEMIVOLATILE ORGANIC	2-Methylnaphthalene	UG/KG	31	0	4	12.9%	1181.194	3532.286	19000.000	FALSE	FALSE	1379.513	1379.513	
SEMIVOLATILE ORGANIC	Acenaphthene	UG/KG	31	0	9	19.4%	2876.871	12889.129	72000.000	FALSE	FALSE	2548.938	2548.938	
SEMIVOLATILE ORGANIC	Acenaphthylene	UG/KG	25	9	7	28.0%	208.240	123.418	310.000	FALSE	FALSE	281.946	281.946	
SEMIVOLATILE ORGANIC	Anthracene	UG/KG	31	0	8	25.8%	4423.935	21485.741	120000.000	FALSE	FALSE	2058.642	2058.642	
SEMIVOLATILE ORGANIC	Benzo[a]anthracene	UG/KG	31	0	16	21.6%	7768.903	39409.203	220000.000	FALSE	FALSE	7267.556	7267.556	
SEMIVOLATILE ORGANIC	Benzo[a]pyrene	UG/KG	31	0	18	58.1%	7280.452	35796.473	200000.000	FALSE	TRUE	12667.853	12667.853	
SEMIVOLATILE ORGANIC	Benzo[b]fluoranthene	UG/KG	31	J) 16	21.6%	7352.613	35784.830	200000.000	FALSE	TRUE	10664.034	10664.034	
SEMIVOLATILE ORGANIC	Benzo[ghi]perylene	UG/KG	31	_) 15	48.4%	4356.516	17915.767	100000.000	FALSE	FALSE	6207.288	6207.288	
SEMIVOLATILE ORGANIC	Benzo[k]fluoranthene	UG/KG	31	_) 13	41.9%	9	30444.698	170000.000	FALSE	FALSE	4683.030	4683.030	
SEMIVOLATILE ORGANIC	Bis(2-Ethylhexyl)phthalate	UG/KG	30		4	13.3%		1292.011	2100.000	FALSE	FALSE	1447.572	1447.572	
SEMIVOLATILE ORGANIC	Carbazole	UG/KG	31	J	9 (19.4%	200		89000.000		FALSE	2246.915	2246.915	
SEMIVOLATILE ORGANIC	Chrysene	UG/KG	31	_) 21	%1.7%	7	39	220000.000		FALSE	8967.543	8967.543	
SEMIVOLATILE ORGANIC	Cresols (-o)	UG/KG	19	22	1	5.3%					FALSE	197.736	120.000	
SEMIVOLATILE ORGANIC	Di-n-butylphthalate	UG/KG	70.74		7	7 23.3%					FALSE	750.058	750.058	
SEMIVOLATILE ORGANIC	Dibenz[a,h]anthracene	UG/KG		_) 11	35.5%			82		FALSE	2449.722	2449.722	
SEMIVOLATILE ORGANIC	Dibenzofuran	UG/KG			3	9.7%	(4	∞	200		FALSE	1902.098	1902.098	
SEMIVOLATILE ORGANIC	Diethyl phthalate	UG/KG		17	7	5.3%					FALSE	249.493	19.000	
SEMIVOLATILE ORGANIC	Fluoranthene	UG/KG	31	_) 21	%1.7%	17755.548	95077.465	530000.000	FALSE	FALSE	10710.489	10710.489	
SEMIVOLATILE ORGANIC	Fluorene	UG/KG	31		3	3 9.7%	3097.129	75	78000.000		FALSE	2038.211	2038.211	
SEMIVOLATILE ORGANIC	Indeno[1,2,3-cd]pyrene	UG/KG			0 13	3 41.9%	4	17	100		FALSE	5925.788	5925.788	
SEMIVOLATILE ORGANIC	N-Nitrosodiphenylamine	UG/KG	29		2	5 20.7%	381.207	369.913	680.000	FALSE	FALSE	565.592	565.592	
SEMIVOLATILE ORGANIC	Naphthalene	UG/KG	31		0	2 16.1%	2694.516	Ξ	9000.00099	FALSE	FALSE	2315.511	2315.511	
SEMIVOLATILE ORGANIC	Pentachlorophenol	UG/KG	28		3	3.6%	878.750	730.309	1200.000	FALSE	FALSE	1103.737	1103.737	
SEMIVOLATILE ORGANIC	Phenanthrene	UG/KG	31		0 16	5 51.6%	16361.710	87912.513	490000.000	FALSE	FALSE	7372.615	7372.615	
SEMIVOLATILE ORGANIC	Pyrene	UG/KG	31		0 22	71.0%	1233	6453	360000.000	FALSE	FALSE	12528.037	12528.037	
PESTICIDES/PCB	4,4'-DDD	UG/KG	31		0	6.5%	2.937	3.932	5.000	FALSE	FALSE	3.210	3.210	
PESTICIDES/PCB	4,4'-DDE	UG/KG	31		0 I	7 54.8%	12.049	25.404	140.000	FALSE	FALSE	18.076	18.076	

Lognormal 95th UCL	of Mean EPC	8.713 8.713	2.286 2.286	19.145 19.145	1.821 1.821	1.644 1.644	3.771 3.771	13.988 13.988	3.380 3.380	3.122 3.122	4.333 4.333	2.543 2.543	4.297 4.297	12.20	1.666 1.666	0.628 0.628	1831.574 1831.574	131.208 131.208	12130.212 12130.212	3.772 3.772	5.124 5.124	94.080 94.080		0.254 0.254	74841.526 74841.526		10.586 10.586	13	0.294 0.294	24330.675 24330.675	192.212 192.212	10385.694 10385.694	490.572 490.572	0.389 0.389	32.543 32.543	1370.039 1370.039	0.994 0.994	0.300
Lognorm	Normal? ?	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE TRUE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE TRUE	TRUE TRUE	FALSE TRUE	TRUE FALSE	TRUE FALSE	FALSE TRUE		TRUE TRUE		FALSE FALSE	FALSE FALSE	FALSE TRUE	FALSE TRUE	ALSE TRUE	FALSE FALSE	FALSE TRUE	TRUE TRUE	'ALSE TRUE	ALSE FALSE
	Max. Hit Nor	000	8.600 FA	22.000 FA	20.000 FA	2.200 FA	26.000 FA	430.000 FA	5.000 FA	20.000 FA	43.000 FA	3.000 FA	71.000 FA	9.400 FA	2.100 FA	1.400 FA	74000.000 FA	900.000 FA	14600.000 FA	17.100 FA	6.800 TF	168.000 FA		0.500 TF	260000.000 FA		17.800 TI	204.000 FA		30400.000 FA	460.000 FA	34900.000 FA	948.000 FA	1.200 FA	53.500 FA	2280.000 TF	1.600 FA	0.370 FA
	Std. Dev.	8.473	1 2.304	1.488	3.670	2.013	4.851	3 76.864	3.925	5 4.239	7.883	2.870	12.627	1 2.690	3 2.011	0.311	3 13252.036	1 256.619	1 3352.436	3.112	0.980	38.568		5 0.126	5 61481.799		3.058		0.053	5444.075	122.639	6551.714	7 150.800	0.305	10.340	370.522	3 0.474	0.147
) Mean	% 6.382	11911	% 18.500	% 1.824	% 1.510	3.339	% 17.823	3.050	2.926	4.084	% 2.382	4.719	2.081		% 0.250	N	130.081	% 10295.484	2.077	4.826	15		% 0.215	% 45890.645		% 9.655		% 0.280	% 21796.129		% 8720.806	% 441.387	% 0.194	28.981	% 1257.194	% 0.588	% 0.250
Jo	Freq. (%) Mean	16 51.6%	4 12.9%	1 3.4%	1 3.2%	1 3.2%	3 9.7%	10 32.3%	3 9.7%	1 3.2%	4 12.9%	1 3.3%	4 12.9%	3 9.7%	2 6.5%	30 96.8%	9 29.0%	2 6.5%	28 90.3%	18 58.1%	31 100.0%	31 100.0%	31 100.0%	19 61.3%	31 100.0%	30 96.8%	31 100.0%	31 100.0%	1 3.2%	31 100.0%	31 100.0%	31 100.0%	31 100.0%	22 71.0%	31 100.0%	31 100.0%	18 58.1%	6 19.4%
No. of Rejected No. of	SQLs Hits	0	0	2	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of N Valid R	Analyses S	_	31	29	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
	Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	MG/KG	UG/KG	UG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
	Parameter	4,4'-DDT	Alpha-Chlordane	Aroclor-1260	Beta-BHC	Delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Gamma-Chlordane	Heptachlorepoxide	Nitrate/Nitrite Nitrogen	2,4-Dinitrotoluene	2,6-Dinitrotoluene	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver
	Class	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	PESTICIDES/PCB	OTHER ANALYSES	NITROAROMATICS	NITROAROMATICS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS

		Valid	Rejected	d No. of	J(Lognormal	95th UCL	
arameter	Units	Analyses	SQLs			eq. (%) Me		Std. Dev.	Max. Hit	Normal?	٠.	of Mean I	0
hallium	MG/KG	31		0	6	29.0%	.551	0.401	1.700	FALSE	FALSE	0.875	
Vanadium	MG/KG	31		0	31	100.0% 21	.506	6.780	38.100 F.	FALSE	FALSE	24.081	24.081
inc	MG/KG	31		0	31	%0.001	1.427	33.894	219.000	FALSE	TRUE	105.181	1

Class METALS METALS METALS

2	

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TABLE 6-18

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL
CONSTRUCTION WORKER EXPOSUBE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SEAD-16 Remedial Investigation
Series Army Depat Activity

Analyte	Intake (Ne) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days) Car
Volatile Organics											
1,1,2,2-Tetrachloroethane		4,72E-10	7.04E-03	180	1.00E-06	-	250	-	70	365	25,550
2-Butanone	2.35E-08		5.00E-03	087	1.00E-06		250		25	365	25.550
Benzene	3.742-00	3.35E-10	5.00E-03	180	1.00E-06		250		2 2	365	25,550
Carbon Disnifide	9.39E-09		2.00E-03	480	1.00E-06	٠.	250		0.5	365	25,550
Methylene Chloride	1,41E-08	2.01E-10	3.00E-03	180	1.00E-06	-	250		2 2	365	25,530
Toluene Xylene (total)	3,44E-08		7,33E-03	480	1.00E-06		250		5 t	365	25,550
Visite (total)	4.00E-00		- TOP-10-1	00+	D. COC.	eq.	5	-0-		200	20,000
Semivolatile Organics											
2,4-Dinitrotoluene	5.28E-06		1.12E+00	180	1.00E-06	-	250	-	02	365	25,550
2,6-Dinitrotoluene 2-methylnaphthalene	8.45E-07		1.80E-01	087	1.00E-06		250		6 6	365	25,550
						65. 9	200	(5)	8 1		
3,3'-Dichlorobenzidine 3-nitroaniline		0.00E+00	0.00E+00	180	1.00E-06		250		6 6	365	25,550
Acenaphthene	1.20E-05		2.55E+00	180	1.00E-06	-	250	-	70	365	25,550
Acenaphthylene	20 000		2.82E-01	081	1.00E-06		250		70	365	25,550
Anthracene Benzo(alanthracene	9.67E-10	4 88F-07	7.27E+00	087	1.00E-06	-	250		202	365	25.550
Benzo(a)pyrene		8.50E-07	1.27E+01	180	1.00E-06	-	250	-	70	365	25,550
Benzo(b)fluoranthene		7.16E-07	1.07E+01	180	1.00E-06	-	250	-	70	365	25,550
Benzo(g,h,i)perylene			6.21E+00	180	1.00E-06		250	-	0,1	365	25,550
Benzo(k)fluoranthene	00.1000	3.14E-07	4.68E+00	180	1.00E-06		250		70	365	25,550
Sutylbenzyphinalate Carbazole	0.005+00	1 515.07	0.00E+00	087	1.00E-06		250	-	5 5	205	25,550
Chrisene		6.02E-07	8.97E+00	180	1.00E-06		250	3.55	70	365	25.550
Di-n-butylphthalate	3.52E-06	The state of the s	7.50E-01	180	1.00E-06	-	250	-	70	365	25,550
Dibenz(a,h)anthracene		1.64E-07	2.45E+00	180	1.00E-06	-	250	-	70	365	25,550
Dibenzofuran	803608		1.90E+00	084	1.00E-06		250		2 2	365	25,550
Fluoranthene	5.03E-05		1.07E+01	480	1.00E-06		250		07	365	25,550
Fluorene	9.57E-06		2.04E+00	480	1.00E-06	-	250	-	70	365	25,550
Indeno(1,2,3-cd)pyrene N-Nitrosodinhenvlamine (1)		3.79E-08	5.93E+00	180	1.00E-06		250		0 0	365	25,550
Naphthalene		200	2.32E+00	180	1.00E-06	-	250	-	70	365	25,550
Pentachlorophenol	5.18E-06	7,41E-08	1.105+00	180	1.00E-06		250		2 5	365	25,550
Phenanthrene	6 00T OF		7.375+00	084	1.005-06		250		2.5	365	25,550
bis(2-Ethylhexyl)phthalate	6.80E-06	9.71E-08	1.45E+00	180	1.00E-06		250		5 5	365	25,550
Manager Lane		A STANLEY CONTRACTOR		CEARL.			707		9	in the second	
concrete de											
ddd-t-t	1.51E-08	2.15E-10	3.21E-03	180	1.00E-06		250		9 9	365	25,550
TGC-1-7	4.09E-08	5.85E-10	8.71E-03	480	1.00E-06		250	-	70	365	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	480	1.00E-06	-	250	-	20	365	25,550
Aroclor-1254	0,000=+00	0.00E+00	0.00E+00	180	1.00E-06		250		2 2	365	25,530
Dieldrin	1.77E-08	2.53E-10	3.77E-03	180	1.00E-06		250	-	20	365	25,550
Endosulfan I	6.57E-08		1.40E-02	180	1.00E-06		250		0.5	365	25,550
Endosulfan II Fndosulfan sulfate	1 47F-08		3.38E-03	780	1.00E-06		250		0 02	365	25,550
Endrin	2.04E-08		4.33E-03	180	1.00E-06	-	250	-	70	365	25,550
Endrin aldehyde			2.54E-03	180	1.00E-06	-	250	-	70	365	25,550
Endrin ketone		400	4.30E-03	180	1.00E-06	-	250		70	365	25,550
Heptachior Hantachlor movids	0.00E+00	1.125-10	1,675,03	180	1.005-06		250	15	2 6	205	25,550
Toxaphene Toxaphene	1000	0.00E+00	0.00E+00	180	1.00E-06		250		70	365	25,550
alpha-Chlordane	1.07E-08	1.53E-10	2.29E-03	480	1.00E-06	-	250	-	70	365	25,550
beta-BHC		1.22E-10	1.82E-03	180	1.00E-06		250	-	20	365	25,550
gamma-BHC (Lindane)	0.00E+00		0.00E+00	084	1.00E-06		250		0 02	365	25,550
						9		7			
Nitroaromatics											
2-amino-4,6-Dinitrotoluene			0.00E+00	180	1.00E-06	-	250	-	70	365	25,550
Tetroil	0.00E+00		0.00E+00	180	1 DOF-06		250	-	0	374	1

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TABLE 6-18

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL
CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-16 Remedial investigation
Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Nc) Intake (Car) Total Soils (mg/kg-day) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/dav)	Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aven Ti	Averaging Time (days)
						100	The second			Nc	Car
Metals											
Andianana	1 775-05		3.77F+00	180	1 00E-06		250	2	70	365	25,550
Parismony	1 17E-04		9 415+01	180	1.00E-06	-	250	-	02	365	25,550
Compa	2.17F-04		\$ 16E+01	180	1.00E-06	-	250	-	70	365	25,550
Lond			1 92E+02	180	1.00E-06	-	250	_	02	365	25,550
Meerin	30E-06		2 89F-01	180	1.00E-06	-	250	_	70	365	25,550
Calonium	4.67F-06		9 94E-01	180	1.00E-06	-	250	_	70	365	25,550
Thelling	4.11E-06		8.75E-01	180	1.00E-06	-	250	4	70	365	25,550
Zinc	1.945-04		1.05E+02	180	1.00E-06	_	250	-	70	365	25,550
Herbicides											
7.1 CT	0.00E+00		0.00E+00	180	1.00E-06	1	250	-	70	365	25,550
MCPP	0.00E+00		0.00E+00	480	1.00E-06	-	250	-	02	365	25,550
EQUATION:	Intake (mg/kg-day) =	/kg-day) =	CSIBAC	CSAIRACEA FIA EFA ED BWAAT							
	Variables:					Assumptions:	4				
	CS = Chem IR = Ingests CF = Conve FI = Fracts EF = Expo ED = Expo BW = Body AT = Avers	CS = Chemical Concentration in Soil (mg soil/hg)	tion in Soil (toil/day) 10-6 kg/mg) ittless) y (days/years) years)	ng soil/kg)		EPC - Total Soil 1480 (RME Constitute Constitute 10-6 1 (All Receptors) 250 (RME Constitute Constitute 1 (Upper bound I 70 (Adult male) 1 x 365 (Ne) 70 x	EPC - Total Soil Data (RME) 1840 (RME Construction Worker) 10-6 (IAI Receptoric) 15-15 (RME Construction Worker) 1 (Upper bound limit for Construction Worker) 10 (Adult may 13-35 (Car)	AE) Vorker) Vorker) Construction	Worker)		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1.1.2.2-Tetrachloroethane	100	4.72E-10	NA	2.00E-01		9.45E-11
2-Butanone	2.35E-08		6.00E-01	NA	3.91E-08	POR NOOR HARD
Acetone	3.94E-08		1.00E-01	NA	3.94E-07	
Benzene	3.542.00	3.35E-10	NA	2.90E-02		9.73E-12
Carbon Disulfide	9.39E-09	5.552 10	1.00E-01	NA	9.39E-08	
Chloroform	9.39E-09	1.34E-10	1.00E-02	6.10E-03	9.39E-07	8.19E-13
Methylene Chloride	1.41E-08	2.01E-10	6.00E-02	7.50E-03	2.35E-07	1.51E-12
	3.44E-08	2.0115-10	2.00E-01	NA NA	1.72E-07	
Toluene	2.00E-08		2.00E+00	NA NA	9.98E-09	
Xylene (total)	Z,00E-08		2.002.00	1.00	-,,,,,,	
Semivolatile Organics						
2,4-Dinitrotoluene	5.28E-06		2.00E-03	NA	2.64E-03	
2,6-Dinitrotoluene	8.45E-07		1.00E-03	NA	8.45E-04	
2-methylnaphthalene	0.132 01		NA	NA		
3,3'-Dichlorobenzidine		0.00E+00	NA	4.50E-01		0.00E+00
3-nitroaniline			NA	NA		
Acenaphthene	1.20E-05		6.00E-02	NA	2.00E-04	
Acenaphthylene			NA	NA		
Anthracene	9.67E-06		3.00E-01	NA	3.22E-05	
Benzo(a)anthracene		4.88E-07	NA	7.30E-01		3.56E-07
Benzo(a)pyrene		8.50E-07	NA	7.30E+00		6.20E-06
Benzo(b)fluoranthene		7.16E-07	NA	7.30E-01		5.22E-07
Benzo(g,h,i)perylene		(AEAGERATA	NA	NA		
Benzo(k)fluoranthene		3.14E-07	NA	7.30E-01		2.29E-07
Butylbenzylphthalate	0.00E+00	2	2.00E+00	NA	0.00E+00	1
Carbazole	0.002	1.51E-07	NA	2.00E-02		3.02E-09
Chrysene	Section 2	6.02E-07	NA	7.30E-02		4.39E-08
Di-n-butylphthalate	3.52E-06		1.00E-01	NA	3.52E-05	Water State
Dibenz(a,h)anthracene		1.64E-07	NA	7.30E+00		1.20E-06
Dibenzofuran			NA	NA		
Diethylphthalate	8.92E-08		8.00E+00	NA	1.12E-08	
Fluoranthene	5.03E-05		4.00E-02	NA	1.26E-03	
Fluorene	9.57E-06		4.00E-02	NA	2.39E-04	1
Indeno(1,2,3-cd)pyrene	2.00.000.000	3.98E-07	NA	7.30E-01		2.90E-07
N-Nitrosodiphenylamine (1)		3.79E-08	NA	4.90E-03		1.86E-10
Naphthalene		-0125	NA	NA		
Pentachlorophenol	5.18E-06	7.41E-08	3.00E-02	1.20E-01	1.73E-04	8.89E-09
Phenanthrene	314 P. T.		NA	NA		120000000000000000000000000000000000000
Pyrene	5.88E-05		3.00E-02	NA	1.96E-03	
bis(2-Ethylhexyl)phthalate	6.80E-06	9.71E-08	2.00E-02	1.40E-02	3.40E-04	1.36E-09

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
		0.155.10	5.00E-04	2 40E-01	3.02E-05	5.17E-11
4,4'-DDD	1.51E-08	2.15E-10	NA NA	NA NA		or to the seasons
4,4'-DDE		5.85E-10	5.00E-04	3.40E-01	8.18E-05	1.99E-10
4,4'-DDT	4.09E-08		3.00E-04 3.00E-05	1.70E+01	0.00E+00	0.00E+00
Aldrin	0.00E+00	0.00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+00
Aroclor-1254	0.00E+00	0.00E+00	NA NA	7.70E+00		9.89E-09
Aroclor-1260	00	1.28E-09	5.00E-05	1.60E+01	3.54E-04	4.05E-09
Dieldrin	1.77E-08	2.53E-10	6.00E-03	NA NA	1.09E-05	
Endosulfan I	6.57E-08		NA	NA NA	A WASTATA	
Endosulfan II			5.00E-05	NA NA	2.93E-04	
Endosulfan sulfate	1.47E-08		3.00E-03	NA NA	6.78E-05	MILE
Endrin	2.04E-08		3.00E-04 NA	NA NA	0.100.00	
Endrin aldehyde			NA NA	NA NA		
Endrin ketone		0.000.00	5.00E-04	4.50E+00	0.00E+00	0.00E+00
Heptachlor	0.00E+00	0.00E+00	1.30E-05	9.10E+00	6.02E-04	1.02E-09
Heptachlor epoxide	7.83E-09	1.12E-10	1.30E-03 NA	1.10E+00	0.0215-01	0.00E+00
Toxaphene	5000000000	0.00E+00	6.00E-05	1.30E+00	1.79E-04	1.99E-10
alpha-Chlordane	1.07E-08	1.53E-10	The state of the s	1.80E+00	1.772-01	2.20E-10
beta-BHC		1.22E-10	NA 2 COT OA	NA NA	0.00E+00	
gamma-BHC (Lindane)	0.00E+00		3.00E-04	NA NA	0.001.00	
gamma-Chlordane	1		NA	NA.		
Nitroaromatics						
a company of the company			NA	NA		
2-amino-4,6-Dinitrotoluene	0.00E+00		1.00E-02	NA	0.00E+00	
Tetryl	0.002+00		1.002 02	2002		
Metals	100	1-7-				
			4.00E-04	NA	4.43E-02	
Antimony	1.77E-05		7.00E-02	NA NA	6.31E-03	
Barium	4.42E-04		4.00E-02	NA NA	6.06E-03	
Copper	2.42E-04		4.00E-02 NA	NA NA	0.002 05	
Lead	10/50/		3.00E-04	NA.	4.52E-03	
Mercury	1.36E-06		5.00E-03	NA NA	9.34E-04	
Selenium	4.67E-06		7.00E-05	NA NA	5.87E-02	
Thallium	4.11E-06		3.00E-01	NA NA	1.65E-03	
Zinc	4.94E-04		3.00E-01		100 Miles	58
Herbicides					11	
245 T	0.00E+00	1000	8.00E-03	NA	0.00E+00	
2,4,5-T	0.00E+00		1.00E-03	NA	0.00E+00	
MCPP	0.00E.00		- Managanata	(VCSVIACS)	ON THE STATE OF TH	
Totals - HQ & CR	1 1 1 1 1 1 1		-		1.32E-01	8.88E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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Page 1 of 2

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SUBFACE & SUBSURFACE SOIL. CONSTRUCTION WORKER EXPOSIBE (FUTURE LAND USE) RESONABLE MAXIMUM EXPOSIBE (RME) SEAD-16 Remedial investigation Seacea Army Depot Activity TABLE 6-24

Analyte	Dose (Nc)	Dose (Car)	-	Conv. Factor	act act	Adherence	Absorption Factor	Exposure Frequency	Exposure Duration	Body Weight	Aver	Averaging
	(mg/kg-day)		(mg/kg)	(kg/mg)	(cm²)	(mg soil/cm²)	(unitless)	(days/year)	(years)	(kg)	Nc (da	(days)
Volatile Organics												
1,1,2,2-Tetrachloroethane 2-Butanone			7.04E-03 5.00E-03 8.38E-03	1.00E-06 1.00E-06	5,800	000		250	:e.e.e	555	365	25,550
Benzene Carbon Disnifide			5.00E-03	1.005-06	5,800	0.01		250		0.00	365	25,550
Chloroform Methylene Chloride			2.00E-03	1.00E-06	5,800	1.0		250		07 07	365	25,550
Toluene Xylene (total)			7.33E-03 4.25E-03	1.00E-06 1.00E-06	5,800	1.0		250 250		88	365	25,550
Semivolatile Organics												
2,4-Dinitrotoluene 2,6-Dinitrotoluene			1.12E+00 1.80E-01	1.00E-06	5,800	1.0		250		02 02	365	25,550
2-methylnaphthalene			1.38E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
3,3'-Dichlorobenzidine 3-nitroaniline				1.00E-06 1.00E-06	5,800	1.0		250 250		55	365	25,550
Acenaphthene			2.55E+00 2.82E-01	1.00E-06	5,800	0.1		250		2 2	365	25,550
Anthracene			2.06E+00 7.27E+00	1.00E-06	5,800	1.0		250		202	365	25,550
Benzo(a)pyrene Benzo(b)fluoranthene			1.27E+01	1.00E-06	5,800	1.0		250		2 2	365	25,550
Benzo(g,h,i)perylene Benzo(k)fluoranthene			6.21E+00 4.68E+00	1.00E-06	5,800	1.0		250		07 07	365	25,550
Butylbenzylphthalate			000000	1.00E-06	5,800	10.		250		0.5	365	25.550
Chrysene			8.97E+00	1.00E-06	5,800	20		250		5 2 1	365	25,550
Di-n-butylphthalate Dibenz(a,h)anthracene			7.50E-01 2.45E+00	1.00E-06	5,800	0.01		250		2 2	365	25,550
Dibenzofuran			1.90E+00	1.00E-06	5,800	071		250		5 5	365	25,550
Fluoranthene			1.07E+01	1.00E-06	5,800	01		250		2 2 3	365	25,550
Fluorene Indeno(1,2,3-cd)pyrene			2.04E+00 5.93E+00	1.00E-06	5,800	0.1		250		0,0	365	25,550
N-Nitrosodiphenylamine (1)			5.66E-01 2.32E+00	1.00E-06 1.00E-06	5,800	1.0		250		5 5	365	25,550
Pentachlorophenol Phenanthrene			1.10E+00 7.37E+00	1.00E-06 1.00E-06	5,800	0.1		250		66	365	25,550
Pyrene bis(2-Ethylhexyl)phthalate			1.25E+01 1.45E+00	1.00E-06 1.00E-06	5,800	070		250		55	365	25,550
Pesticides												
4.4-DDD			3.21E-03	1.00E-06	5,800	1.0		250	-	0,	365	25,550
4,4-DDT			1.81E-02 8.71E-03	1.00E-06	5,800	010		250		229	365	25,550
Aroclor-1254			180000000	1.00E-06	5,800	0.1	90'0	250		20	365	25,550
Aroclor-1260 Dieldrin		9.31E-10	1.91E-02 3.77E-03	1.00E-06 1.00E-06	5,800	0.01	90'0	250		5 £	365	25,550
Endosulfan I Endosulfan II			1.40E-02 3.38E-03	1.00E-06 1.00E-06	5,800	0.0		250		0 0	365	25,550
Endosulfan sulfate Endrin			3.12E-03 4.33E-03	1.00E-06	5,800	1.0		250		70	365	25,550
Endrin aldehyde Endrin ketone			2.54E-03	1.00E-06	5,800	0 0 1		250		70	365	25,550
Heptachlor Hantschlor movide			1.675-03	1.00E-06	5,800	100		250		0,20	365	25,550
Toxaphene			200000	1.00E-06	5,800	0.1		250		2 5	365	25,550
alpha-Chlordane beta-BHC			2.29E-03	1.00E-06	5,800	0.0		250		22	365	25,550
gamma-BHC (Lindane) gamma-Chlordane			2.51E-03	1.00E-06	5,800	1.0		250		2 2	365	25,550
Nitroaromatics												
2-amino-4,6-Dinitrotoluene				1.00E-06	5,800	1.0		250		5 5	365	25,550
tensi				Pinner no	anate.							1000000

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL
CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SEAD-16 Remedial inventigation
Sence Army Depot Activity

Analyte	Dose (Nc)	Dose (Car)	Total Soils	Conv. Factor	Skin Surface Area Contact	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Averagie Time (days)	Averaging Time (days)
	(im-gy/mi)	-	(angue)	G. Gui		(0 0 0 0					Nc	Car
Metals												
			3 775400	1 005.06	8 800	0.1		250	2	20	365	25,550
Antimony			0.115401	1.005-06	0000	2.0		250		20	365	25,550
Barrum			6 16 201	1 000 00	6 800			250		20	365	25.550
Copper			1 075,00	1 000 00	000,5	0.0		250	-	20	365	25.550
Lead			70.276.1	1.002-00	2,000	0.0		350		20	392	25 550
Mercury			2.89E-01	1.005-00	2,800	0,0		250		202	365	25.550
Selchium			9.74E-01	1 005-06	6,800	2.5		250	-	70	365	25,550
Zinc			1.05E+02	1.00E-06	5,800	1.0		250	-	02	365	25,550
Herbicides												
316T				1 00F-06	\$ 800	10		250	-	70	365	25,550
MCPP				1.00E-06	5,800	1.0		250	-	70	365	25.550
EQUATION:		Absorbed Dos	: (mg/kg-day) =	CSICEIS	Absorbed Dose (mg/kg-day) = CSxCExSAxAExABSxEExED BWxAT	EFXED						
Variables:				Assumptions:			Variables:			Assumptions:		
CS = Chemical Concentration in Soil (mg soilAg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor (mg/cm²)	ation in Soil (mg sa (10-6 kg/mg) act (cm²) nece Factor (mg/cm²	oil/kg)		EPC - Total. 10-6 5,800 (RME 1.0 (RME - A	EPC - Total Soil Data (RME) EF = 10-6 5,800 (RME Adult Worker) BW • 10 (RME - All Receptor) AT = 10 (RME - All Receptor) AT) Imium (FPA 1	EF = Exposure Freque ED = Exposure Duratio BW = Bodyweight (kg) AT = Averaging Time (99)	EF = Exposure Frequency (days/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	lays/year) ars)	250 (RME Construction Wo 1 (Upper bound limit for C' 70 (Adult Male) 1 x 365 (Nc) 70 x 365 (Car)	250 (RME Construction Worker) 1 (Upper bound limit for CW) 70 (Adult Male) 1 x 365 (Nc) 70 x 365 (Car)	()

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
			NA	2.00E-01		
1,1,2,2-Tetrachloroethane			6.00E-01	NA NA		
2-Butanone			1.00E-01	NA NA		
Acetone			NA	2.90E-02		
Benzene			1.00E-01	NA NA		
Carbon Disulfide				6.10E-03		
Chloroform			1.00E-02			
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		40
2-methylnaphthalene	-		NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA NA	NA NA		
Acenaphthene			6.00E-02	NA NA		
Acenaphthylene			NA	NA NA		
			3.00E-01	NA NA		
Anthracene			NA	1.46E+00		
Benzo(a)anthracene			NA NA	1.46E+01		
Benzo(a)pyrene			NA NA	1.46E+01 1.46E+00		
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene			NA	NA 1.46F+00		
Benzo(k)fluoranthene			NA 2.00F+00	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA 2 00F 02		
Carbazole			NA	2.00E-02	1	
Chrysene			NA 0.50E.02	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA 1.46E+01		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA 0.00F+00	NA NA	,	
Diethylphthalate			8.00E+00	NA NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA LIGHT		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA	1	
Pentachlorophenol			3.00E-02	1.20E-01	Ì	
Phenanthrene			NA	NA	- 1	
Pyrene		L.	3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-16 Remedial Investigation Seneca Army Depot Activity

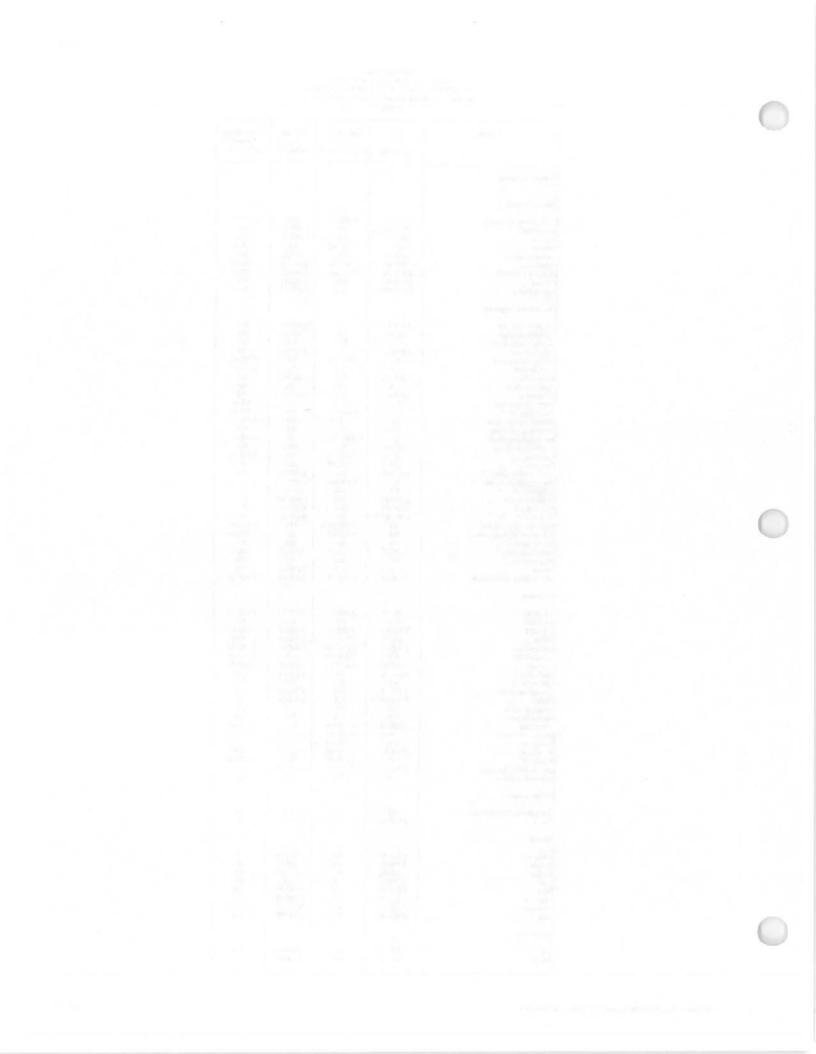
Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
			5.00E-04	2.40E-01		Valua .
4,4'-DDD			NA	NA NA		
4,4'-DDE			5.00E-04	3.40E-01		Mary II
4,4'-DDT						
Aldrin			3.00E-05	1.70E+01 2.11E+00		The same of
Aroclor-1254		0.010.10	1.90E-05	8.11E+00		7.55E-09
Aroclor-1260		9.31E-10	NA 5 00F 05			7.33E-09
Dieldrin			5.00E-05	1.60E+01		Printer.
Endosulfan I	10		6.00E-03	NA		1100
Endosulfan II			NA	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		Land St.
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA		
Heptachlor			5.00E-04	4.50E+00		
Heptachlor epoxide	1 1910		1.30E-05	9.10E+00		
Toxaphene			NA	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC	8/ 7/		NA	1.80E+00		GALD!
gamma-BHC (Lindane)			3.00E-04	NA		THE RESERVE
gamma-Chlordane		0.1	NA	NA		77.6
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			1.00E-02	NA		138
Metals						Local Control
	1999					470
Antimony	100		4.00E-04	NA		400
Barium	1-1		7.00E-03	NA		
Copper			2.00E-02	NA		
Lead			NA	NA		1000
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			1.50E-01	NA		
Herbicides				111000		
2,4,5-T		15	8.00E-03	NA		
MCPP	1 2		1.00E-03	NA		
Totals - HQ & CR						7.55E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

Toxicity Values Surface and Subsurface Soil Medium REASONABLE MAXIMUM EXPOSURE (RME) Seneca Army Depot, Romulus, New York - SEAD 16 CASE 3

Analyte	Oral RfD mg/kg/day	Carc. Slope Oral (mg/kg-day)-1	Dermal RfD mg/kg/day	Carc. Slope Dermal (mg/kg-day)-
olatile Organics				
Volatile Organics				
,1,2,2-Tetrachloroethane	NA.	2.00E-01	NA	2.00E-01
-Butanone	6.00E-01	NA	6.00E-01	NA
Acetone	1.00E-01	NA 2.90E-02	1.00E-01 NA	NA 2.90E-02
Benzene Carbon Disulfide	NA 1.00E-01	NA NA	1.00E-01	NA
Chloroform	1.00E-02	6.10E-03	1.00E-02	6.10E-03
Methylene Chloride	6.00E-02	7.50E-03	6.00E-02	6.00E-02
oluene	2.00E-01 2.00E+00	NA NA	1.20E-01 2.00E+00	NA NA
(ylene (total)	2.00E+00	l NA	2,002,100	l na
Semivolatile Organics			2 00E 02	NA.
2,4-Dinitrotoluene	2.00E-03 1.00E-03	NA NA	2.00E-03 1.00E-03	NA NA
2,6-Dinitrotoluene 2-methylnaphthalene	NA NA	NA.	NA	NA
-Methylphenol	5.00E-02	NA	5.00E-02	NA
3,3'-Dichlorobenzidine	NA	4.50E-01	NA	4.50E-01
I-nitroaniline	NA 6.00E-02	NA NA	NA 6.00E-02	NA NA
Acenaphthene Acenaphthylene	NA	NA NA	NA	NA
Acenaphinylene Anthracene	3.00E-01	NA NA	3.00E-01	NA
Benzo(a)anthracene	NA	7.30E-01	NA	1.46E+00
Benzo(a)pyrene	NA NA	7.30E+00	NA NA	1.46E+01 1.46E+00
Benzo(b)fluoranthene	NA NA	7.30E-01 NA	NA NA	1.46E+00 NA
Benzo(g,h,i)perylene Benzo(k)fluoranthene	NA NA	7,30E-01	NA	1.46E+00
Butylbenzylphthalate	2.00E+00	NA	2.00E+00	NA
Carbazole	NA	2.00E-02	NA	2.00E-02
Chrysene	NA LOOF OL	7.30E-02	NA 8.50E-02	1.46E-01 NA
Di-n-butylphthalate Dibenz(a.h)anthracene	1.00E-01 NA	NA 7.30E+00	8.30E-02 NA	1.46E+01
Dibenza, njanunacene Dibenzofuran	NA NA	NA.	NA	NA
Diethylphthalate	8.00E+00	NA	8.00E+00	NA
Fluoranthene	4.00E-02	NA	4.00E-02	NA
Fluorene	4.00E-02 NA	NA 7.30E-01	4.00E-02 NA	NA 1.46E+00
Indeno(1,2,3-cd)pyrene N-Nitrosodiphenylamine (1)	NA NA	4.90E-03	NA	4.90E-03
Naphthalene	NA	NA	NA	NA
Pentachlorophenol	3.00E-02	1.20E-01	3.00E-02	1.20E-01
Phenanthrene	NA 2 00F 02	NA	NA 3.00E-02	NA NA
Pyrene bis(2-Ethylhexyl)phthalate	3.00E-02 2.00E-02	NA 1.40E-02	2.00E-02	1.40E-02
Pesticides				
4,4'-DDD	5.00E-04	2.40E-01	5.00E-04	2.40E-01
4,4'-DDE	NA FOOT OF	NA 7 40F 01	NA 5.00E-04	NA 3.40E-01
4,4'-DDT Aldrin	5.00E-04 3.00E-05	3.40E-01 1.70E+01	3.00E-04 3.00E-05	1.70E+01
Aroclor-1254	2.00E-05	2.00E+00	1.90E-05	2.11E+00
Aroclor-1260	NA	7.70E+00	NA	8.11E+00
Dieldrin	5.00E-05	1.60E+01	5.00E-05	1.60E+01
Endosulfan I Endosulfan II	6.00E-03 NA	NA NA	6.00E-03 NA	NA NA
Endosulfan II Endosulfan sulfate	5.00E-05	NA NA	5.00E-05	NA
Endrin	3.00E-04	NA	3.00E-04	NA
Endrin aldehyde	NA	NA	NA	NA NA
Endrin ketone	NA 5.00E-04	NA 4.50E+00	NA 5.00E-04	NA 4.50E+00
Heptachlor Heptachlor epoxide	1.30E-05	9.10E+00	1.30E-05	9.10E+00
Toxaphene	NA NA	1.10E+00	NA	1,10E+00
alpha-Chlordane	6.00E-05	1.30E+00	6.00E-05	1.30E+00
beta-BHC	NA 3.00E.04	1.80E+00 NA	NA 3.00E-04	1.80E+00 NA
gamma-BHC (Lindane) gamma-Chlordane	3.00E-04 NA	NA NA	NA NA	NA NA
Nitroaromatics				
2-amino-4,6-Dinitrotoluene	NA 1.00E-02	NA NA	NA 1.00E-02	NA NA
Tetryl Metals	1.002-02	l lan	1.003-02	
	4.00E-04	NA	4.00E-04	NA
Antimony Barium	7.00E-02	NA	7.00E-03	NA
Copper	4.00E-02	NA	2.00E-02	NA
Lead	NA 3 00F 04	NA NA	NA 4.50E-05	NA NA
Mercury Selenium	3,00E-04 5,00E-03	NA NA	3.00E-03	NA NA
Thallium	7.00E-05	NA NA	7.00E-05	NA
Zinc	3.00E-01	NA	1.50E-01	NA
Herbicides				
2,4,5-T	8.00E-03	NA	8.00E-03	NA
MCPP	1.00E-03	NA	1.00E-03	NA.





CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Ti	raging me ays)
	(ing/kg-day)	(mg/kg-day)	(1118/1117)	(,)	(440)			Nc	Car
Volatile Organics									
		2.09E-13	2.68E-10	2	50	5	25	1,825	25,550
,1,2,2-Tetrachloroethane		2.09E-13	3.19E-10	2	50	5	25	1,825	25,550
Acetone		2.49E-13	3.19E-10	2	50	5	25	1,825	25,550
Benzene	2.005.12	2.4915-13	1.90E-10	2	50	5	25	1,825	25,550
Carbon Disulfide	2.08E-12	5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Chloroform	0.005.10	570 FG 3000 FG 500	7.60E-11	2	50	5	25	1,825	25,550
Methylene Chloride	8.33E-13	5.95E-14		2	50	5	25	1,825	25,550
Toluene	1.25E-12		1.14E-10	2	50	5	25	1,825	25,550
Xylene (total)			2.79E-10		30	-	2.0	1,025	25,550
Semivolatile Organics									
2.4-Dinitrotoluene			4.27E-08	2	50	5	25	1,825	25,550
2,6-Dinitrotoluene			6.84E-09	2 2	50	5	25	1,825	25,550
2-Methylnaphthalene			5.24E-08	2	50	5	25	1,825	25,550
3.3'-Dichlorobenzidine			0.00E+00	2	50	5 5	25	1,825	25,550
3-nitroaniline		1	0.00E+00	2	50	5	25	1,825	25,550
Acenaphthene			ERR	2	50	5	25	1,825	25,550
			ERR	2	50	5	25	1,825	25,550
Acenaphthylene		1	9.69E-08	2	50	5	25	1,825	25,550
Anthracene			1.07E-08	2	50	5	25	1,825	25,550
Benzo(a)anthracene	1		7.82E-08	2	50	5	25	1,825	25,550
Benzo(a)pyrene			2.76E-07	2	50	5	25	1,825	25,550
Benzo(b)fluoranthene			4.81E-07	2	50	5	25	1,825	25,550
Benzo(g,h,i)perylene			4.05E-07	2	50	5	25	1,825	25,550
Benzo(k)fluoranthene			1.78E-07	2	50	5	25	1,825	25,550
Carbazole				2 2 2	50	5	25	1,825	25,550
Chrysene			8.54E-08	2	50	5	25	1,825	25,550
Di-n-butylphthalate			3.41E-07	2 2	50	5	25	1,825	25,550
Dibenz(a,h)anthracene			2.85E-08	2 2	50	5	25	1,825	25,550
Dibenzofuran	1		ERR	2	50	5	25	1,825	25,550
Diethylphthalate	1	1	9.31E-08	2 2	50	5	25	1,825	25,550
Fluoranthene		1	7.23E-08		50	5	25	1,825	25,550
Fluorene		1	7.22E-10	2		5	25	1,825	25,550
Indeno(1,2,3-cd)pyrene		1	4.07E-07	2	50	5	25	1,825	25,550
N-Nitrosodiphenylamine (1)			7.75E-08	2	50		25	1,825	25,550
Naphthalene		1	2.25E-07	2	50	5			
Pentachlorophenol		1	2.15E-08	2	50	5	25	1,825	25,550
Phenanthrene		1	8.80E-08	2	50	5	25	1,825	25,550
Pyrene			4.19E-08	2	50	5	25	1,825	25,550
bis(2-Ethylhexyl)phthalate			2.80E-07	2	50	5	25	1,825	25,550

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Ti	raging ime ays)
	(mg/kg-day)	(mg/kg-day)	(mg/m³)	(m³/day)	(days/year)	(years)	(66)	Nc	Car
'esticides									
			1.22E-10	2	50	5	25	1,825	25,550
1,4'-DDD				2	50	5	25	1,825	25,550
,4'-DDE		00000000000000000000000000000000000000	6.87E-10		50	5	25	1,825	25,550
I,4'-DDT		2.59E-13	3.31E-10	2	-7753359A		25	1,825	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	2	50	5			25,550
Aroclor-1254	MANUFACTURE.	0.00E+00	0.00E+00	2	50	5	25	1,825	
Aroclor-1260		\$10000 Personal Color 1	7.28E-10	2	50	5	25	1,825	25,550
		1.12E-13	1.43E-10	2	50	5	25	1,825	25,550
Dieldrin		1.12.6	5.32E-10	2	50	5	25	1,825	25,550
Endosulfan I			1.28E-10	2	50	5	25	1,825	25,550
Endosulfan II			1.19E-10	2	50	5	25	1,825	25,550
Endosulfan sulfate		1	0.000.055555555555	2	50	5	25	1,825	25,550
Endrin			1.65E-10		41.00	5	25	1,825	25,550
Endrin aldehyde			9.66E-11	2	50		25	1,825	25,550
Endrin ketone		V	1.63E-10	2	50	5			25,550
Heptachlor		0.00E+00	0.00E+00	2	50	5	25	1,825	
Heptachlor epoxide		4.96E-14	6.33E-11	2	50	5	25	1,825	25,550
		0.00E+00	0.00E+00	2	50	5	25	1,825	25,550
Foxaphene			8.69E-11	2	50	5	25	1,825	25,550
alpha-Chlordane		5.42E-14	6.92E-11	2	50	5	25	1,825	25,550
beta-BHC		3.42E-14	0.00E+00	2	50	5	25	1,825	25,550
gamma-BHC (Lindane) gamma-Chlordane			9.54E-11	2	50	5	25	1,825	25,550
Nitroaromatics									
2 amino 4.6 Dinitrotoluene			0.00E+00	2	50	5	25	1,825	25,550
2-amino-4,6-Dinitrotoluene			0.00E+00	2	50	5	25	1,825	25,550
Fetryl		14	5,552.55	-	7780				
Metals									
N 44-1			1.43E-10	2	50	5	25	1,825	25,550
Antimony			1.44E-05	2	50	5	25	1,825	25,550
Barium	1.58E-07			2	50	5	25	1,825	25,550
Copper			3.42E-04		50	5	25	1,825	25,550
Lead			1.31E-05	2		5	25	1,825	25,550
Mercury	4.04E-06		3.69E-04	2	50			1,825	25,550
Selenium			4.62E-06	2	50	5	25		25,550
Thallium			3.33E-11	2	50	5	25	1,825	
Zinc			4.00E-09	2	50	5	25	1,825	25,550
Herbicides									9,5243
2.4.5 T			0.00E+00	2	50	5	25	1,825	25,550
2,4,5-T			0.00E+00	2	50	5	25	1,825	25,550
МСРР			0,005100						
EQUATION:	Intake (mg/k	g-day) =	CA x IR x E BW x A						
	Variables:					Assumptions:			
	IR = Inhalati EF = Exposi ED = Exposi BW = Bodyv	cal Concentration Rate (m³/da ure Frequency ure Duration (y veight (kg) ging Time (days	y) (days/yr) ears)	/m³)		2 (RME Child 50 5 (RME) 25 (Child)	ir EPC Data - 1 i) 70 x 365 (Car)	RME	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1.1.2.2-Tetrachloroethane		2.09E-13	NA	2.03E-01		4.25E-14
Acetone		CONTRACTOR DESCRIPTION	NA	NA		Notes and the same
Benzene		2.49E-13	NA	2.91E-02		7.24E-15
Carbon Disulfide	2.08E-12	- Comment of the	2.86E-03	NA	7.29E-10	UZMADIO PRIAMA
Chloroform		5.95E-14	NA	8.05E-02		4.79E-15
Methylene Chloride	8.33E-13	5.95E-14	8.57E-01	1.65E-03	9.72E-13	9.82E-17
Toluene	1.25E-12	Section Copyright	1.14E-01	NA	1.09E-11	
Xylene (total)			NA	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		
3-nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		1
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		1
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran		1	NA	NA		
Diethylphthalate			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene		1	NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene		1	NA	NA		
Pyrene		1	NA	NA		
bis(2-Ethylhexyl)phthalate			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4 41 DDD		10.000	NA	NA	100000	
4,4'-DDD	10.0		NA	NA		
1,4'-DDE	3.30	2.59E-13	NA	3.40E-01		8.80E-14
1,4'-DDT	0.00E+00	0.00E+00	1.70E+01	1.72E+01	0.00E+00	0.00E+00
Aldrin	0.002.00	0.00E+00	NA	4.00E-01		0.00E+00
Aroclor-1254	1000000	0,000	NA	NA		
Aroclor-1260		1.12E-13	NA	1.61E+01		1.81E-12
Dieldrin	1.4	1.1120.15	NA	NA		
Endosulfan I			NA	NA		
Endosulfan II			NA	NA	introduces and	
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin aldehyde			NA	NA		
Endrin ketone	-	0.00E+00	NA	4.55E+00		0.00E+00
Heptachlor		4.96E-14	NA	9.10E+00		4.51E-13
Heptachlor epoxide		0.00E+00	NA	1.12E+00		0.00E+00
Toxaphene	1 1	0.001.00	NA	NA		
alpha-Chlordane		5.42E-14	NA	1.86E+00		1.00E-13
beta-BHC		5.425-14	NA	NA	10000	
gamma-BHC (Lindane) gamma-Chlordane	1 2 7		NA	NA		
Nitroaromatics	1-25					
2-amino-4,6-Dinitrotoluene	1991		NA	NA		
Tetryl			NA	NA		
Tettyi						
Metals	200				allow I	
2 2	4,00		NA	NA		
Antimony	1.58E-07		1.43E-04	NA	1.10E-03	
Barium	1.56E-07		NA	NA	1100000000	
Copper			NA	NA		
Lead	4.04E-06		8.57E-05	NA	4.72E-02	
Mercury	4,042-00		NA	NA		
Selenium Thallium	4 /4		NA	NA		
			NA	NA		
Zinc	4.85			555051		
Herbicides						
			NA	NA		
2,4,5-T			NA NA	NA		
MCPP			INA	.,,,		
Total HQ & CR					4.83E-02	2.50E-12

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration

Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation

Seneca Army Depot Activity

COMPOUND	SURFACE SOIL EPC Data mg/kg	AVERAGE TSP (ug/m³)	CONVERSION FACTOR (kg/ug)	AMBIENT AIR CALCULATED EPC (mg/m³)	MEASURED AIR SAMPLES (mg/m³)	AMBIENT AIR EPC (mg/m³)
Volatile Organics						
1,1,2,2-Tetrachloroethane	7.04E-03	3.80E+01	1.00E-09	2.68E-10		2.68E-10
Acetone	8.38E-03	3.80E+01	1.00E-09	3.19E-10		3.19E-10
Benzene	5.00E-03	3.80E+01	1.00E-09	3.19E-10		3.19E-10
Carbon Disulfide	2.00E-03	3.80E+01	1.00E-09	1.90E-10		1.90E-10
Chloroform	2.00E-03	3.80E+01	1.00E-09	7.60E-11		7.60E-11
Methylene Chloride	3.00E-03	3.80E+01	1.00E-09	7.60E-11		7.60E-11
Toluene	7.33E-03	3.80E+01	1.00E-09	1.14E-10		1.14E-10
Xylene (total)	4.25E-03	3.80E+01	1.00E-09	2.79E-10		2.79E-10
Semivolatile Organics						
2,4-Dinitrotoluene	1.12E+00	3.80E+01	1.00E-09	4.27E-08		4.27E-08
2.6-Dinitrotoluene	1.80E-01	3.80E+01	1.00E-09	6.84E-09		6.84E-09
2-Methylnaphthalene	1.38E+00	3.80E+01	1.00E-09	5.24E-08	7.84E-05 U	5.24E-08
3.3'-Dichlorobenzidine	- MARKET 1969	3.80E+01	1.00E-09	0.00E+00		0.00E+00
3-nitroaniline		3.80E+01	1.00E-09	0.00E+00		0.00E+00
Acenaphthene	2.55E+00	3.80E+01	1.00E-09	ERR	7.84E-05 U	ERR
Acenaphthylene	2.82E-01	3.80E+01	1.00E-09	ERR		ERR
Anthracene	2.06E+00	3.80E+01	1.00E-09	9.69E-08	7.84E-05 U	9.69E-08
Benzo(a)anthracene	7.27E+00	3.80E+01	1.00E-09	1.07E-08		1.07E-08
Benzo(a)pyrene	1.27E+01	3.80E+01	1.00E-09	7.82E-08	1	7.82E-08
Benzo(b)fluoranthene	1.07E+01	3.80E+01	1.00E-09	2.76E-07		2.76E-07
Benzo(g,h,i)perylene	6.21E+00	3.80E+01	1.00E-09	4.81E-07		4.81E-07
Benzo(k)fluoranthene	4.68E+00	3.80E+01	1.00E-09	4.05E-07	1	4.05E-07
Carbazole	2.25E+00	3.80E+01	1.00E-09	1.78E-07	1	1.78E-07
Chrysene	8.97E+00	3.80E+01	1.00E-09	8.54E-08		8.54E-08
Di-n-butylphthalate	7.50E-01	3.80E+01	1.00E-09	3.41E-07	7.84E-05 U	3.41E-07
Dibenz(a,h)anthracene	2.45E+00	3.80E+01	1.00E-09	2.85E-08		2.85E-08
Dibenzofuran	1.90E+00	3.80E+01	1.00E-09	ERR	7.84E-05 U	ERR
Diethylphthalate	1.90E-02	3.80E+01	1.00E-09	9.31E-08	7.84E-05 U	9.31E-08
Fluoranthene	1.07E+01	3.80E+01	1.00E-09	7.23E-08		7.23E-08
Fluorene	2.04E+00	3.80E+01	1.00E-09	7.22E-10	7.84E-05 U	7.22E-10
Indeno(1,2,3-cd)pyrene	5.93E+00	3.80E+01	1.00E-09	4.07E-07		4.07E-07
N-Nitrosodiphenylamine (1)	5.66E-01	3.80E+01	1.00E-09	7.75E-08		7.75E-08
Naphthalene	2.32E+00	3.80E+01	1.00E-09	2.25E-07		2.25E-07
Pentachlorophenol	1.10E+00	3.80E+01	1.00E-09	2.15E-08		2.15E-08
Phenanthrene	7.37E+00	3.80E+01	1.00E-09	8.80E-08	7.84E-05 U	8.80E-08
Pyrene	1.25E+01	3.80E+01	1.00E-09	4.19E-08		4.19E-08
bis(2-Ethylhexyl)phthalate	1.45E+00	3.80E+01	1.00E-09	2.80E-07	7.84E-05 U	2.80E-07

TABLE 6-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

-02 3 -03 3 -02 3 -03 -02 -03 -03 -03 -03 -03 -03 -03 -03 -03 -03	3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01	1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09	1.22E-10 6.87E-10 3.31E-10 0.00E+00 0.00E+00 7.28E-10	10 m d	1.22E-10 6.87E-10 3.31E-10 0.00E+00
-02 3 -03 3 -02 3 -03 -02 -03 -03 -03 -03 -03 -03 -03 -03 -03 -03	3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01	1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09	6.87E-10 3.31E-10 0.00E+00 0.00E+00		6.87E-10 3.31E-10
-02 3 -03 3 -02 -03 -02 -03 -02 -03 -03 -03 -03 -03 -03 -03 -03 -03 -03	3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01	1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09	3.31E-10 0.00E+00 0.00E+00		3.31E-10
-03 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01	1.00E-09 1.00E-09 1.00E-09 1.00E-09	0.00E+00 0.00E+00		
-02 3 -03 3 -02 -03 3 -03 -03 3 -03 -03 3	3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01	1.00E-09 1.00E-09 1.00E-09	0.00E+00		0.00E+00
-02 3 -03 3 -02 -03 -03 -03 -03 -03 -03 -03 -03 -03 -03	3.80E+01 3.80E+01 3.80E+01 3.80E+01	1.00E-09 1.00E-09 1.00E-09			
-02 -03 -02 -03 -03 -03	3.80E+01 3.80E+01 3.80E+01	1.00E-09 1.00E-09	7.28E-10		0.00E+00
-03 3 -02 -03 -03 3 -03 3	3.80E+01 3.80E+01	1.00E-09			7.28E-10
-02 -03 -03 -03	3.80E+01		1.43E-10		1.43E-10
-03 3 -03 3 -03 3		1.00E-09	5.32E-10		5.32E-10
-03 -03	D.OOL OI	1.00E-09	1.28E-10		1.28E-10
-03	3.80E+01	1.00E-09	1.19E-10		1.19E-10
193500	3.80E+01	1.00E-09	1.65E-10		1.65E-10
	3.80E+01	1.00E-09	9.66E-11		9.66E-11
	3.80E+01	1.00E-09	1.63E-10		1.63E-10
	3.80E+01	1.00E-09	0.00E+00		0.00E+00
1202	3.80E+01	1.00E-09	6.33E-11		6.33E-11
DATE TO C. C.	3.80E+01	1.00E-09	0.00E+00		0.00E+00
AND THE RESERVE OF THE PARTY OF	3.80E+01	1.00E-09	8.69E-11		8.69E-11
50T-574 NS		1.00E-09	6.92E-11		6.92E-11
	3.80E+01 3.80E+01	1.00E-09	0.00E+00		0.00E+00
308		1.00E-09	9.54E-11		9.54E-11
-03	3.80E+01	1.00E-09	9.542-11		
				1	
	3.80E+01	1.00E-09	0.00E+00		0.00E+00
0.77	3.80E+01	1.00E-09	0.00E+00		0.00E+00
	T. (* * * * * * * * * * * * * * * * * * *	100000000000000000000000000000000000000			
				5,007-14	and any
E-03	3.80E+01	1.00E-09	1.43E-10	9.80E-06 U	1.43E-10
-02	3.80E+01	1.00E-09	3.58E-09	1.44E-05	1.44E-05
-02	3.80E+01	1.00E-09	1.96E-09	3.42E-04	3.42E-04
	3.80E+01	1.00E-09	7.30E-09	1.31E-05	1.31E-05
	3.80E+01	1.00E-09	1.48E-11	3,69E-04	3.69E-04
	3.80E+01	1.00E-09	3.78E-11	4.62E-06	4.62E-06
	3.80E+01	1.00E-09	3.33E-11	6.50E-06 U	3.33E-11
	3.80E+01	1.00E-09	4.00E-09	6.52E-05 U	4.00E-09
		1.005.00	0.005+00		0.00E+00
			SALESTED CO. 1		0.00E+00
	3.80E+01	1.00E-09	0.00E+00		0.002.00
Air EPC (mg/	m3) = Soil l	EPC x TSP x CF			
Li C (mg)		Assumptions:			
-1	d Air EPC (mg/	: tal Suspended Particulates	3.80E+01 1.00E-09 d Air EPC (mg/m3) = Soil EPC x TSP x CF Assumptions: tal Suspended Particulates Average value - 3	3.80E+01 1.00E-09 0.00E+00 d Air EPC (mg/m3) = Soil EPC x TSP x CF Assumptions:	3.80E+01 1.00E-09 0.00E+00 d Air EPC (mg/m3) = Soil EPC x TSP x CF : Assumptions: tal Suspended Particulates Average value - 38 ug/m3

U = Compound was not detected above the detection limit shown

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime ays)
Y = 40 - V	3 7 75 370		888	(3) (2.5	2222	20 20	8550	Ne	Car
Volatile Organics									
1,1,2,2-Tetrachloroethane		1.50E-12	2.68E-10	20	20	25	70	9,125	25,550
Acetone		17750000000000	3.19E-10	20	20	25	70	9,125	25,550
Benzene		1.78E-12	3.19E-10	20	20	25	70	9,125	25,550
Carbon Disulfide	2.97E-12		1.90E-10	20	20	25	70	9,125	25,550
Chloroform		4.25E-13	7,60E-11	20	20	25	70	9,125	25,550
Methylene Chloride	1.19E-12	4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Toluene	1.78E-12	1,1073,75,65%	1.14E-10	20	20	25	70	9,125	25,550
Xylene (total)			2.79E-10	20	20	25	70	9,125	25,550
Semivolatile Organics									
2,4-Dinitrotoluene			4.27E-08	20	20	25	70	9,125	25,550
2,6-Dinitrotoluene			6.84E-09	20	20	25	70	9,125	25,550
2-Methylnaphthalene			5.24E-08	20	20	25	70	9,125	25,550
3,3'-Dichlorobenzidine		E	0.00E+00	20	20	25	70	9,125	25,550
3-nitroaniline			0.00E+00	20	20	25	70	9,125	25,550
Acenaphthene			ERR	20	20	25	70	9,125	25,550
Acenaphthylene			ERR	20	20	25	70	9,125	25,550
Anthracene			9.69E-08	20	20	25	70	9,125	25,550
Benzo(a)anthracene			1.07E-08	20	20	25	70	9,125	25,550
Benzo(a)pyrene	1		7.82E-08	20	20	25	70	9,125	25,550
Benzo(b)fluoranthene			2.76E-07	20	20	25	70	9,125	25,550
Benzo(g,h,i)perylene			4.81E-07	20	20	25	70	9,125	25,550
Benzo(k)fluoranthene			4.05E-07	20	20	25	70	9,125	25,550
Carbazole	1		1.78E-07	20	20	25	70	9,125	25,550
Chrysene	1		8.54E-08	20	20	25	70	9,125	25,550
Di-n-butylphthalate			3.41E-07	20	20	25	70	9,125	25,550
Dibenz(a,h)anthracene			2.85E-08	20	20	25	70	9,125	25,550
Dibenzofuran			ERR	20	20	25	70	9,125	25,550
Diethylphthalate			9.31E-08	20	20	25	70	9,125	25,550
Fluoranthene			7.23E-08	20	20	25	70	9,125	25,550
Fluorene			7.22E-10	20	20	25	70	9.125	25,550
ndeno(1,2,3-cd)pyrene	1		4.07E-07	20	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			7.75E-08	20	20	25	70	9,125	25,550
Naphthalene	1		2.25E-07	20	20	25	70	9,125	25,550
Pentachlorophenol			2.15E-08	20	20	25	70	9,125	25,550
Phenanthrene			8.80E-08	20	20	25	70	9,125	25,550
Pyrene			4.19E-08	20	20	25	70	9,125	25,550
ois(2-Ethylhexyl)phthalate	1 1		2.80E-07	20	20	25	70	9,125	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake Intake (Nc) (Car)	EPC Inhalation Air Rate	Exposure Frequency	Exposure Duration	Body Weight	Averaging Time (days)			
	(mg/kg-day)	(mg/kg-day)	(mg/m ³)	(m³/day)	(days/year)	(years)	(kg)	No	Car
			1 22F 10	20	20	25	70	9,125	25,550
,4'-DDD			1.22E-10	20	20	25	70	9,125	25,550
,4'-DDE		550000000000	6.87E-10		20	25	70	9,125	25,550
,4'-DDT		1.85E-12	3.31E-10	20		25	70	9,125	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	20	20		70	9,125	25,550
Aroclor-1254		0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
Aroclor-1260			7.28E-10	20	20	25	2.000	9,125	25,550
Dieldrin		8.01E-13	1.43E-10	20	20	25	70		25,550
Endosulfan I			5.32E-10	20	20	25	70	9,125	25,550
Endosulfan II			1.28E-10	20	20	25	70	9,125	
			1.19E-10	20	20	25	70	9,125	25,550
Endosulfan sulfate			1.65E-10	20	20	25	70	9,125	25,550
Endrin			9.66E-11	20	20	25	70	9,125	25,550
Endrin aldehyde			1.63E-10	20	20	25	70	9,125	25,550
Endrin ketone		0.005+00	0.00E+00	20	20	25	70	9,125	25,550
Heptachlor		0.00E+00		20	20	25	70	9,125	25,550
Heptachlor epoxide		3.54E-13	6.33E-11	20	20	25	70	9,125	25,550
Toxaphene		0.00E+00	0.00E+00		20	25	70	9,125	25,550
alpha-Chlordane			8.69E-11	20		25	70	9,125	25,550
beta-BHC		3.87E-13	6.92E-11	20	20		70	9,125	25,550
gamma-BHC (Lindane)			0.00E+00	20	20	25	70	9,125	25,550
gamma-Chlordane			9.54E-11	20	20	25	70	9,123	23,330
Nitroaromatics				100					
a i de Di instalanta			0.00E+00	20	20	25	70	9,125	25,550
2-amino-4,6-Dinitrotoluene			0.00E+00	20	20	25	70	9,125	25,550
Tetryl			0.002.00	200					
Metals	- 3					-			25.550
A anti-manus		100	1.43E-10	20	20	25	70	9,125	25,550
Antimony	2.25E-07		1.44E-05	20	20	25	70	9,125	25,550
Barium	2.231.07	1 0	3.42E-04	20	20	25	70	9,125	25,550
Copper			1.31E-05	20	20	25	70	9,125	25,550
Lead	C 200 06		3.69E-04	20	20	25	70	9,125	25,550
Mercury	5.78E-06		4.62E-06	20	20	25	70	9,125	25,550
Selenium			C. C	20	20	25	70	9,125	25,550
Thallium			3.33E-11		20	25	70	9,125	25,550
Zinc			4.00E-09	20	20	23		2515/57/	
Herbicides	15		5.1	12/12/2			-		25.550
2,4,5-T			0.00E+00	20	20	25	70	9,125	25,550
			0.00E+00	20	20	25	70	9,125	25,550

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2-Tetrachloroethane		1.50E-12	NA	2.03E-01		3.04E-13
Acetone		10/10009-0100-010	NA	NA		1002-1002-100
Benzene		1.78E-12	NA	2.91E-02		5.17E-14
Carbon Disulfide	2.97E-12		2.86E-03	NA	1.04E-09	
Chloroform		4.25E-13	NA	8.05E-02		3.42E-14
Methylene Chloride	1.19E-12	4.25E-13	8.57E-01	1.65E-03	1.39E-12	7.01E-16
Toluene	1.78E-12		1.14E-01	NA	1.56E-11	
Xylene (total)	1000-0725-79-07		NA	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		
3-nitroaniline			NA	NA NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA NA		
Di-n-butylphthalate			NA	NA NA		
Dibenz(a,h)anthracene			NA	NA NA		
Dibenzofuran			NA	NA		
Diethylphthalate			NA	NA NA		
Fluoranthene			NA	NA NA		
Fluorene			NA	NA NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA NA		
Phenanthrene			NA	NA NA		
Pyrene			NA	NA		
bis(2-Ethylhexyl)phthalate			NA	NA NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUS EXPOSURE (RME) CASE 3

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
			NA	NA		
4,4'-DDD			NA.	NA		
4,4'-DDE		1.85E-12	NA.	3.40E-01		6.29E-13
4,4'-DDT	0.007.00	0.00E+00	1.70E+01	1.72E+01	0.00E+00	0.00E+00
Aldrin	0.00E+00	0.00E+00	NA NA	4.00E-01		0.00E+00
Aroclor-1254	I was trans	0.00E+00	NA NA	NA NA		1.000.000.000.000.000.000.000.000.000.0
Aroclor-1260		0.015.13	NA NA	1.61E+01		1.29E-11
Dieldrin		8.01E-13	NA NA	NA NA		1.272 11
Endosulfan I			0.2557	NA NA		
Endosulfan II			NA			
Endosulfan sulfate			NA	NA NA		
Endrin			NA	NA NA		
Endrin aldehyde	525		NA	NA		
Endrin ketone	4.5	0.400000 100 100 00	NA	NA		0.005.00
Heptachlor	100	0.00E+00	NA	4.55E+00		0.00E+00
Heptachlor epoxide		3.54E-13	NA	9.10E+00		3.22E-12
Toxaphene		0.00E+00	NA	1.12E+00		0.00E+00
alpha-Chlordane	TATE OF	TO THE CONTROL OF THE	NA	NA		21.000.200.000.20
beta-BHC	U MAL	3.87E-13	NA	1.86E+00		7.18E-13
gamma-BHC (Lindane)			NA	NA		
gamma-Chlordane			NA	NA		
Nitroaromatics	1.0		1	140		
50 TO TO THE PARTY OF THE PARTY.			NA	NA		
2-amino-4,6-Dinitrotoluene	100		NA NA	NA NA		
Tetryl	100		NA.	INA		
Metals						
Antimony	100		NA	NA		
Barium	2.25E-07		1.43E-04	NA	1.58E-03	
Copper	2.252.07		NA	NA		-
Lead	100		NA	NA		
	5.78E-06		8.57E-05	NA	6.74E-02	
Mercury	J./6L-00		NA NA	NA		
Selenium			NA	NA		
Thallium			NA.	NA NA		
Zinc			110		1000	
Herbicides				1		
2,4,5-T			NA	NA		
MCPP			NA	NA		
Total HQ & CR					6.90E-02	1.79E-11

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T (d	raging ime ays)
	((0 0 7)	1000000	a reads	10 GF 450 350		A-302	Nc	Car
Volatile Organics									
,1,2,2-Tetrachloroethane		7.48E-13	2.68E-10	20	250	1	70	365	25,550
Acetone		7,402 13	3.19E-10	20	250	1	70	365	25,550
Benzene		8.90E-13	3.19E-10	20	250	1	70	365	25,550
Carbon Disulfide	3.72E-11	0.702 13	1.90E-10	20	250	1	70	365	25,550
Chloroform	5.726-11	2.12E-13	7.60E-11	20	250	1	70	365	25,550
Methylene Chloride	1.49E-11	2.12E-13	7.60E-11	20	250	1	70	365	25,550
N TITTINE, TOURS (TOUR MANAGE)	2.23E-11	2.1215-15	1.14E-10	20	250	1	70	365	25,550
Toluene	2.23E-11		2.79E-10	20	250	î	70	365	25,550
Xylene (total)			2.791-10	20	230				
Semivolatile Organics									
2.4-Dinitrotoluene			4.27E-08	20	250	1	70	365	25,550
2,6-Dinitrotoluene			6.84E-09	20	250	1	70	365	25,550
2-Methylnaphthalene			5.24E-08	20	250	1	70	365	25,550
3.3'-Dichlorobenzidine		1	0.00E+00	20	250	1	70	365	25,550
3-nitroaniline			0.00E+00	20	250	1	70	365	25,550
Acenaphthene			ERR	20	250	1	70	365	25,550
Acenaphthylene			ERR	20	250	1	70	365	25,550
Anthracene			9.69E-08	20	250	1	70	365	25,550
Benzo(a)anthracene			1.07E-08	20	250	ı	70	365	25,550
Benzo(a)pyrene			7.82E-08	20	250	1	70	365	25,550
Benzo(b)fluoranthene			2.76E-07	20	250	1	70	365	25,550
Benzo(g,h,i)perylene	1		4.81E-07	20	250	1	70	365	25,550
Benzo(k)fluoranthene			4.05E-07	20	250	1	70	365	25,550
Carbazole			1.78E-07	20	250	1	70	365	25,550
Chrysene			8.54E-08	20	250	1	70	365	25,550
Di-n-butylphthalate			3.41E-07	20	250	1	70	365	25,550
Dibenz(a,h)anthracene			2.85E-08	20	250	i	70	365	25,550
Dibenzofuran		3	ERR	20	250	i	70	365	25,550
Diethylphthalate			9.31E-08	20	250	i	70	365	25,550
Fluoranthene			7.23E-08	20	250	i	70	365	25,550
Fluoranmene			7.22E-10	20	250	i	70	365	25,550
Indeno(1,2,3-cd)pyrene	1		4.07E-07	20	250	i	70	365	25,550
N-Nitrosodiphenylamine (1)			7.75E-08	20	250	i	70	365	25,550
			2.25E-07	20	250	i	70	365	25,550
Naphthalene		1	2.25E-07 2.15E-08	20	250	i	70	365	25,550
Pentachlorophenol			8.80E-08	20	250	i	70	365	25,550
Phenanthrene			4.19E-08	20	250	i	70	365	25,550
Pyrene		1	4.19E-08 2.80E-07	20	250	l i	70	365	25,550
bis(2-Ethylhexyl)phthalate			2.00E-07	20	230	1 4	7.0	303	25,55

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate	Exposure Frequency	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
,,,,,,,	(mg/kg-day)	(mg/kg-day)	(mg/m³)	(m³/day)	(days/year)	(years)	(NE)	Nc	Car
Pesticides									
5. 76.				20	250	1	70	365	25,550
,4'-DDD			1.22E-10	13.1	250	i	70	365	25,550
,4'-DDE		100000000000000000000000000000000000000	6.87E-10	20	250	i	70	365	25,550
,4'-DDT		9.26E-13	3.31E-10	20	MOCC.	1	70	365	25,550
Aldrin	0.00E+00	0.00E+00	0.00E+00	20	250	3	70	365	25,550
Aroclor-1254	Secure and secure	0.00E+00	0.00E+00	20	250		70	365	25,550
Aroclor-1260		manager was a	7.28E-10	20	250	1	70	365	25,550
Dieldrin		4.01E-13	1.43E-10	20	250		70	365	25,550
Endosulfan I			5.32E-10	20	250	1	70	365	25,550
Endosulfan II			1.28E-10	20	250	1		365	25,550
Endosulfan sulfate			1.19E-10	20	250	1	70	365	25,550
Endrin			1.65E-10	20	250	1	70	365	25,550
Endrin aldehyde			9.66E-11	20	250	1	70		25,550
Endrin aldenyde Endrin ketone			1.63E-10	20	250	1	70	365	
Heptachlor		0.00E+00	0.00E+00	20	250	1	70	365	25,550
		1.77E-13	6.33E-11	20	250	1	70	365	25,550
Heptachlor epoxide		0.00E+00	0.00E+00	20	250	1	70	365	25,550
Toxaphene		0.002.00	8.69E-11	20	250	1	70	365	25,550
alpha-Chlordane		1.93E-13	6.92E-11	20	250	1	70	365	25,550
beta-BHC		1.93E-13	0.00E+00	20	250	1	70	365	25,550
gamma-BHC (Lindane)			9.54E-11	20	250	1	70	365	25,550
gamma-Chlordane			9,546-11	20	25			- million	
Nitroaromatics							1	2.024	
a : 46 Di-it-taluana			0.00E+00	20	250	1	70	365	25,550
2-amino-4,6-Dinitrotoluene			0.00E+00	20	250	1	70	365	25,550
Tetryl			3.45,600 CAR					100000	
Metals							70	265	25,550
Antimony			1.43E-10	20	250	1	70	365	25,550
Barium	2.82E-06		1.44E-05	20	250	1	70	365	25,550
Copper			3.42E-04	20	250	1	70	365	
Lead		10.	1.31E-05	20	250	1	70	365	25,550
	7.22E-05		3.69E-04	20	250	1	70	365	25,550
Mercury Selenium	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		4.62E-06	20	250	1	70	365	25,550
Thallium			3.33E-11	20	250	1	70	365	25,550
Zinc		121-1	4.00E-09	20	250	1	70	365	25,550
Herbicides								J.	
2.4.5-T			0.00E+00	20	250	1	70	365	25,550
2,4,5-1 MCPP			0.00E+00	20	250	1	70	365	25,550
MCPP			193						
EQUATION:	Intake (mg/k	g-day) =	CA x IR x E BW x A						
	Vasiables					Assumptions	ı		
	Variables:					-	ir EPC Data - 1	RME	
		cal Concentrat ion Rate (m³/da		/m²)		20 (all recept			

IR = Inhalation Rate (m³/day)

EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)

BW = Bodyweight (kg)

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

250 (RME Construction Workers)

70 (Adult Male) 1 x 365 (Nc) 70 x 365 (Car)

1 (Upper bound period of Construction Worker)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						,
1,1,2,2-Tetrachloroethane		7.48E-13	NA	2.03E-01		1.52E-13
Acetone			NA	NA		
Benzene		8.90E-13	NA	2.91E-02		2.59E-14
Carbon Disulfide	3.72E-11	3350 0,750,0170	2.86E-03	NA	1.30E-08	Salvaens (24)
Chloroform		2.12E-13	NA	8.05E-02		1.71E-14
Methylene Chloride	1.49E-11	2.12E-13	8.57E-01	1.65E-03	1.74E-11	3.51E-16
Toluene	2.23E-11		1.14E-01	NA	1.95E-10	
Xylene (total)	DIEDE II		NA	NA		
Africae (total)			37.07.60	JENG!		
Semivolatile Organics						
2.4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		
3-nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Carbazole			NA	NA		
Chrysene	1		NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran		1	NA	NA		
Diethylphthalate			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		1
bis(2-Ethylhexyl)phthalate			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
			NA	NA		
4,4'-DDD		100	NA NA	NA NA		
4,4'-DDE			52335	3.40E-01		3.14E-13
4,4'-DDT	6020476736396	9.26E-13	NA 1 705 - 01	1.72E+01	0.00E+00	0.00E+00
Aldrin	0.00E+00	0.00E+00	1.70E+01		0.002:00	0.00E+00
Aroclor-1254		0.00E+00	NA -	4.00E-01		0.002.00
Aroclor-1260			NA	NA		6.45E-12
Dieldrin		4.01E-13	NA	1.61E+01		0,43E-12
Endosulfan I	100		NA	NA		
Endosulfan II			NA	NA		
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin aldehyde	100		NA	NA		
Endrin ketone			NA	NA	Charles Cold	0.007.00
Heptachlor		0.00E+00	NA	4.55E+00		0.00E+00
Heptachlor epoxide	480	1.77E-13	NA	9.10E+00		1.61E-12
Toxaphene		0.00E+00	NA	1.12E+00		0.00E+00
alpha-Chlordane	1 1 2 2 2		NA	NA		
beta-BHC		1.93E-13	NA	1.86E+00	1000	3.59E-13
gamma-BHC (Lindane)			NA	NA		
gamma-BHC (Eliterate)			NA	NA		
Nitroaromatics	1					
a i de Distrutuluone			NA	NA		1
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl			****			
Metals	1 20					
Antimony			NA	NA		
Barium	2.82E-06		1.43E-04	NA	1.97E-02	1
Copper	1. The second se		NA	NA		
Lead	100		NA	NA	-0.000	
Mercury	7.22E-05		8.57E-05	NA	8.42E-01	
Selenium			NA	NA		
Thallium	4676		NA	NA		
Zinc			NA	NA		
Herbicides	1 1					
			NA	NA		
2,4,5-T	1		NA NA	NA NA	-	
MCPP			NA	INA		
Total HQ & CR					8.62E-01	8.93E-12

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration

Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 6-20 CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Chid) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

CASE 3	.D-16 Remedial Investigation	eneca Army Depot Activity
	2	Š

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
										ž	5
Volatile Organics											
1,1,2,2,-Tetrachloroethane		5.51E-10	7.04E-03	200	1.00E-06		20	٠.	25	1,825	25,550
Acetone	9.19E-09		8.38E-03	200	1.00E-06		20	n •	2 5	1,825	25,550
Benzene	20. 10.	3.91E-10	3.00E-03	200	1.00E-06		00.00	0 4	3 %	578,1	055,55
Carbon Disulfide	2.19E-09		2.00E-03	200	1.00E-06	.,	20	^ *	3 2	578,1	25,550
Chlorotorm	2 201 00	1.5/5-10	2.00E-03	200	1.00E-06		20		3 ;	579.1	00000
Methylene Chlonde	3.295-09	7.35E-10	3.005-03	200	1.00E-06		200	n 4	3 %	578.1	00000
Xylene (total)	4.66E-09		4.25E-03	200	1.00E-06		200	n •n	3 23	1,825	25.550
Semivolatile Organics											
,				-				,	,		
2,4-Dinitrotoluene	1.235-06		1.125+00	200	1.005-06		000	n •	3 %	1,823	066,62
2,9-Diminololuche	1.275-07		1305-01	200	1 005 06	• •	000	n •	3 %	1 976	36 660
z-memyinapnimalene			1.385+00	700	1.00E-00		20	n	3	679'1	00000
A			3 665,000	900	1 005 06		9	٠	34	1 875	25 550
Acenaphulene	3 00E.07		2 87E-01	2002	1 00E-06		000		1 %	1 875	25.550
Acthoropa	20000	1615.07	3 DEE 100	200	1 00 1 06		200	. •	35	1 875	25,550
Anunacene		1.015-07	7.725.00	200	1 000 000		000	n v	3 %	30.0	25.550
Denzo(a)animiscenc		0.035-07	1,275+00	200	1 005 06		000	۰ ۲	3 %	200,1	25,550
Denzo(h)Guerrahan		7.745-07	1075-01	2002	1 005 06		200	۰,۷	1 %	1.875	25.550
Denzo(a)tinoranicine		4 925 07	2015-01	200	1 005 06		000	. •	3 %	2001	26,560
Barro (L) fluorenthene		3 67E-07	4 68F+00	2002	1 00E-06		200	. •	1 %	1 875	25 550
Carbazole		1 76F-07	2.25F+00	200	1 00F-06	-	20	. •	2	1 825	25 550
Chrisene	9 83E-06		8 97E+00	200	1 00E-06		50	. 40	22	1.825	25.550
Di-n-hutylphthalate		\$ 87F-08	7 SOF-01	200	1 00F-06	-	50	8	25	1 825	25 550
Dibenz(a h)anthracene			2.45E+00	200	1.00E-06		50	5	52	1.825	25,550
Dibenzofuran	2.08E-06		1.90E+00	200	1.00E-06	-	50	٠,	25	1.825	25.550
Diethylohthalate	2.08E-08		1.90E-02	200	1.00E-06	-	50		25	1.825	25,550
Fluoranthene	1.17E-05		1.07E+01	200	1.00E-06	-	20	8	25	1.825	25,550
Fluorene		1.60E-07	2.04E+00	200	1.00E-06	-	20	8	25	1,825	25,550
Indeno(1,2,3-cd)pyrene		4.64E-07	5.93E+00	200	1.00E-06	-	20	s	22	1,825	25,550
N-Nitrosodiphenylamine (1)			5.66E-01	200	1.00E-06		50	8	52	1,825	25,550
Naphthalene	2.54E-06	1.81E-07	2.32E+00	200	1.00E-06	-	20	8	25	1,825	25,550
Pentachlorophenol	Contract of the Contract of th		1.10E+00	200	1.00E-06	-	20	8	52	1,825	25,550
Phenanthrene	8.08E-06		7.37E+00	200	1.00E-06	-	20	8	25	1,825	25,550
Pyrene	1.37E-05	9.81E-07	1.25E+01	200	1.00E-06	-	20	s	52	1,825	25,550
bis(2-Ethylhexyl)phthalate	1.59E-06	1.13E-07	1.45E+00	200	1.00E-06	-	20	2	25	1,825	25,550

TABLE 6-20

CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Child Intake (Nc) (mg/kg-day)	Pesticides	44'-DDD 1.98E-08 4,4'-DDT 9.55E-09	Aroclor-1260 2.10E-08 Dieldrin 4.13E-09	Endosulfan II 3.70E-09 Endosulfan sulfate 3.42E-09	Endrin aldehyde Endrin ketone 4.71E-09	Heptachlor Heptachlor epoxide	1 oxaphene alpha-Chlordane beta-BHC	gamma-Chlordane delta-BHC	Metals	Antimony 4.13E-09 Barium 1.03E-07	Lead 2.11E-07 Mercury 4.26E-10 Selenium 1.09E-09 Thalltom 9.59E-10 Zine 1.11SE-07	EQUATION: Intake (mg/kg-day) = CSxIRxCExFIxEFxED, BWXxAT	Variables:	CS = CB = Fig = Fi
			80	88	89		60	6		-03	60,000	day) =	les:	hemic ngestion conver- raction Exposu Exposu Bodyw
Child Intake (Car) (mg/kg-day)		1.41E-09 6.82E-10	1.50E-09		3.36E-10	1.30E-10	1.79E-10	1.29E-10			8.23E-09	CSxIRxCFxJ		CS = Chemical Concentration in Soil (mg soil/kg) Re ingestions Reate (mg soil/day) CF = Convertion Factor (11-6 kg/mg) FI = Fraction Ingested (unitless) ET = Expouser Frequency (days/sears) ED = Expouser Duration (years) ED = Expouser Duration (years) AT = Avereine Time (days)
EPC Soil (mg/kg)		3.21E-03 1.81E-02 8.71E-03	1.91E-02 3.77E-03 1.40E-02	3.38E-03 3.12E-03 4.33E-03	2.54E-03 4.30E-03	1.67E-03	2.29E-03 1.82E-03	2.51E-03 1,64E-03	14	3.77E-03 9.41E-02	1,92E-01 3,89E-04 9,94E-04 8,75E-04 1,05E-01	EXFLEE		uton in Soil (oil/day) 10-6 kg/mg) intless) y (days/year (years)
Child Ingestion Rate (mg soil/day)		200	200 200 200	200	200	200	200	200	Ų.	200	200 200 200 200 200	LED.		mg soil/kg)
Conv. Factor (kg/mg)		1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06 1.00E-06		1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06		Assumptions:	EPC Soil Data - R 200 (RME Child) 10-6 10-6 50 (RME) 55 (RME) 55 (RME) 55 (SME)
Fraction Ingested (unitless)													19	EPC Soil Data - RME 200 (RME Child) 10-6 10-7 10-7 10-7 10-7 10-7 10-7 10-7 10-7
Exposure Frequency (days/year)		50 50 50	20.00	2 2 2 2	2 2 2	8 8 8	20 20	20		20 05	20 20 20 20 20 20 20 20 20 20 20 20 20 2			(Car)
Exposure Duration (years)		8 8 8	25.50	~ ~ ~	v v v	, v, v	NN	22		so so	****			
Body Weight (kg)		ឯឯឯ	มมม	ឯឯឯ	ងងដ	ามม	នេង	ฆฆ	-11	ฆฆ	ลลลลล			
Averaging Time (days) Nc C		1,825	1,825 1,825 1,825	228.1 228.1 228.1	1,825	1,825	1,825	1,825		1,825	1,825 1,825 1,825 1,825 1,825			
ne ne (33) Car		25,550 25,550 25,550	25,550 25,550 25,550	25,550 25,550 25,550	25,550	25,550	25,550	25,550		25,550	25,550 25,550 25,550 25,550 25,550			

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation

Seneca Army Depot Activity

Analyte	Child CDI (Nc)	Child CDI (Car)	RfD	Oral Slope Factor	Child Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)	(mg/kg-day)	(mg/kg-day)-1		
Volatile Organics						
1,1,2,2,-Tetrachloroethane		5.51E-10	NA	2.00E-01		1.10E-10
Acetone	9.19E-09		1.00E-01	NA	9.19E-08	
Benzene		3.91E-10	NA	2.90E-02		1.14E-11
Carbon Disulfide	2.19E-09	ACCUSON MANAGEMENT	1.00E-01	NA	2.19E-08	2000 0000000000000000000000000000000000
Chloroform	2.19E-09	1.57E-10	1.00E-02	6.10E-03	2.19E-07	9.55E-13
Methylene Chloride	3.29E-09	2.35E-10	6.00E-02	7.50E-03	5.48E-08	1.76E-12
Toluene	8.04E-09		2.00E-01	NA	4.02E-08	
Xylene (total)	4.66E-09		2.00E+00	NA	2.33E-09	
Semivolatile Organics						
2,4-Dinitrotoluene	1.23E-06		2.00E-03	NA	6.16E-04	
2,6-Dinitrotoluene	1.97E-07	1	1.00E-03	NA	1.97E-04	
2-methylnaphthalene			NA	NA	113723	
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene	3.09E-07		NA	NA		
Anthracene		1.61E-07	3.00E-01	NA		
Benzo(a)anthracene		5.69E-07	NA	7.30E-01		4.15E-07
Benzo(a)pyrene		9.92E-07	NA	7.30E+00		7.24E-06
Benzo(b)fluoranthene		CONTRACTOR AND A	NA	7.30E-01		1070070.727
Benzo(g,h,i)perylene		4.86E-07	NA	NA		
Benzo(k)fluoranthene		3.67E-07	NA	7.30E-01		2.68E-07
Carbazole		1.76E-07	NA	2.00E-02		3.52E-09
Chrysene	9.83E-06		NA	7.30E-02		
Di-n-butylphthalate		5.87E-08	1.00E-01	NA		
Dibenz(a,h)anthracene			NA	7.30E+00		
Dibenzofuran	2.08E-06		NA	NA		
Diethylphthalate	2.08E-08		8.00E+00	NA	2.60E-09	
Fluoranthene	1.17E-05	1 1	4.00E-02	NA	2.93E-04	
Fluorene	TOURNAME WORKS	1.60E-07	4.00E-02	NA		
Indeno(1,2,3-cd)pyrene		4.64E-07	NA	7.30E-01		3.39E-07
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene	2.54E-06	1.81E-07	NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene	8.08E-06		NA	NA		
Pyrene	1.37E-05	9.81E-07	3.00E-02	NA	4.58E-04	
ois(2-Ethylhexyl)phthalate	1.59E-06	1.13E-07	2.00E-02	1.40E-02	7.93E-05	1.59E-09

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3 **SEAD-16 Remedial Investigation** Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Pesticides						
			5.00E-04	2.40E-01		
4,4'-DDD	1.98E-08	1.41E-09	NA	NA		
4,4'-DDE	9.55E-09	6.82E-10	5.00E-04	3.40E-01	1.91E-05	2.32E-10
4,4'-DDT	9.336-09	0.621-10	3.00E-05	1.70E+01		
Aldrin		to see a see	2.00E-05	2.00E+00		
Aroclor-1254	2.10E-08	1.50E-09	NA NA	7.70E+00		1.15E-08
Aroclor-1260	100 CO 100 CO 100 CO	1.50E-09	5.00E-05	1.60E+01	8.27E-05	Caneusoneed
Dieldrin	4.13E-09		6.00E-03	NA NA		
Endosulfan I	2 202 00		NA	NA NA		
Endosulfan II	3.70E-09		5.00E-05	NA NA	6.84E-05	
Endosulfan sulfate	3.42E-09		3.00E-04	NA NA	0.012 05	
Endrin			NA	NA NA		
Endrin aldehyde	37022232	2 2 4 7 10		NA NA		
Endrin ketone	4.71E-09	3.36E-10	NA 5 00F 04	4.50E+00		
Heptachlor			5.00E-04	9.10E+00		1.19E-09
Heptachlor epoxide	100	1.30E-10	1.30E-05			1.1715-07
Toxaphene			NA	1.10E+00		2.33E-10
alpha-Chlordane	W-000000000000000000000000000000000000	1.79E-10	6.00E-05	1.30E+00		2.33E-10
beta-BHC	2.00E-09		NA	1.80E+00		
gamma-BHC (Lindane)	3		3.00E-04	NA		
gamma-Chlordane	Total Control of the		NA	NA		
delta-BHC	1.80E-09	1.29E-10	NA	NA		
Nitroaromatics		dis				
	1		NA	NA		
2-amino-4,6-Dinitrotoluene			1.00E-02	NA.		
Tetryl			1.0015-02			
Metals	4 12	-		100		
	4 125 00		4.00E-04	NA	1.03E-05	
Antimony	4.13E-09		7.00E-02	NA NA	1.47E-06	
Barium	1.03E-07	100	4.00E-02	NA NA	1.472.00	
Copper	0.4470.07	10000	4.00E-02 NA	NA NA		
Lead	2.11E-07		3.00E-04	NA NA	1.42E-06	
Mercury	4.26E-10			NA NA	2.18E-07	
Selenium	1.09E-09		5.00E-03	165200000	1.37E-05	
Thallium	9.59E-10		7.00E-05	NA NA	3.84E-07	
Zinc	1.15E-07	8.23E-09	3.00E-01	NA NA	3.84E-07	
Herbicides			Same of the			
245			1.00E-02	NA		
2,4,5-T			1.00E-03	NA		
MCPP			1.000.00	100000		
Totals - HQ & CR					1.84E-03	8.28E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

11/03/97

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL. REASONABLE MAXIMUM EXPOSITE (RME) SEAD-16 Remedial Incertigation Senera Army Depot Activity

Averaging Time (davs)	Car	25.550 25	No.	25.550 25.550 25.550	25.550 25.550 25.550	25,550	25,550 25,550 25,550	25,550	25,550	25.550	25,550	25.55		25.550 25.550 25.550 25.550	25,550	25,550	25,550	25,550	25.550	25,550	25.550		25,550
Aver Ti	Nc	25.25.25.25.25.25.25.25.25.25.25.25.25.2	1	1,825 1,825 1,825	28. 28. 28. 28. 28. 28.	388	28.28	528	1,825	28.1	28.28	22,52,53		28.1 28.2 28.1 28.2 28.1	1.825 1.825 2.831 2.835	1,825	1,825	228.1	528.1	1,825	1,825		1.825
Body Weight (kg)		กกกกกกก	3	กหล	กกกก	ឧឧឧ	ឯងឯ	ងងង	หห	ឧឧឧ	ងងង	រោងងង		กกกก	អអ	ខេត	ងង	ងអ	ลหห	នេន	ឧឧឧ		21 22
Exposure Duration (vents)		W W W W W W W W	1	***	40 40 40 40	n *n *n	80 80 80	w w	~ ~ ~	n vn vn	vn vn v	· • • • •		41 40 40 40	w w «	· • • •	50 VS	w w w	n wa wa	· 50 50	s, s, s,		v, v,
Exposure Frequency (events/year)		8888888	R	888	8888	288	888	888	20 20	288	888		i	8888	888	2 2 2	50	8 8 8	2 2 2	20.00	8 8 8		50 50
Absorption Factor (unitless)							I								90.0		ı						
Adherence Factor (mg soil/cm²)		9999999	3	999	2222	222	222	222	0.0.0	222	222	2222		2000	0.01	222	0.1	0 0 0	200	0 0	0 0 0		0.1
Skin Surface Area Contact (cm³/event)	-	2,300 2,300 2,300 2,300 2,300	NC**	2,300	2,300 2,300 2,300 2,300	2,300	2,300 2,300	2300 2300 2300	2,300	2,78	2,300	2,300 2,300 2,300	VOLUME 1	2,300 2,300 2,300 2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300		2,300
Conv. Factor (kg/mg)		1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06	no-zove	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06	1,00E-06	1.00E-06 1.00E-06	1.00E-06	1.005-06		1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.005-06	1.00E-06	1.00E-06 1.00E-06		1.00E-06
EPC Soil (mg/kg)		7,04E-03 8,38E-03 5,00E-03 2,00E-03 3,00E-03 7,33E-03 4,55E-03		1.12E+00 1.80E-01 1.38E+00	2.55E+00 2.82E-01	2.06E+00 7.27E+00 1.27E+01	1.07E+01 6.21E+00 4.68E+00	2.25E+00 8.97E+00 7.50E-01	2.45E+00 1.90E+00	1.07E+01 2.04E+00	5.93E+00 5.66E-01	1.10E+00 7.37E+00 1.25E+01 1.45E+00		3.21E-03 1.81E-02 8.71E-03	1.91E-02	1.40E-02 3.38E-03	3.12E-03 4.33E-03	2.54E-03 4.30E-03	1.67E-03	2.29E-03 1.82E-03	2.51E-03		
Absorbed Dose (Car) (mg/kg-day)															1.03E-09								
Absorbed Dose (Nc) (mg/kg-day)						1																	
Analyte	Volatile Organics	1,1,2,2-Tetrachlorochane Acetone Beazene Carbon Dasifide Carbon Dasifide Methylene Chloride Methylene Chloride Yoloure	Semivolatile Organics	2.4-Dinitrotoluene 2.6-Dinitrotoluene 2-methylnaphthalene	3,3-Dichloroberzidine 3-nitronniline Acenaphhene Acenaphhylene	Anthracene Berzo(a)anthracene Berzo(a)pyrene	Benzo(g.h.i)perylene Benzo(g.h.i)perylene Benzo(k)fluoranthene	Carbazole Chrysene Di-n-butylphthalate	Dibenz(a,h)anthracene Dibenzofuran	Dictiviphthalate Fluoranthene Fluorene	Indeno(1,2,3-ed)pyrene N-Nitrosodiphenylamine (1)	Pentantherne Phenantherne Pyrene Pyrene bis(2-Ethylbery1)phthalate	Pesticides	4,4-DDD 4,4-DDE 4,4-DDT Aldrin	Aroclor-1254 Aroclor-1260 Dieldrin	Endosulfan I	Endosulfan sulfate Endrin	Endrin aldehyde Endrin ketone	Heptachlor epoxide Toxaphene	alpha-Chlordane beta-BHC	gamma-BHC (Lindane) gamma-Chlordane delta-BHC	Nitroaromatics	2-amino-4,6-Dinitrotoluene Tetryl

TABLE 6-26 CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL REASONABLE MAXIMUM EXPOSURE (RME) SEASONABLE MAXIMUM EXPOSURE (RME) SEASONABLE MAXIMUM SCHOSURE (RME) SEASONABLE MAXIMUM SCHOSURE (RME)

Child Absorbed Analyte Dove (Nc)	ep-8x/8m)	Metals	Antinwoocy	hiber	arcury	Scienium Dallium Zne	Herbicides	2,4,5-T MCPP	EQUATION:	Absorbed Dose (mg/sg-	Variables:	CS = Chemi CF = Conve SA = Surfac AF = Sol 10s
_ 70	(in								1	N = (imp-)		rersion Fac ice Area Co o Skin Adh
Child Absorbed Dose (Car)	(imp.ga/dim)								17 - 13 - AU - 1	BWIAT		CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Context (cm?) AF = Soil to SM, Atherence Febror (mg/cm?) ARS = Ahorenties Factor (millers)
EPC Soll	(Sydm)	1775.01	9.41E-02	5.16E-02	3.89E-04	8.75E-04 1.05E-01			P. A.BC . FF.			(mg soil/kg) sg/cm*)
Conv. Factor	(8,8)	1.00F-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	N.	1.00E-06 1.00E-06	6	1	Assumptions:	EPC Soil Data - RME 10-6 2,300 (RME Child) 1.0 (RME all receptors) Compound Specific PCI
Child Skin Surface Area Contact (cm²/ccm1)		2.300	2,300	2,300	2,300	2300	I	2,300				EPC Soil Data - RME E. 16-6 2,300 (RME Child) B 3 2,400 (RME ni receptor) A Compound Specific PCBs and Cd (EPA, 1992b)
Adherence Factor		1.0	0.0	0.0	1.0	999		0.0				C4 (EPA, 199
Absorption Factor (unitless)											Variables:	EF = Exposure Freque ED = Exposure Duratio BW = Bodyweight (kg) AT = Averaging Time (2b)
Exposure Frequency (events/vear)		95	9, 5	2 2	9, 9	2.8.8		250				EF = Exposure Frequency (events/year) 50 (RME) ED = Exposure Duration (years) 5 (RME) SW = Bodyweight (kg) 25 kg (chill) AT = Averaging Time (days) 5 x 365 (M) b)
Exposure Duration (years)		8	v. v	• •	v v	. v. v.		s s				(events/year) ears)
Body Weight (kg)		25	21 %	าม	22 22	ងង		22 23			Assumptions	50 (RME) 5 (RME) 25 kg (child) 5 x 365 (Nc),
Averaging Time (days)	Nc	1,825	1,825	528	1,825	1,825		1,825			11	90 (RME) 25 (RME) 25 kg (child) 5 x 365 (Nc), 70 x 365 (Cur)
ging ne rs)	Car	25,550	25,550	25,550	25,550	25,550		25,550				(m)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene		1	6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation Space A rough Densit Activity

Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Pesticides		300000-20-0000				
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1254			1.90E-05	2.11E+00		
Aroclor-1260		1.03E-09	NA	8.11E+00		8.39E-09
Dieldrin			5.00E-05	1.60E+01	100	
Endosulfan I			6.00E-03	NA		
Endosulfan II			NA	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA		
Heptachlor			5.00E-04	4.50E+00		
Heptachlor epoxide			1.30E-05	9.10E+00		
Toxaphene			NA	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
			NA	1.80E+00		
beta-BHC gamma-BHC (Lindane)			3.00E-04	NA		
gamma-Bric (Enidane)			NA	NA		
delta-BHC			NA	NA		
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA	- 10	
Tetryl	7.		1.00E-02	NA		
reay.						
Metals						
Antimony			4.00E-04	NA		
Barium		1	7.00E-03	NA		
Copper		1	2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			1.50E-01	NA		
Herbicides						
2,4,5-T		II.	1.00E-02	NA		
MCPP			1.00E-03	NA		
Totals - HQ & CR						8.39E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

11/03/97

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver T.I.	Averaging Time (davs)
										Je .	5
Volatile Organics								į	3	1	
1.1.2,2,-Tetrachloroethane	6 S6F-10	1.97E-10	7.04E-03 8.38F-03	001	1.00E-06		20	ន្តន	2 2	9,125	25,550
Benzene		1,40E-10	\$.00E-03	00	1.00E-06		50	22.2	22	9,125	25,550
Carbon Disulfide	1.57E-10	\$ 59E-11	2.00E-03	8 8	1.00E-06		2 2	3 22	2 2	9,125	25.550
Methylene Chloride	2.35E-10	8.39E-11	3.00E-03	001	1.00E-06	_,	02.5	52.5	21	9,125	25.550
(ylene (total)	3,74E-10		4.25E-03	8 8	1.00E-06		2,2	าม	9.8	9,125	25,550
Semivolatile Organica											
	90 200 9		0073611	901	30,000	,	30	36	9	0 175	25 550
2,4-Dintrotoluene 2,6-Dintrotoluene 2-methylnaphthalene	1.41E-08		1.80E-01	9 00	1.00E-06		222	នេន	55	9,125	25,550
		000000	000000	2	1 005 06	-	90	36	ę	9 135	25 550
3,3 -Denioropenzione 3-nitroaniline		O'ONE AND	0.00E+00	8 9	1.00E-06		2 02	23	2	9,125	25,550
Acenaphthene	2.00E-07		2.55E+00	100	1.00E-06		0.50	20 20	25	9,125	25,550
Acemphthylene	1,618-07		2.82E-01	8 6	1.00E-06		202	3 22	2 2	9.125	25.550
Benzo(a)anthracene		2.03E-07	7.27E+00	100	1.00E-06		20	25	2	9,125	25,550
Benzo(a)pyrene		3.54E-07	1.276+01	90 90	1.00E-06		2 50	22 22	2 2	9.125	25,550
enzo(o)nuorannene		30E-01	6.21E+00	8 8	1.00E-06	-	20	22	2	9,125	25,550
Benzo(k)fluoranthene		1.31E-07	4.68E+00	100	1.00E-06	-	50	22.	21	9,125	25,550
Carbazole		6.28E-08	2.25E+00	8 8	1.00E-06	-	20	2 %	2 2	9,125	25,550
Crtry sene Di-n-butylphthalate	5.87E-08	10-315-7	7.50E-01	88	1.00E-06	-	2 02	33	2	9,125	25,550
Dibenz(a,h)anthracene	NA PASSELLA	6.85E-08	2.45E+00	8 8	1.00E-06		20	21 %	22	9,125	25,550
Dibertzofuran	1 495.00		1.90F-02	80	1.00E-06		20 20	3 23	2 2	9.125	25,550
Fluorunthene	8.38E-07		1.07E+01	100	1.00E-06	-	20	XI:	2	9,125	25.550
Fluorene	1.60E-07	200 200	2.04E+00	8 8	1.00E-06		20 50	X1 X	22	9,125	25,550
N-Nitrosodiphenylamine (1)		1.58E-08	\$.66E-01	8 8	1.00E-06	000	22	ដ	R	9,125	25,550
Naphthalene	8 64F-08	3.09E.08	2.32E+00	8 8	1.00E-06		2 2	ឧ	2 8	9,125	25,550
Phenanthrene	200		7.37E+00	100	1.00E-06	-	20	n	2	9,125	25.550
Pyrene pis(2-Ethylhexyl)phthalate	9.81E-07 1.13E-07	4,05E-08	1.25E+01 1.45E+00	88	1.00E-06 1.00E-06		2 2	ឧឧ	22	9,125	25,550
Pesticides											
dar.ppp	2 41F.10	8 98F-11	3.21F-03	100	1.00E-06	70	20	22	2	9,125	25,550
4,4-DDE			1.81E-02	100	1.00E-06		22	22	21	9,125	25,550
t,4-DDT	6.82E-10	2.44E-10	8.71E-03	88	1.00E-06	e c	2 2	a x	2 2	9,125	25.55
Aroclor-1254	0.00E+00	0.00E+00	0.00E+00	8 8	1.00E-06	-	20	23	2	9,125	25,550
Aroclor-1260	1	5.35E-10	1.91E-02	100	1,00E-06	-	50	20 2	22	9.125	25.55
Dieldrin Endosulfan I	2.95E-10	1.05E-10	3.77E-03	8 8	1.00E-06		3 2	3 23	28	9,125	25,55
ndosulfun II			3.38E-03	100	1.00E-06	-	92	52	2	9,125	25,550
Endosulfun sulfate	2.44E-10		3.12E-03	8 8	1.00E-06		2 2	มม	2 2	9.125	25.55
Endrin aldehyde	2.235.10		2.54E-03	90	1.00E-06	-	50	23	2	9,125	25,55
Endrin ketone	000000	0.005400	4.30E-03	98 8	1.00E-06		20 02	22 22	2 2	9,125	25,558
deptachlor epoxide	1.30E-10	4.66E-11	1.67E-03	8 8	1.00E-06	-	2	23	8	9,125	25,55
Toxaphene aloha-Chlordane	1 795-10	0.00E+00 6.10F-11	0.00E+00	88	1.00E-06	50.0	22	23 23	22	9,125	25,550
eta-BHC	200	5.09E-11	1.82E-03	001	1.00E-06	-	50	22	9	9,125	25,55
gamma-BHC (Lindane)	0.00E+00		0.00E+00 2.51E-03	88	1.00E-06 1.00E-06		22	នន	22	9,125	25,550
Jelta-BHC			1.64E-03	001	1.00E-06	-	20	52	٩	9,125	25,55(
Vitroaromatics											
2-amino-4.6-Dinitrotoluene			0.00E+00	901	1.00E-06	=	50	25	70	9,125	25,550
AUTOMORPHIC C'S CONTINUE OF			o out I vo						-	2000	

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKERE ENCHAURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CARED STOOSURE (RME) SEAD-16 Remetal Interdiguies Serce Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Expessure Duration (years)	Body Weight (kg)	Aver Th (da	Averaging Time (days)
Metals										Nc	Č
	3 052.10		1 775.01	901	1 005.06	2	06	35	6	9119	25 550
Authority	7.36E-00		9.41F.02	8 90	1 00F-06		20	3.5	2 2	9.125	25.550
Darrum	4 045 09		\$ 16F-02	8 8	1 00E-06		200	1 %	20	9 125	25.550
cadber	CO-Thorn		1.92E-01	100	1.00E-06		20	12	2	9,125	25.550
Mercury	3.05E-11		3.89E-04	100	1.00E-06	-	20	25	20	9,125	25.550
Selenium	7.78E-11		9.94E-04	100	1.00E-06	_	20	25	70	9,125	25,550
Thallium	6.85E-11		8.75E-04	100	1.00E-06	-	20	25	70	9,125	25,550
Sinc	8.23E-09		1.05E-01	100	1.00E-06	-	20	23	8	9,125	25,550
Herbicides											
2.4.5-T	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	20	9,125	25,550
MCPP	0.00E+00		0.00E+00	100	1.00E-06	-	50	ກ	92	9,125	25,550
EQUATION:	Intake (mg/kg-day) =	-day) =	CSIRI	CS. IR. CF. FILEF. ED BW: AT	a						
	Variables:					Assumptions.	4				
	CS = Chemical Concen IR = ingestion Rate (in CF = Conversion Factor FI = Fraction ingested EE = Exposure Freque ED = Exposure Preque EM = Exposure Portette AA = Aversation [Inc.]	CS = Chemical Concentration in Soil (mg toil/kg) R = Ingestion Rate (mg oil/day) (RR = Ingestion Rate (mg oil/day) (RF = Expension Frequency (days/sars) RF = Expension Frequency (days/sars) RF = Rapourer Duration (years) RW = Boyereted (milden) AR = Actualist (Gava) AR = Actualist (Gava)	in Soil (mg lay) (kg/mg) iss) aya/years) rr)	solfkg)		EPC Soil Data - RME 100 (RME Site Worker 10-6 1 (All Receptors) 20 (RME Site Worker) 22 (RME Site Worker) 25 (RME Site 305 (No. 7) (August 205 Site 305 No. 7) (August 205 Site 305 No. 7) 235 No. 70 2365	EPC Soil Data - RME 100 (RME Site Worker) 10-6 (I (All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 25 x x x x (No. 70 x x x x x (No. 70 x x x x x x (No. 70 x x x x x x x x x x x x x x x x x x	9			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3 SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane		1.97E-10	NA	2.00E-01		3.94E-11
Acetone	6.56E-10		1.00E-01	NA	6.56E-09	
Benzene		1.40E-10	NA	2.90E-02		4.05E-12
Carbon Disulfide	1.57E-10		1.00E-01	NA	1.57E-09	Total Control of the
Chloroform	1.57E-10	5.59E-11	1.00E-02	6.10E-03	1.57E-08	3.41E-13
Methylene Chloride	2.35E-10	8.39E-11	6.00E-02	7.50E-03	3.91E-09	6.29E-13
Toluene	5.74E-10	10000000000000000000000000000000000000	2.00E-01	NA	2.87E-09	in the contraction
Xylene (total)	3.33E-10		2.00E+00	NA	1.66E-10	
Semivolatile Organics						
2,4-Dinitrotoluene	8.80E-08		2.00E-03	NA	4.40E-05	
2,6-Dinitrotoluene	1.41E-08		1.00E-03	NA	1.41E-05	
2-methylnaphthalene	300000000000000000000000000000000000000		NA	NA		
3,3'-Dichlorobenzidine		0.00E+00	NA	4.50E-01		0.00E+00
3-nitroaniline		0.0000000000000000000000000000000000000	NA	NA		F-500-X-500-750
Acenaphthene	2.00E-07		6.00E-02	NA	3.33E-06	
Acenaphthylene			NA	NA		
Anthracene	1.61E-07	V. V. Arrentona I	3.00E-01	NA	5.37E-07	STATE OF THE PARTY
Benzo(a)anthracene		2.03E-07	NA	7.30E-01		1.48E-07
Benzo(a)pyrene	1	3.54E-07	NA	7.30E+00		2.59E-06
Benzo(b)fluoranthene	1	2.98E-07	NA	7.30E-01		2.18E-07
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		1.31E-07	NA	7.30E-01		9.56E-08
Carbazole		6.28E-08	NA	2.00E-02		1.26E-09
Chrysene	12/42/07/07/02/04/07	2.51E-07	NA	7.30E-02		1.83E-08
Di-n-butylphthalate	5.87E-08	501416304-0445	1.00E-01	NA	5.87E-07	2000
Dibenz(a,h)anthracene		6.85E-08	NA	7.30E+00		5.00E-07
Dibenzofuran			NA	NA		
Diethylphthalate	1.49E-09		8.00E+00	NA	1.86E-10	
Fluoranthene	8.38E-07		4.00E-02	NA	2.10E-05	
Fluorene	1.60E-07	A2079000000000000	4.00E-02	NA	3.99E-06	100000000000000000000000000000000000000
Indeno(1,2,3-cd)pyrene		1.66E-07	NA	7.30E-01		1.21E-07
N-Nitrosodiphenylamine (1)		1.58E-08	NA	4.90E-03		7.75E-11
Naphthalene	100000000	0.000000	NA	NA		
Pentachlorophenol	8.64E-08	3.09E-08	3.00E-02	1.20E-01	2.88E-06	3.70E-09
Phenanthrene			NA	NA		
Pyrene	9.81E-07		3.00E-02	NA	3.27E-05	
ois(2-Ethylhexyl)phthalate	1.13E-07	4.05E-08	2.00E-02	1.40E-02	5.67E-06	5.67E-10

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3 **SEAD-16 Remedial Investigation** Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides						
4.4'-DDD	2.51E-10	8.98E-11	5.00E-04	2,40E-01	5.03E-07	2.15E-11
4,4'-DDE			NA	NA		-371
4,4'-DDT	6.82E-10	2.44E-10	5.00E-04	3.40E-01	1.36E-06	8.28E-11
Aldrin	0.00E+00	0.00E+00	3.00E-05	1.70E+01	0.00E+00	0.00E+00
Aroclor-1254	0.00E+00	0.00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+00
Aroclor-1260	31023	5.35E-10	NA	7.70E+00		4.12E-09
Dieldrin	2.95E-10	1.05E-10	5.00E-05	1.60E+01	5.90E-06	1.69E-09
Endosulfan I	1.09E-09	131.5	6.00E-03	NA	1.82E-07	
Endosulfan II	1.072 07	ALCOHOL:	NA	NA		and the same
Endosulfan sulfate	2.44E-10		5.00E-05	NA	4.89E-06	
Endrin	3.39E-10		3.00E-04	NA	1.13E-06	
Endrin aldehyde	2,072,13		NA	NA		
Endrin ketone	100		NA	NA		
Heptachlor	0.00E+00	0.00E+00	5.00E-04	4.50E+00	0.00E+00	0,00E+00
Heptachlor epoxide	1.30E-10	4.66E-11	1.30E-05	9.10E+00	1.00E-05	4.24E-10
Toxaphene	1,502-10	0.00E+00	NA	1.10E+00	PARAMETERS.	0.00E+00
alpha-Chlordane	1.79E-10	6.39E-11	6.00E-05	1.30E+00	2.98E-06	8.31E-11
aipna-Chiordane beta-BHC	1.7915-10	5.09E-11	NA NA	1.80E+00		9.16E-11
	0.00E+00	3,071-11	3.00E-04	NA	0.00E+00	244.000
gamma-BHC (Lindane)	0,00E+00		NA NA	NA NA	0.002.00	
gamma-Chlordane delta-BHC			NA	NA NA		
дена-вис	454701	X-1		210.5		
Nitroaromatics	15.5%					
2-amino-4,6-Dinitrotoluene			NA	NA		
Tetryl	0.00E+00	The same of	1.00E-02	NA	0.00E+00	1
rea y.		100				
Metals	100	1.30		Europi I		
Antimony	2.95E-10	1,0	4.00E-04	NA	7.38E-07	
Barium	7.36E-09		7.00E-02	NA	1.05E-07	1
Copper	4.04E-09		4.00E-02	NA	1.01E-07	
Lead			NA	NA		
Mercury	3.05E-11		3.00E-04	NA	1.02E-07	
Selenium	7.78E-11	74.00	5.00E-03	NA	1.56E-08	
Thallium	6.85E-11	and a late	7.00E-05	NA	9.78E-07	
Zinc	8.23E-09	145	3.00E-01	NA	2.74E-08	
			550 5 750 5570m			
Herbicides				F-15		
2,4,5-T	0.00E+00		1.00E-02	NA	0.00E+00	
MCPP	0.00E+00		1.00E-03	NA	0.00E+00	
Totals - HQ & CR	SUPERIOR PERSON				1.58E-04	3.70E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL,
SITE WORKER EVOSITE (CIRRENT LAND USE)
REASONALE MAXIMUM EXPOSITE (RME)
SEASONALE MAXIMUM EXPOSITE (RME)
SEASONALE MAXIMUM STABLE MAXIMUM SEASON MAXIMUM SEASON MAXIMUM SEASON MAXIMUM DEPONATORY TABLE 6-22

Analyte	Volatile Organics	1,1,2,-Tetrachloroethane Acetone Beruzene Chen Disulfide Chloroform Methylene Chloride Xylene (total)	Semivolatile Organics	2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-methylnaphthalene	3,3.Dichlorobenzidine 3-nitroaniline Accumphthene Actumphthylene Anthracene	Benzo(a)pyrene Benzo(b)fluoranthene	Benzo(g,h,i)perylene Benzo(k)fluoranthene Carbazole	Chrysene Di-n-butylphthalate Di-norda hymethecome	Diserzofuran Diserzofuran	Fluoranthene	Indeno(1,2,3-ed)pyrene N-Nitrosodiphenylamine (1) Naphthalene	Pentachlorophenol Phenanthrene Pyrene	ong 2-t.my mexys pathalate Pesticides	4,4-DDD 4,4-DDE 4,4-DDT	Aldrin Aroclor-1254	Aroclor-1260 Dieldrin	Endosulfan II	Endosultan sultate Endrin Endrin aldebyde	Endrin ketone	Heptachlor epoxide	loxaphene alpha-Chlordane	gamma-BHC (Lindane)	delta-BHC	Nitroaromatics	Z-ammo-4.6-Dinitrotoluene Tetrvi
Dose (Nc) (mg/kg-day)																									
Dose (Car) (mg/kg-day)																1.86E-09									
EPC Soil (mg/kg)		7.04E-03 8.38E-03 5.00E-03 2.00E-03 3.00E-03 7.33E-03 4.25E-03		1.12E+00 1.80E-01 1.38E+00	2.55E+00 2.82E-01 2.06E+00	7.27E+00 1.27E+01 1.07E+01	6.21E+00 4.68E+00 2.25E+00	8.97E+00 7.50E-01	1.90E+00	2.04E+00	5.93E+00 5.66E-01 2.32E+00	7.37E+00 1.25E+01	1.435.400	3.21E-03 1.81E-02 8.71E-03		1.91E-02 3.77E-03	1,40E-02 3,38E-03	4.33E-03	4,30E-03	1.67E-03	2.29E-03	2.51E-03	1.64E-03		
Conv. Factor (kg/mg)		1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06 1,00E-06		1.00E-06 1.00E-06 1.00E-06	1,00E-06 1,00E-06 1,00E-06 1,00E-06	1.00E-06 1.00E-06 1.00E-06	1.005-06	1.00E-06 1.00E-06	1.006-06	1.00E-06	1.005-06	1.00E-06	P.ME-40	1.00E-06 1.00E-06 1.00E-06	1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.005-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	70 300 1	1.00E-06
Skin Surface Area Contact (cm²/event)		5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800		5,800 5,800 5,800	5,800 5,800 5,800 5,800 5,800	5,800 5,800 5,800	5,800 5,800 5,800	5,800	5,800	5,800	5,800 5,800 5,800	5,800 5,800	2,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	2,800	5,800	5,800	000	5,800
Adherence Factor (mg soil/cm²)		2222222		0.1	99999	010	999	222	222	0.0	999	9999	2	222	0.01	071	0 0 0	900	0.0	0.0	200	0.0	1.0		0.0
Absorption Factor (unitless)															90.0	90.0									
Exposure Frequency (events/year)		88888888		222	22222	ននន	ននន	222	188	222	222	8888	3	222	50 50	22	222	200	222	388	388	2 2	20	9	3 23
Exposure Duration (years)		กลกลกลกล		ลลล	ลลลลล	ឧឧឧ	กห	ងងដ	าหหา	ងង៖	ឧឧឧ	ននន	3	ងងង	នន	នន	ននេះ	0 XI X	1 22 2	1213	2 22 2	រោង	25	ř	0 X
Body Weight (kg)		2222222		222	22222	222	222	222	2221	228	222	222	2	222	22	66	228	288	225	288	288	288	02	F	2 2
Averagir Time (days)		9,125 9,125 9,125 9,125 9,125 9,125		9,125 9,125 9,125	9,125 9,125 9,125 8,125 8,125	9,125 9,125 9,125	9,125 21,6 21,6	9,125	9,125	9,125	21.9 21.9 21.0 21.0	21.6	21%	9,125 9,125 9,125	9,125	9,125	9,125	9,125	9,125	52.5	9,125	9.125	9,125	?	9,125
Averaging Time (days) Car		25.550 25.550 25.550 25.550 25.550 25.550 25.550 25.550 25.550 25.550 25.550		25.550 25.550 25.550	25.550 25.550 25.550 25.550 25.550	25,550	25.550 25.550 25.550	25,550	25.550	25,550	25,550 25,550 25,550	25,550 25,550 25,550	055,53	25,550 25,550 25,550	25.550	25,550	25,550	25,550	25,550	25,550	25,550	25.550	25,550	029.24	25,550

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO ONSITE SOIL. SITE WORKER EXPOSITE (CIREEN'I LAND USE) REASONABLE MAXIMUM EXPOSITE (RME) SEASONABLE MAXIMUM EXPOSITE (RME) SEASONABLE MAXIMUM EXPOSITE (RME) SEASONABLE MAXIMUM EXPOSITE (RME) SEASONABLE MAXIMUM DEPM ACHIVITY

Analyte	Dose (Nc)	Dose (Car)	Soll (mo/ke)	Conv. Factor (ke/me)	Skin Surface Area Contact (cm³/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/verr)	Exposure Duration (years)	Body Weight (kg)	Aver Tie (ds	Averaging Time (days)
	(mg/kg-may)	_	(Swall)	19			CANTO STORY OF THE				Nc	Car
tals								81				
			1775-01	1.00F-06	5.800	1.0		20	25	9	9,125	25,550
Young			9.415.07	1 00F-06	5,800	1.0		20	25	6	9,125	25,550
uni			\$ 16F.00	1 00F-06	5.800	1.0		20	25	2	9,125	25,550
per			1 92F-01	1 00E-06	5,800	1.0		20	25	2	9,125	25,550
			3.89E-04	1.00E-06	5,800	1.0		20	25	9	9,125	25,550
- Continue			9.94E-04	1.00E-06	5,800	1.0		20	25	2	9,125	25,530
flien			8.75E-04	1.00E-06	5,800	1.0		2 2	n	2 8	9,125	25,550
9			1.05E-01	1.00E-06	5,800	0.1		2	g	9	7,143	055,53
rbicides												
1.5				1.00E-06	5.800	1.0		20	25	02	9,125	25,550
CPP				1.00E-06	5,800	1.0		92	22	R	9,125	25,550
											ţ.	
SOATION:	Absorbed don	Absorbed dose (mg/kg-day) = CSICFISAIAFIABSIEFIED. BW x AT	CSICEISA	BWIAT	EFLED							
ariables:			Assumptions:				Variables:			Assumptions:		
S = Chemical Concentration in Soil (mg soil/kg) P = Conversion Factor (196 kg/mg) A = Surface Area Contact (cm?) A = Soil to Skin Adherence Extor (mg/cm?) St = Absornion Factor (militars)	ation in Soil (mg so (10-6 kg/mg) et (cm²) see Factor (mg/cm² (unitless)	ALVED (EPC Soil Data - RME 10-6 5,800 cm* (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd	EPC Soil Data - RME 10-6 5,806 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs	r)		EF = Exposure Freque ED = Exposure Durstlo BW = Bodyweight (kg) AT = Aversging Time (EF = Exposure Frequency (events/year) ED = Exposure Durstinn (years) BW = Bodyweight (kg) AT = Aversiging Time (days)	ats/year)	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Mate) 25 x 365 (Nc) 70 x 365 Adult (Car)	(Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-16 Remedial Investigation

Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide			1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
Xylene (total)			2.00E+00	NA		
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-methylnaphthalene			NA	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene	1		NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene	1		NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Diethylphthalate			8.00E+00	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene	1		NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene	1		NA	NA		
Pentachlorophenol	1		3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene	1		3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-16 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Pesticides			The second secon			
(4' DDD			5.00E-04	2.40E-01		100
4,4'-DDD	The same 11		NA	NA		
4,4'-DDE 4,4'-DDT	100		5.00E-04	3.40E-01		
4,4-DD1 Aldrin			3.00E-05	1.70E+01		
Aroclor-1254			1.90E-05	2.11E+00		
Aroclor-1254 Aroclor-1260		1.86E-09	NA	8.11E+00		1.51E-08
Arocior-1200 Dieldrin		1.002.07	5.00E-05	1.60E+01		1500556.00
Endosulfan I			6.00E-03	NA		
Endosulfan II			NA	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin aldehyde			NA.	NA		
Endrin ketone	10.0	AND IN	NA	NA		
Heptachlor			5.00E-04	4.50E+00		
Heptachlor epoxide			1.30E-05	9.10E+00		
Toxaphene			NA	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
gamma-BHC (Lindane)		10000	3.00E-04	NA		
gamma-Chlordane			NA	NA		
delta-BHC		Mark to	NA	NA		
	100	200				
Nitroaromatics						
2-amino-4,6-Dinitrotoluene		44	NA	NA		
Tetryl	1	1.00	1.00E-02	NA		
Metals						
Antimony		0.00	4.00E-04	NA		
Barium	100		7.00E-03	NA		e called
Copper		200	2.00E-02	NA		
Lead		The state of the s	NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Thallium	700	1.00	7.00E-05	NA		
Zinc			1.50E-01	NA		
		10.787				
Herbicides		5 100				
2,4,5-T		100	1.00E-02	NA		- 4
MCPP			1.00E-03	NA		1 2 -
					-	
Totals - HQ & CR						1.51E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

11/03/97

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS
INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Control Cont	11 0 12 12 12 12 12 12 12 12 12 12 12 12 12			EPC	Ingestion	Conv.	Fraction	Exposure	Exposure	Body	Aver	Averaging
1.77E-10	Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	Soil (mg/kg)	Rate (mg soil/day)	Factor (kg/mg)	Ingested (unitless)	Frequency (days/year)	Duration (years)	Weight (kg)	10,105	
1.175-10 1.075-10	Volatile Organics											
1.175-10	1,1,2,2,-Tetrachloroethane	6 S6F-10	1.97E-10	7.04E-03 8.38F-03	001	1.00E-06		20	zi zi	70	9,125	25.550
1,150,00 5,96,11 1,000,00	Benzene		1,40E-10	5.00E-03	00 5	1.00E-06		2 2 2	121	20	9,125	25,550
133E-10 133E-10 130E-34 100 100E-36 1	Carbon Disulfide Chloroform	1.57E-10	5.59E-11	2.00E-03	8 90	1.00E-06		2 22	ព្ឋ	20 20	9,125	25,550
1,19E-10	Methylene Chloride	2.35E-10	8,39E-11	3.00E-03	00 5	1.00E-06		20	XI X	0,00	9,125	25,550
1,18E-06 100E-06 100E-06 1	Xylene (total)	3.33E-10		4.25E-03	001	1.00E-06		20	22	20	9,125	25,550
1,1E-07 1,1E-07 1,0E-06 1,0E-06 1,0E-06 1,0E-06 1,0E-07 1,0E	Semivolatile Organics											
16 20 20 20 20 20 20 20 2	2,4-Dinitrotoluene 2,6-Dinitrotoluene	8.80E-08 1.41E-08		1.12E+00 1.80E-01	000	1.00E-06 1.00E-06		50 50 50 50 50 50	22 22 22	07.05	9,125	25,550
STREAM S	3 3'-Dichlombenzidine		0.005+00	0.0000	901	1 00E-06		20	23	2 2	9.125	25.550
SNE-07 2.00E-07 2.00E-07 1.00E-06 1 20 25 70 9.113	3-nitroaniline			0.00E+00	100	1.00E-06	_	20	22	0,1	9,125	25,550
150E-97 150E	Acenaphthene	2.00E-07		2.55E+00 2.82E-01	90 00	1.00E-06		20	ឧឧ	2 2	9,125	25,550
1.95E-97 1.72E-97 1.00E-96 1.00E-96 2.00E-97 2.20E-97	Anthracene	1.61E-07	20 200	2.06E+00	100	1.00E-06		50	22 %	28	9,125	25,550
138E-97 1.07E-91 1.00E-96 1 20 25 70 9.125 2.58E-97 2.58E-97 1.00E-96 1 20 25 70 9.125 2.58E-98 2.58E-90 100 1.00E-96 1 20 25 70 9.125 2.58E-98 2.58E-90 100 1.00E-96 1 20 25 70 9.125 3.87E-98 6.85E-98 1.00E-96 1 20 25 70 9.125 1.58E-99 1.58E-90 100 1.00E-96 1 20 25 70 9.125 1.58E-99 1.58E-90 100 1.00E-96 1 20 25 70 9.125 1.58E-97 1.58E-97 1.00E-96 1 2.00E-96 1 20 25 70 9.125 1.58E-98 1.00E-96 1 2.00E-96 1	Benzo(a)anthracene Benzo(a)pvrene		3.54E-07	1.276+01	8 8	1.00E-06		20	3 23	2 2	9,125	25,550
131E-07 148E-09 100 100E-06 1	Benzo(b)fluoranthene		2.98E-07	1.07E+01	8 8	1.00E-06		50	22 22	2 5	9,125	25,550
5.87E-08 5.85E-08 2.25E-00 100 100E-06 1 20 25 70 9,125 5.87E-08 6.85E-08 2.45E+00 100 100E-06 1 20 25 70 9,125 1.49E-09 1.25E-07 1.00E-06 1 20 25 70 9,125 1.49E-09 1.25E-07 1.00E-06 1 20 25 70 9,125 8.38E-07 1.00E-07 1.00E-06 1 20 25 70 9,125 1.60E-07 1.00E-06 1.00E-06 1 20 25 70 9,125 1.00E-07 1.00E-06 1.00E-06 1 20 25 70 9,125 1.13E-07 1.05E-08 1.10E+00 1.00E-06 1 20 25 70 9,125 1.13E-07 1.05E-08 1.00E-06 1 20 25 70 9,125 1.13E-07 1.05E-08 1.00E-06 1 20 25 70	Benzo(k)fluoranthene		1.31E-07	4.68E+00	8 8	1.00E-06		2 2	123	5 6	9,125	25,550
\$878-08 \$278-04 \$100 100E-06 \$100 25 \$27 70 \$125 1.98E-09 1.98E-09 1.98E-09 1.00E-06 1.00E-06 25 70 \$125 1.98E-09 1.98E-09 1.00E-06 1.00E-06 1.00E-06 25 70 \$125 1.98E-09 1.00E-06 1.00E-06 1.00E-06 1.00E-06 25 70 \$125 1.98E-09 1.00E-00 1.00E-06 1.00E-06 25 70 \$125 1.66E-07 1.00E-06 1.00E-06 1.00E-06 25 70 \$125 1.66E-07 1.00E-06 1.00E-06 1.00E-06 25 70 \$125 1.06E-07 1.00E-06 1.00E-06 1.00E-06 25 70 \$125 1.13E-07 1.00E-06 1.00E-06 1.00E-06 20 25 70 \$125 1.13E-07 1.00E-06 1.00E-06 1.00E-06 20 25 70 \$125 1.13E-07 1.13E-07 1.00E-06	Carbazole		6.28E-08	2.25E+00	001	1.00E-06		50	22.22	28	9,125	25,550
1,9E-99 1,9E-90 100 1,00E-66 1 20 25 70 9,125 1,9E-90	Chrysene Di-n-butylphthalate	5.87E-08	7.51E-0/	7.50E-01	8 8	1.00E-06		50	2 22	5 02	9,125	25,550
1,49E-09	Dibenz(a,h)anthracene		6.85E-08	2.45E+00	90	1.00E-06		20	22 2	5 5	9,125	25,550
8.38E-07 1.06E-07	Diethylphthalate	1,49E-09		1.90E-02	8 8	1.005-06		20 20	2 22	5 6	9,125	25,550
1,00E-07 1,60E-07 2,00E-06 1,00E-06	Fluoranthene	8.38E-07		1.07E+01	100	1.00E-06		20	22	2,5	9,125	25,550
1.38E-48 3.09E-48 1.00E-40 100E-40 1.00E-40	Fluorence Indense 1 3 3-edimentume	1.60E-07	1 66F-07	2.04E+00	8 8	1.00E-06		20	22	9,02	9,125	25,550
& 64E-08 3.09E-08 1.32E+00 100 100E-06 1 20 25 70 9,125 9.81E-07 4.05E-08 1.10E+00 1.00E-06 1 20 25 70 9,125 1.13E-07 4.05E-08 1.25E+0 100 1.00E-06 1 20 25 70 9,125 1.13E-07 4.05E-08 1.45E+00 100 1.00E-06 1 20 25 70 9,125 2.51E-10 8.98E-11 2.11E-03 100 1.00E-06 20 25 70 9,125 6.83E-10 2.44E-10 8.71E-03 100 1.00E-06 20 25 70 9,125 0.00E-09 0.00E-09 1.00E-06 1.00E-06 20 25 70 9,125 1.09E-09 0.00E-09 1.00E-06 1.00E-06 20 25 70 9,125 1.09E-09 1.05E-10 1.00E-06 1.00E-06 1.00E-06 20 25 70 9,125	N-Nitrosodiphenylamine (1)		1.58E-08	\$.66E-01	00 5	1.00E-06		202	22.2	22	9,125	25,550
9.81E-07	Naphthalene Pentachlorophenol	8.64E-08	3.09E-08	1.10E+00	8 8	1.00E-06		2 2	2 23	6 6	9,125	25,550
1.13E-07	Phenanthrene	Carry March		7.37E+00	001	1.00E-06	-	20	25	0,1	9,125	25,550
2.51E-10 8.98E-11 3.21E-03 100 1.00E-66 1 20 25 70 9,125 (6.82E-10 2.44E-10 8.71E-03 100 1.00E-66 1 20 25 70 9,125 (6.82E-10 2.44E-10 8.71E-03 100 1.00E-66 1 20 25 70 9,125 (6.82E-10 0.00E-00 0.00E-00 100E-66 1 20 20 25 70 9,125 (6.82E-10 1.00E-00 1.00E-66 1 20 20 25 70 9,125 (6.82E-10 1.00E-10 1.00E-66 1 20 20 25 70 9,125 (6.82E-10 1.00E-10 1.00E-66 1 20 20 25 70 9,125 (6.82E-10 1.00E-10 1.00E-66 1 20 20 25 70 9,125 (6.82E-10 1.00E-60 1.00E-66 1 20 20 25 70 9,125 (6.82E-10 1.00E-60 1.00E-66 1 20 20 25 70 9,125 (6.82E-10 1.00E-60 1 20 20 20 25 70 9,125 (6.82E-10 1.00E-60 1 20 20 25 70 9,125 (6.82E-10 1.00E-60 1 20 20 20 25 70 9,125 (6.82E-10 1.00E-60 1 20 20 20 20 20 20 20 20 20 20 20 20 20	Pyrene bis(2-Ethylhexyl)phthalate	9.81E-07 1.13E-07	4.05E-08	1.45E+00	100	1.00E-06		20	ឧង	0 P	9,125	25,550
2,51E-10 8,98E-11 3,21E-03 100 1,00E-66 1 20 25 70 9,125 6,83E-10 2,44E-10 1,81E-02 100 1,00E-66 1 20 25 70 9,125 0,00E-60 0,00E-60 100 1,00E-66 1 20 25 70 9,125 0,00E-60 0,00E-60 100 1,00E-66 1 20 25 70 9,125 2,98E-10 1,05E-10 1,01E-60 1 1,00E-66 1 20 25 70 9,125 1,09E-09 0,00E-60 1,00E-60 1 1,00E-66 1 20 25 70 9,125 1,09E-09 1,17E-03 100 1,00E-66 1 20 25 70 9,125 2,44E-10 1,17E-03 100 1,00E-66 1 20 25 70 9,125 3,9E-10 1,17E-03 100 1,00E-66 1 20 25 70 <td>Pesticides</td> <td></td>	Pesticides											
6.82E-10 2.44E-10 8.71E-20 100 100E-66 1 20 25 70 9,125 100 100E-66 1 20 20 25 70 9,125 125 125 100 100E-66 1 20 25 70 9,125 125 125 100 100E-66 1 20 25 70 9,125 125 125 100 100E-66 1 20 25 70 9,125 125 125 100 100E-66 1 20 25 70 9,125 125 125 100 100E-66 1 20 25 70 9,125 125 125 100 100E-66 1 20 25 70 9,125 125 125 100 100E-66 1 20 25 70 9,125 125 125 100 100E-66 1 20 20 25 70 9,125 125 125 100 100E-66 1 20 25 70 9,125 125 125 125 125 125 125 125 125 125	4,4'-DDD	2.51E-10	8.98E-11	3.21E-03	100	1.00E-06	-	20	25	07	9,125	25,550
0.00E+00 0.00E+00 0.00E+00 100E+06 1.00E+06 1.00E+06 0.00E+00 0.00E+00 0.00E+00 1.00E+06 1.00E+06 1.00E+06 0.00E+06 0.00E+06 0.00E+06 1.00E+06 1.00	t,t-DDE			1.81E-02	90 5	1.00E-06		20	25	2 5	9,125	25.550
0.00E+00 0.00E+00 0.00E+00 100 CORE+00 100 Indexed 1 0.00E+00 25 70 9,125 2.9SE-10 1.9TE-21 100 Indexed 1.00E-06 1.00E-07 25 70 9,125 2.9SE-10 1.0SE-10 1.0DE-06 1.00E-06 1.00E-06 25 70 9,125 2.44E-10 1.3SE-31 100 1.00E-06 1.00E-06 25 70 9,125 3.39E-10 1.3E-31 100 1.00E-06 1.00E-06 25 70 9,125 3.39E-10 1.3E-31 100 1.00E-06 1.00E-06 25 70 9,125 3.39E-10 1.3E-31 100 1.00E-06 1.00E-06 25 70 9,125 1.39E-10 0.00E-00 1.00E-06 1.00E	4,4-DDI	0.00E+00	0.00E+00	0.00E+00	8 8	1.00E-06		20	23 23	0,02	9.125	25.550
1.05E-10 1.05E-10 1.05E-10 1.00E-66 1.05E-10	Aroclor-1254	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
1.09E-10 1.09E-10 1.00E-10 1.00E-40 1.0	Aroclor-1260		5.35E-10	1.91E-02	100	1.00E-06		20	22	2 5	9,125	25,550
2.44E-10 3.13E-43 100 1.00E-66 1 20 25 70 9,125 3.39E-10 4.31E-03 100 1.00E-66 1 20 25 70 9,125 3.39E-10 4.31E-03 100 1.00E-66 1 20 25 70 9,125 0.00E+00 0.00E+00 1.00E-66 1 20 25 70 9,125 1.30E-10 4.30E-11 1.00E-66 1 20 25 70 9,125 1.30E-10 6.00E+00 1.00 1.00E-66 1 20 25 70 9,125 1.79E-10 6.39E-11 2.20E-03 100 1.00E-66 1 20 25 70 9,125 0.00E+00 0.00E+00 1.00E-66 1 20 25 70 9,125 0.00E+00 0.00E+00 1.00E-66 1 20 25 70 9,125 0.00E+00 0.00E+00 1.00E-66 1 20<	Endosulfan I	1.09E-09	1.035-10	1,40E-02	8 00	1.00E-06		50	25.52	2 2	9,125	25,550
2.4.E-10 3.13E-31 100 100E-66 1 20 25 70 9,125 3.39E-10 4.31E-03 100 100E-66 1 20 25 70 9,125 0.00E-40 0.00E-40 1.00E-66 1 20 25 70 9,125 1.30E-10 4.50E-73 100 1.00E-66 1 20 25 70 9,125 1.30E-10 4.60E-11 1.50E-3 100 1.00E-66 1 20 25 70 9,125 1.70E-10 4.60E-11 1.50E-3 100 1.00E-66 1 20 25 70 9,125 0.00E-40 0.00E-40 100 1.00E-66 1 20 25 70 9,125 0.00E-40 0.00E-40 100 1.00E-66 1 20 25 70 9,125 0.00E-40 1.00E-40 100 1.00E-66 1 20 25 70 9,125 0.00E-40	Endosulfan II			3.38E-03	100	1.00E-06	-	20	25	70	9,125	25,550
1.54E-03 1.00E-06	Endosulfan sulfate	2.44E-10		3.12E-03	8 8	1.00E-06	-	30	22 22	5 5	9,125	25,550
1.30E-10 1.30E-40 1.00E-60	Endrin aldehyde			2.54E-03	100	1.00E-06	_	20	25	70	9,125	25,550
0.00E+00 0.00E+00 0.00E+00 100 0.00E+00 1 20 25 70 3,125 1.30E-10 0.00E+00 0.00E+00 100E+00 100E+00 1 20 25 70 3,125 1.30E-10 0.00E+00 0.00E+00 100 0.00E+00 100E+00 100E+00 1 20 25 70 3,125 1.30E-11 1.82E-3 100 1.00E+00 1 20 25 70 3,125 1.30E-00 100E+00 1 20 25 70 3,125 1.30E-00 100 1.00E+00 1 20 25 70 25 70 3,125 1.30E-00 100 1.00E+00 1 20 25 70 25 70 25 70 25 70 25 70 25 70 25 70 25 70 25 70 25 70 25 70 25 70 25 70 25 70 25 70 2	Endrin ketone	-	Local	4,30E-03	100	1.00E-06		50	25	0.5	9,125	25,550
1,79E-10 6.39E-11 2.22E-33 100 1.00E-66 1 20 25 70 9,125 (1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25	Heptachlor epoxide	1.30E-10	4.66E-11	1.67E-03	8 8	1.00E-06		20	25.5	0,02	9,125	25,550
1,79E-10 6,39E-11 1,22E-43 100 1,00E-66 1 20 25 70 9,125 0,00E+00 5,09E-11 1,87E-73 100 1,00E-66 1 20 25 70 9,125 1,57E-3 100 1,00E-66 1 20 25 70 9,125 1,57E-3 100 1,00E-66 1 20 25 70 9,125 1,67E-3 100 1,00E-66 1 20 25 70 9,125	Toxaphene		0.00E+00	0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
0.00E+00 0.00E+00 100 1.00E-06 1 20 25 70 9.125 2.51E-03 100 1.00E-06 1 20 25 70 9.125 1.64E-03 100 1.00E-06 1 20 25 70 9.125	alpha-Chlordane	1.79E-10	6.39E-11	2.29E-03	8 8	1.00E-06		20	22 22	6 6	9,125	25.550
2.51E-03 100 1,00E-06 1 20 25 70 9,125 164E-03 100 1,00E-06 1 20 25 70 9,125	gamma-BHC (Lindane)	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
	gamma-Chlordane			2.51E-03	8 8	1.00E-06	de	20 62	z z	5 E	9,125	25,550

Page 2 of 3

TABLE 6-13
CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS
INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16
CASE 3.

				Ü	CASE 3						
Analyte	Intake (Nc)	Intake (Car)	Soil	Ingestion Rate	Conv. Factor	Fraction Ingested	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Aver Tin (da	Averaging Time (davs)
	(mg/kg-day)	(impagagan)	(Swellin)	(imp some Sm)	(Sim Au)	(cronner)		-		Nc	Car
Nitroaromatics											
2-amino-4,6-Dinitrotoluene Tetryl	0.00E+00	1	0.00E+00	100	1.00E-06 1.00E-06		50 20	នន	5 6	9,125	25,550
Metals	1000								L,		
Antimone	2 95F-10		3.77E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Barium	7.36E-09		9.41E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Copper	4,04E-09		5.16E-02	100	1.00E-06		20	22 2	2 5	9,125	25,550
Lead			1.92E-01	001	1.005-06	-	2 5	3 %	2 2	3,170	055.55
Mercury	3.05E-11		3.89E-04	8 8	1.005-06		20 20	0 X	2 2	9 125	25 550
Scientiff	6.85F-11		8.75E-04	100	1.00E-06		20	25	70	9,125	25,550
Zinc	8.23E-09		1.05E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Herbicides											
2.4.5-T	0.00E+00		0.00E+00	100	1.00E-06	-	20	22	70	9,125	25,550
MCPP	0.00E+00		0.00E+00	100	1.00E-06	-	20	22	02	9,125	25,550
EQUATION:	intake (mg/kg-day) = CS.1 IR.x CF.1 Fl x EP.x ED. BW x AT	- CS.IRICELE BW.AT	ELKERKED					enn'		145	
	Variables:					Assumptions;					
	CS = Chemical Concentration in Soil (m IR = Ingestion Rate (mg soil/day) CT = Conversion Factor (10-6 kgmg) FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/sears) EW = Exposure Prequency (days/sears) EW = Bodyveight (kg) AT = Aversaging Time (days)	CS = Chemical Concentration in Soil (mg soil/kg) [R = Ingestion Rate (mg soil/day) [R = Conversion Rate (mg soil/day) [F = Tonversion Exten (164.6 kg/mg) [F = Fraction Ingested (unites) [E = Exposure Frequency (days/sears) [E = Exposure Duration (years) [E = Exposure Duration (years) [E = Averaging Time (days)	(mg soil/kg)			EPC Soil Data - RME 100 (RME Site Worker) 10-6 10 (ARE Site Worker) 22 (RME Site Worker) 25 (Addit male) 25 3-365 (Nc) 70 x 365 (Car)	-RME Worker) 8) Vorker) 0 x 365 (Car)				
		-									

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-44 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane	1	1.97E-10	NA	2.00E-01		3.94E-1
Acetone	6.56E-10	1.972-10	1.00E-01	NA	6.56E-09	3.94E-1
Benzene	0.502-10	1.40E-10	NA NA	2.90E-02	0.502-07	4.05E-13
Carbon Disulfide	1.57E-10	1.402-10	1.00E-01	NA NA	1.57E-09	4.052-1.
Chloroform	1.57E-10	5.59E-11	1.00E-02	6.10E-03	1.57E-08	3.41E-13
Methylene Chloride	2.35E-10	8.39E-11	6.00E-02	7.50E-03	3.91E-09	6.29E-1
Toluene	5.74E-10	AUGUSTANIA I	2.00E-01	NA	2.87E-09	(C) (C) (C) (C) (C)
Xylene (total)	3.33E-10		2.00E+00	NA	1.66E-10	
Semivolatile Organics						
2,4-Dinitrotoluene	8.80E-08		2.00E-03	NA	4.40E-05	
2,6-Dinitrotoluene	1.41E-08		1.00E-03	NA	1.41E-05	
2-methylnaphthalene	1		NA	NA		
3,3'-Dichlorobenzidine	1	0.00E+00	NA	4.50E-01		0.00E+0
3-nitroaniline			NA	NA		
Acenaphthene	2.00E-07		6.00E-02	NA	3.33E-06	
Acenaphthylene			NA	NA		
Anthracene	1.61E-07		3.00E-01	NA	5.37E-07	
Benzo(a)anthracene	1000	2.03E-07	NA	7.30E-01	The second second	1.48E-0
Benzo(a)pyrene		3.54E-07	NA	7.30E+00		2.59E-0
Benzo(b)fluoranthene		2.98E-07	NA	7.30E-01		2.18E-0
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		1.31E-07	NA	7.30E-01		9.56E-0
Carbazole		6.28E-08	NA	2.00E-02	1	1.26E-0
Chrysene	6.000.00	2.51E-07	NA	7.30E-02		1.83E-0
Di-n-butylphthalate	5.87E-08	6 95E 09	1.00E-01	NA 7.20F+00	5.87E-07	5 005 0
Dibenz(a,h)anthracene Dibenzofuran		6.85E-08	NA NA	7.30E+00		5.00E-0
Diethylphthalate	1.49E-09		NA 8.00E+00	NA NA	1.86E-10	
Fluoranthene	8.38E-07		4.00E-02	NA	2.10E-05	
Fluorene	1.60E-07		4.00E-02	NA	3.99E-06	
ndeno(1,2,3-cd)pyrene	1.002	1.66E-07	NA NA	7.30E-01	3.772.00	1.21E-0
N-Nitrosodiphenylamine (1)		1.58E-08	NA	4.90E-03		7.75E-1
Naphthalene			NA	NA		0.000
Pentachlorophenol	8.64E-08	3.09E-08	3.00E-02	1.20E-01	2.88E-06	3.70E-0
Phenanthrene	40.000.0000		NA	NA	C-390000 Note 5ver	10000000000
Pyrene	9.81E-07		3.00E-02	NA	3.27E-05	
ois(2-Ethylhexyl)phthalate	1.13E-07	4.05E-08	2.00E-02	1.40E-02	5.67E-06	5.67E-10
Pesticides						
1,4'-DDD	2.51E-10	8.98E-11	5.00E-04	2.40E-01	5.03E-07	2.15E-1
I,4'-DDE	(000 10	2.445.10	NA COPE OF	NA 2 40F 61	1 247 24	0.000
1,4'-DDT Aldrin	6.82E-10	2.44E-10	5.00E-04 3.00E-05	3.40E-01	1.36E-06	8.28E-1
Aroclor-1254	0.00E+00 0.00E+00	0.00E+00 0.00E+00	3.00E-05 2.00E-05	1.70E+01 2.00E+00	0.00E+00 0.00E+00	0.00E+0
93 N.C. 200 N.C. 200 N.C.	0.00E+00	10.25-12.02.25.25.25.25.25.25.25.25.25.25.25.25.25	4440	7.70E+00	0.00E+00	0.00E+0
Aroclor-1260 Dieldrin	2.95E-10	5.35E-10 1.05E-10	NA 5.00E-05	1.60E+01	5.90E-06	4.12E-09
Endosulfan I	1.09E-09	1,000-10	6.00E-03	NA NA	1.82E-07	1.056-0
Endosulfan II			NA	NA	1.020	
Endosulfan sulfate	2.44E-10		5.00E-05	NA	4.89E-06	
Endrin	3.39E-10		3.00E-04	NA	1.13E-06	
Endrin aldehyde Endrin ketone			NA NA	NA NA		
Heptachlor	0.00E+00	0.00E+00	5.00E-04	4.50E+00	0.00E+00	0.00E+0
Heptachlor epoxide	1.30E-10	4.66E-11	1.30E-05	9.10E+00	1.00E-05	4.24E-10
Toxaphene		0.00E+00	NA NA	1.10E+00		0.00E+0
alpha-Chlordane	1.79E-10	6.39E-11	6.00E-05	1.30E+00	2.98E-06	8.31E-1
peta-BHC	99000/0000000000	5.09E-11	NA	1.80E+00	200-2004 (2000) (20-20)	9.16E-1
gamma-BHC (Lindane)	0.00E+00		3.00E-04	NA	0.00E+00	ion acres de l'été
gamma-Chlordane			NA	NA		
lelta-BHC	1		NA	NA		I

TABLE 6-44 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16 CASE 3

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
Nitroaromatics						
2-amino-4,6-Dinitrotoluene			NA	NA	11993	
Tetryl	0.00E+00	300	1.00E-02	NA	0.00E+00	
Metals					1.43	
Antimony	2.95E-10		4.00E-04	NA	7.38E-07	
Barium	7.36E-09		7.00E-02	NA	1.05E-07	
Copper	4.04E-09	Table 1	4.00E-02	NA	1.01E-07	
Lead	1.012.5		NA	NA		11000
Mercury	3.05E-11		3.00E-04	NA	1.02E-07	
Selenium	7.78E-11		5.00E-03	NA	1.56E-08	
Thallium	6.85E-11		7.00E-05	NA	9.78E-07	
Zinc	8.23E-09	Last 1	3.00E-01	NA	2.74E-08	
Herbicides						
2,4,5-T	0.00E+00	nu l	1.00E-02	NA	0.00E+00	100
MCPP	0.00E+00		1.00E-03	NA	0.00E+00	
Totals - HQ & CR				1.7	1.58E-04	3.70E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose (Oral) Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor (Oral)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED DOSE FROM DEMAL CONTACT TO ONSITE SOIL. FUTURE WORKER EXPOSUBE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSUBE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16 CASE 3

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/cv.cnt)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Pu	Exposure Duration (years)		posure Body Averaging Time Time (days) (days)
Volatile Organics												
1.1.2.2Tetrachloroethane Acetone			7.04E-03 8.38E-03	1.00E-06 1.00E-06	5,800	000		20 20	ងង		07.0	
Carbon Disulfide Chloroform			2.00E-03 2.00E-03	1.00E-06	5,800	399		2 2 2	ឧងដ		2 2 2	
Methylene Chloride Foluene			3.00E-03 7.33E-03	1.00E-06	5,800	199		2 2 2	ខេត		5 6 5	70 70 70 70 9,125
Semivolatile Organics			50-2574	9053007	0,900	2		07	q		Q.	
, 4-Dinitrotoluene			1.12E+00	1.00E-06	5,800	0.0		20	n		5 5	70 9,125
2-methylnaphthalene			1.38E+00	1.00E-06	5,800	0 0		20	នន		0 07	
1,3'-Dichlorobenzidine				1.00E-06	5,800	010		20	23		0,	
Acenaphthene			2.55E+00	1.00E-06	5,800	0.0		20	ឧឧ		2 2	
Acenaphthylene Anthracene			2.82E-01 2.06E+00	1.00E-06	5,800	0.0		20	X1 X		0,5	n.c
Benzo(a)anthracene			7.27E+00	1.00E-06	5,800	07		50	121		20	
Benzo(b)fluoranthene			1.07E+01	1.00E-06	5,800	0 0.1		20,50	ង ង		0 0	ii 30
Benzo(g,h,i)perylene Benzo(k)fluoranthene			6.21E+00	1.00E-06	5,800	0.1		20	21 2		0.5	
Carbazole			2.25E+00	1.00E-06	5,800	01		2 2	3 23		5 6	
Oi-n-butylphthalate			8.97E+00 7.50E-01	1.005-06	5,800	0.1		200	ន្តន		0.02	
Dibenz(a,h)anthracene Dibenzofurm			2.45E+00	1.00E-06	5,800	0.5		3 50	22 2		2 2 5	9,125
Diethylphthalate			1.90E-02	1.00E-06	5,800	07		2 0 5	2 23 2		5 6	
Fluorene			2.04E+00	1.00E-06	5,800	0.1		20 20	ឧឧ		0.07	
Indeno(1,2,3-cd)pyrene N-Nitrosodiphenylamine (1)			5.93E+00 5.66E-01	1.00E-06	5,800	1.0		20	22 22		07	
Naphthalene			2.32E+00	1.00E-06	5,800	1.0		20.5	121		70	e e e
Phenanthrene			7,37E+00	1.00E-06	5,800	1.0		50	2 22		0,00	9999
ryrene bis(2-Ethylhexyl)phthalate			1,45E+00	1.00E-06	5,800	1.0		20	នន		20	70 9,125
Pesticides												
4-DDD			3.21E-03	1,00E-06	5,800	0.1		20	22		70	Unice
4,4'-DDT			8.71E-03	1.00E-06	5,800	1.0		20	1 23 3		70	845
Aroclor-1254				1.00E-06	5,800	10	90.0	2 2	25		5 5	
Aroclor-1260 Dieldrin		1.86E-09	1.91E-02	1.00E-06	5,800	0.0	90.0	20 50	22 25		0,0	
Endosulfan I			1.40E-02	1.00E-06	5,800	0.1		2 2	2 22		07	00.50
Endosulfan sulfate			3,12E-03	1.00E-06	5.800	1.0		2 2	ន ន		0 0	
Endrin Endrin aldehvde			4,33E-03 2,54E-03	1.00E-06	5,800	1.0		20 00	22 %		0,5	
Endrin ketone			4.30E-03	1.00E-06	5,800	1.0		2 2	n		2 2	
Heptachlor Heptachlor epoxide			1.67E-03	1.00E-06 1.00E-06	5,800	1.0		20	ន្តន		5 5	70 9,125 70 9,125
Foxuphene Ilpha-Chlordane			2 29E-03	1.00E-06	5,800	0.0		20	22 %		20	
oeta-BHC			1.82E-03	1.00E-06	5,800	0.1		20	2 23		0.02	
gamma-Chlordane			2.51E-03	1.00E-06	5,800	0.0		20	2 %		70	

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TABLE 6-19	RBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL	VORKER EXPOSIBE (FITTIRE LAND USE)
	CALCULATION OF ABSOR	M Tailtin

11/03/97

FUTURE WORKER EXPOSURE (FUTURE LAND USE.)
REASONABLE MAXIMUM EXPOSURE (RME)
SENECA ARMY DEPOT, ROMULIS, NEW YORK - SEAD 16
CASE3

					Transfer and a second		0.75		Contraction of the last		2000000	
Analyte	Dose (Nc)	Dose (Car)	Soil (me/ke)	Conv. Factor	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unidess)	Exposure Frequency (events/vear)	Exposure Duration (years)	Body Weight (kg)	Avera Tir (da	Averaging Time (days)
	(imp.Sy/Sun)	(imgygmi)	(9u Aur)	(9	<u></u>				,		Nc	Car
Vitroaromatics												1000000
-amino-4,6-Dinitrotoluene	172.0			1.00E-06	5,800	1.0		50	52	0.5	9,125	25,550
fetryl	7)			1.00E-06	5,800	1.0		20	2	R	9,12	055,520
Metals											1	
			3.77E-03	1.00E-06	5.800	1.0		20	25	70	9,125	25,550
Antimony			9.41E-02	1.00E-06	5,800	1.0		20	25	20	9,125	25,550
Contract			5.16E-02	1.00E-06	5,800	1.0		20	25	20	9,125	25,550
cad			1.92E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
ferun			3.89E-04	1.00E-06	5,800	0.1		20	52	20	9,125	25,550
clenium			9.94E-04	1.00E-06	5,800	1.0		50	25	29	9,125	25,550
Dallium			8.75E-04	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
inc			1.05E-01	1.00E-06	5,800	1.0		70	23	02	9,125	25,550
Ierbicides												
245-7				1.00E-06	5,800	1.0		20	22	70	9,125	25,550
MCPP				1.00E-06	2,800	1.0		50	83	2	9,125	25,550
NOTTAILOR	Absorbed dose	Absorbed dose (me/ke-day) =	CSICFISAI	CSICESAIAFIABSIEFIED	ED							
				BWXAT								
Variables:			Assumptions:			Variables:			7	Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF = Soil to Skim Adherence Factor (mg/cm²) AFS = Absertion Factor (unifies)	ation in Soil (mg so (10-6 kg/mg) ict (cm²) nce Factor (mg/cm²) r (unitless)	ilAgo)	EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs	EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) Lio (RME all receptors) Compound Specific for PCBs and Cd	2	EF = Exposure Frequency (even ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (RE) AT = Averaging Time (days)	vents/year) rs)		20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	'orker) 'orker) 0 x 365 Adult	(Car)

EPA, 1992b (Defat Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 6-46 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16

		(CASE 3			
Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cance Risk
Volatile Organics						
1,1,2,2,-Tetrachloroethane			NA	2.00E-01		
Acetone		1	1.00E-01	NA		
Benzene			NA	2.90E-02		
Carbon Disulfide		1 3	1.00E-01	NA		
Chloroform			1.00E-02	6.10E-03		
Methylene Chloride		. 1	6.00E-02	6.00E-02		
Toluene			1.20E-01	NA NA		
Xylene (total)			2.00E+00	NA.		
., ()	-					
Semivolatile Organics						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA NA		
2-methylnaphthalene			NA NA	NA NA		
2 meanymaphamene			1111			
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene	1 0		NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA NA		
Benzo(k)fluoranthene	1		NA	1.46E+00		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA NA		
Diethylphthalate			8.00E+00	NA NA		
Fluoranthene			4.00E-02	NA NA		
Fluorene			4.00E-02	NA NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene		1	NA	NA		
Pyrene			3.00E-02	NA NA		
10 4 (70.070.70)						
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

TABLE 6-46 CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL (DAILY) INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) SENECA ARMY DEPOT, ROMULUS, NEW YORK - SEAD 16 CASE 3

	CDI	CDI	Dermal	Dermal	Hazard	Cancer
Analyte	(Nc)	(Car)	RfD	Slope Factor	Quotient	Risk
Allalyte	(mg/kg-day)	(mg/kg-day)	(mg/kg-day)	(mg/kg-day)-1		
Pesticides						
				2.40E-01		100
4,4'-DDD			5.00E-04	2.40E-01 NA		
1,4'-DDE		17.1	NA	3.40E-01	P. C. S. S.	
1,4'-DDT			5.00E-04	57.23.55.77.13.50	-	
Aldrin		1	3.00E-05	1.70E+01		
Aroclor-1254	100		1.90E-05	2.11E+00	10.77	1.51E-08
Aroclor-1260	- 3	1.86E-09	NA	8.11E+00		1.51E-00
Dieldrin		2.41	5.00E-05	1.60E+01	1 10	
Endosulfan I		DATE:	6.00E-03	NA		1 - 147
Endosulfan II			NA	NA		1000
Endosulfan sulfate			5.00E-05	NA		
Endrin	1	1 1	3.00E-04	NA		Marin I
Endrin aldehyde			NA	NA		
Endrin ketone			NA	NA		
Heptachlor			5.00E-04	4.50E+00		Annual II
Heptachlor epoxide			1.30E-05	9.10E+00	118	
Toxaphene			NA	1.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
gamma-BHC (Lindane)			3.00E-04	NA		
gamma-Chlordane			NA	NA		
delta-BHC			NA	NA		-
Nitroaromatics		10				
	La-Line		***	NA		LI INC.
2-amino-4,6-Dinitrotoluene	100		NA 1 00F 02	NA NA	-	
Tetryl			1.00E-02	NA.		
Metals						
		0.00	4.00E-04	NA	100	
Antimony		1	7.00E-03	NA		
Barium			2.00E-02	NA		
Copper			NA NA	NA		
Lead			4.50E-05	NA		
Mercury			3.00E-03	NA		
Selenium			7.00E-05	NA		
Thallium			1.50E-01	NA		
Zinc		1	1.50E-01	, and		
Herbicides	1.50					
2,4,5-T			1.00E-02	NA	100	
MCPP			1.00E-03	NA		
						1.51E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose (Oral) Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor (Oral)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

SEAD-17 EPC, INTAKE AND **RISK TABLES**

PER, INTAKE AND

			No. of No. Valid Ro	No. of Rejected No. of	No. of						Lognormal 5	95th UCL of	
Class	Parameter	Units	ses	SOLs		Freq. (%) Mean	Mean	Std. Dev.	Max. Hit	Normal?		Mean E	EPC
PESTICIDES/PCB	Aroclor-1260	UG/KG	5	0	n	5.5%	22.818	21.010	28.000	FALSE	FALSE	23.393	23.393
PESTICIDES/PCB	Beta-BHC	UG/KG	55	0	Н	1.8%	1.360	2.561	20.000	FALSE	FALSE	1.285	1.285
PFSTICIDES/PCB	Delta-BHC	UG/KG	55	0	-	1.8%	1.182	1.088	2.200	FALSE	FALSE	1.215	1.215
PESTICIDES/PCB	Dieldrin	UG/KG	55	0	7	12.7%	5.644	13.443	80.000	FALSE	FALSE	5.101	5.101
PESTICIDES/PCB	Endosulfan I	UG/KG	55	0	5	9.1%	9.047	57.832	430.000	FALSE	FALSE	2.325	2.325
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	55	0	1	1.8%	2.296	2.436	20.000	FALSE	FALSE	2.331	2.331
PESTICIDES/PCB	Endrin	UG/KG	55	0	3	5.5%	2.786	5.546	43.000	FALSE	FALSE	2.615	2.615
PESTICIDES/PCB	Endrin ketone	UG/KG	55	0	7	3.6%	3.280	9.309	71.000	FALSE	FALSE	2.752	2.752
PESTICIDES/PCB	Heptachlorepoxide	UG/KG	54	П	-	1.9%	1.014	0.077	1.100	TRUE	TRUE	1.032	1.032
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	55	0	55	100.0%	0.437	0.727	3.800	FALSE	TRUE	0.537	0.537
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	55	0	4	7.3%	70.882	39.478	330.000	FALSE	FALSE	74.141	74.141
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	55	0	1	1.8%	78.182	112.893	900.000	FALSE	FALSE	76.953	76.953
METALS	Aluminum	MG/KG	55	0	55	100.0%	13215.455	3309.012	19300.000	FALSE	FALSE	14491.312	14491.312
METALS	Antimony	MG/KG	55	0	26	47.3%	6.473	9.550	52.000	FALSE	FALSE	9.516	9.516
METALS	Arsenic	MG/KG	55	0	55	100.0%	5.861	2.024	16.100	FALSE	FALSE	6.243	6.243
METALS	Barium	MG/KG	55	0	40	72.7%	133.800	95.455	524.000	FALSE	TRUE	154.126	154.126
METALS	Beryllium	MG/KG	55	0	55	100.0%	0.579	0.173	0.990	TRUE	FALSE	0.618	0.618
METALS	Cadmium	MG/KG	55	0	42	76.4%	3.262	4.737	25.500	FALSE	TRUE	6.783	6.783
METALS	Calcium	MG/KG	55	0	55	100.0%	41717.455	57950.097	#########		TRUE	87148.232	87148.232
METALS	Chromium	MG/KG	55	0	55	100.0%	19.963	4.144	27.900	FALSE	FALSE	21.238	21.238
METALS	Cobalt	MG/KG	55	0	55	100.0%	10.155	3.334	21.900		TRUE	10.955	10.955
METALS	Copper	MG/KG	55	0	55	100.0%	134.120	184.261	837.000		TRUE	179.232	179.232
METALS	Cyanide	MG/KG	52	0	7	3.8%	0.316	0.191	1.500	FALSE	FALSE	0.355	0.355
METALS	Iron	MG/KG	55	0	55	100.0%	23087.818	5560.503	38700.000	FALSE	FALSE	24851.567	24851.567
METALS	Lead	MG/KG	55	0	54	98.2%	760.433	1164.316	6270.000	FALSE	TRUE	2498.470	2498.470
METALS	Magnesium	MG/KG	55	0	55	100.0%	5952.455	3	18100.000	н	TRUE	6614.990	6614.990
METALS	Manganese	MG/KG	55	0	55	100.0%	526.591	199.950	1080.000		TRUE	571.731	571.731
METALS	Mercury	MG/KG	55	0	20	%6.06	0.108		1.000	H	FALSE	0.116	0.116
METALS	Nickel	MG/KG	55	0	55	100.0%	27.825	8.641	50.800	_	TRUE	29.775	29.775
METALS	Potassium	MG/KG	55	0	55	100.0%	1382.618	3 282.451	1960.000	-	TRUE	1446.383	1446.383
METALS	Selenium	MG/KG	55	0	34	61.8%	0.573	3 0.493	1.700		TRUE	0.684	0.684
METALS	Silver	MG/KG	55	0	16	29.1%	1.191	1.720	9.000	щ	TRUE	1.676	1.676
METALS	Sodium	MG/KG	55	0	41	74.5%	94.329	•	383.000	-	TRUE	115.953	115.953
METALS	Thallium	MG/KG	55	0	11	20.0%	0.40	.+	1.500	F F	TRUE	0.533	0.533
METALS	Vanadium	MG/KG	55	0	55	100.0%	22.51(5.193	30.70		FALSE	23.682	23.682
METALS	Zinc	MG/KG	55	0	55	100.0%	253.23	10	1475.000		TRUE	306.138	306.138
HERBICIDES	MCPA	UG/KG	32	0	4	12.5%	5573.438	8 7708.583	34000.000	FALSE	FALSE	6261.917	6261.917

No. of

No. of

No. of

No. of

			Valid Reje	Rejected No. o	Jo of					I	Lognormal 9	95th UCL of	
Class	Parameter	Units	2.5	.s Hi		Freq. (%) Mean	ean Si	d. Dev. N	Max. Hit	Normal? ?		Mean EPC	
PESTICIDES/PCB	Aroclor-1260	O	55	0	3	5.5%	22.818	21.010	28.000	FALSE	FALSE	23.393	23.393
PFSTICIDES/PCB	Beta-BHC	UG/KG	55	0	1	1.8%	1.360	2.561	20.000	FALSE	FALSE	1.285	1.285
PESTICIDES/PCB	Delta-BHC	UG/KG	55	0	1	1.8%	1.182	1.088	2.200	FALSE	FALSE	1.215	1.215
PESTICIDES/PCB	Dieldrin	UG/KG	55	0	7	12.7%	5.644	13.443	80.000	FALSE	FALSE	5.101	5.101
PESTICIDES/PCB	Endosulfan I	UG/KG	55	0	5	9.1%	9.047	57.832	430.000	-	FALSE	2.325	2.325
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	55	0	1	1.8%	2.296	2.436	20.000	-	FALSE	2.331	2.331
PESTICIDES/PCB	Endrin	UG/KG	55	0	3	5.5%	2.786	5.546	43.000	FALSE	FALSE	2.615	2.615
PESTICIDES/PCB	Endrin ketone	UG/KG	55	0	7	3.6%	3.280	9.309	71.000	FALSE	FALSE	2.752	2.752
PESTICIDES/PCB	Heptachlorepoxide	UG/KG	54	1	I	1.9%	1.014	0.077	1.100		TRUE	1.032	1.032
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	55	0	55	100.0%	0.437	0.727	3.800	_	TRUE	0.537	0.537
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	55	0	4	7.3%	70.882	39.478	330.000	FALSE	FALSE	74.141	74.141
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	55	0	-	1.8%	78.182	112.893	900.000	-	FALSE	76.953	76.953
METALS	Aluminum	MG/KG	55	0	55	100.0%	13215.455	3309.012	19300.000	-	FALSE	14491.312	14491.312
METALS	Antimony	MG/KG	55	0	56	47.3%	6.473	9.550	52.000		FALSE	9.516	9.516
METALS	Arsenic	MG/KG	55	0	55	100.0%	5.861	2.024	16.100		FALSE	6.243	6.243
METALS	Barium	MG/KG	55	0	40	72.7%	133.800	95.455	524.000	FALSE	TRUE	154.126	154.126
METALS	Bervllium	MG/KG	55	0	55	100.0%	0.579	0.173	0.090		FALSE	0.618	0.618
METALS	Cadmium	MG/KG	55	0	42	76.4%	3.262	4.737	25.500	FALSE	TRUE	6.783	6.783
METALS	Calcium	MG/KG	55	0	55	100.0%	41717.455	57950.097	229000.000	-	TRUE	87148.232	87148.232
METALS	Chromium	MG/KG	55	0	55	100.0%	19.963	4.144	27.900	FALSE	FALSE	21.238	21.238
METALS	Cobalt	MG/KG	55	0	55	100.0%	10.155	3.334	21.900	-	TRUE	10.955	10.955
METALS	Copper	MG/KG	55	0	55	100.0%	134.120	184.261	837.000	щ	TRUE	179.232	179.232
METALS	Cyanide	MG/KG	52	0	7	3.8%	0.316	0.191	1.500	-	FALSE	0.355	0.355
METALS	Iron	MG/KG	55	0	55	100.0%	23087.818	5560.503	38700.000	14	FALSE	24851.567	24851.567
METALS	Lead	MG/KG	55	0	54	98.2%	760.433	1164.316	6270.000	ш,	TRUE	2498.470	2498.470
METALS	Magnesium	MG/KG	55	0	55	100.0%	5952.455	3084.811	18100.000	H	TRUE	6614.990	6614.990
METALS	Manganese	MG/KG	55	0	25	100.0%	526.591	199.950	1080.000		TRUE	571.731	571.731
METALS	Mercury	MG/KG	55	0	20	%6.06	0.108	0.184	1.000	H	FALSE	0.116	0.116
METALS	Nickel	MG/KG	55	0	55	100.0%	27.825	8.641	50.800		TRUE	29.775	29.775
METALS	Potassium	MG/KG	55	0	55	100.0%	1382.618	282.451	1960.000		TRUE	1446.383	1446.383
METALS	Selenium	MG/KG	55	0	34	61.8%	0.573	0.493	1.700		TRUE	0.684	0.684
METALS	Silver	MG/KG	55	0	16	29.1%	1.191	1.720	9.000	H	TRUE	1.676	1.676
METALS	Sodium	MG/KG	55	0	41	74.5%	94.329	75.921	383.000	Η.	TRUE	115.953	115.953
METALS	Thallium	MG/KG	55	0	11	20.0%	0.404	0.388	1.500	H	TRUE	0.533	0.533
METALS	Vanadium	MG/KG	55	0	55	100.0%	22.510	5.193	30.700	_	FALSE	23.682	23.682
METALS	Zinc	MG/KG	55	0	55	100.0%	253.235	300.841	1475.000	_	TRUE	306.138	306.138
HERBICIDES	MCPA	UG/KG	32	0	4	12.5%	5573.438	7708.583	34000.000	FALSE	FALSE	6261.917	6261.917

			Koss	No. of									
			Valid R	Rejected	No. of						Lognormal	Lognormal 95th UCL of	
Class	Parameter	Units	Analyses Si	SQLs	Hits	Freq. (%) Mean	Mean	Std. Dev.	Max. Hit	Normal?	3	Mean E	EPC
VOLATILE ORGANICS	Acetone	UG/KG	10	0	ю	30.0%	10.550	6.025	26.000	FALSE	FALSE	14.388	14.388
VOLATILE ORGANICS	Toluene	UG/KG	10	0		10.0%	7.600	1.329	8.000	FALSE	FALSE	8.401	8.000
SEMIVOLATILE ORGANICS	2,4-Dimethylphenol	UG/KG	10	0		10.0%	235.200	76.328	32.000	FALSE	FALSE	450.613	32.000
SEMIVOLATILE ORGANICS	2,4-Dinitrotoluene	UG/KG	10	0	-	10.0%	275.000	67.700	450.000	FALSE	TRUE	314.342	314.342
SEMIVOLATILE ORGANICS	Benzo[a]anthracene	UG/KG	10	0	_	10.0%	232.500	78.218	25.000	FALSE	FALSE	504.850	25.000
SEMIVOLATILE ORGANICS	Benzo[a]pyrene	UG/KG	10	0		10.0%	233.000	76.746	30.000	FALSE	FALSE	459.333	30.000
SEMIVOLATILE ORGANICS	Benzo[b]fluoranthene	UG/KG	10	0		10.0%	234.300	72.941	43.000	FALSE	FALSE	390.528	43.000
SEMIVOLATILE ORGANICS	Benzo[ghi]perylene	UG/KG	10	0	_	10.0%	233.100	76.453	31.000	FALSE	FALSE	452.046	31.000
SEMIVOLATILE ORGANICS	Benzo[k]fluoranthene	UG/KG	10	0	_	10.0%	233.300	75.865	33.000	FALSE	FALSE	438.746	33.000
SEMIVOLATILE ORGANICS	Bis(2-Ethylhexyl)phthalate	UG/KG	10	0	m	30.0%	193.200	97.726	77.000	FALSE	FALSE	424.382	77.000
SEMIVOLATILE ORGANICS	Chrysene	UG/KG	10	0	1	10.0%	234.800	71.487	48.000	FALSE	FALSE	373.930	48.000
SEMIVOLATILE ORGANICS	Fluoranthene	UG/KG	10	0	N	20.0%	219.100	91.240	70.000	FALSE	FALSE	444.591	70.000
SEMIVOLATILE ORGANICS	Indeno[1,2,3-cd]pyrene	UG/KG	10	0	_	10.0%	232.400	78.513	24.000	FALSE	FALSE	516.219	24.000
SEMIVOLATILE ORGANICS	Phenanthrene	UG/KG	10	0	_	10.0%	233.500	75.279	35.000	FALSE	FALSE	426.909	35.000
SEMIVOLATILE ORGANICS	Pyrene	UG/KG	10	0	7	20.0%	215.800	97.732	47.000	FALSE	FALSE	567.092	47.000
PESTICIDES/PCB	4,4'-DDD	UG/KG	10	0	ю	30.0%	4.080	3.562	13.000	FALSE	FALSE	6.461	6.461
PESTICIDES/PCB	4,4'-DDE	UG/KG	10	0	9	%0.09	12.475	19.212	62.000	FALSE	FALSE	48.172	48.172
PESTICIDES/PCB	4,4'-DDT	UG/KG	10	0	7	20.0%	3.490	3.007	12.000	FALSE	FALSE	4.897	4.897
PESTICIDES/PCB	Dieldrin	UG/KG	10	0	-	10.0%	2.805	0.814	5.000	FALSE	FALSE	3.255	3.255
PESTICIDES/PCB	Endosulfan I	UG/KG	10	0	_	10.0%	1.330	0.170	1.600	TRUE	TRUE	1.428	1.428
PESTICIDES/PCB	Endosulfan II	UG/KG	10	0	7	20.0%	2.685	0.592	3.800	FALSE	FALSE	3.048	3.048
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	10	0	10	100.0%	0.077	0.062	0.240	FALSE	TRUE	0.133	0.133
OTHER ANALYSES	Total Organic Carbon	MG/KG	10	0	6	%0.06	11102.050	10065.444	36100.000	FALSE	FALSE	339623.717	36100.000
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	10	0	0	%0.0		0.000	0.000	FALSE	FALSE	64.034	0.000
METALS	Aluminum	MG/KG	10	0	10	100.0%	16370.000	3287.028	22100.000	TRUE	TRUE	18253.483	18253.483
METALS	Antimony	MG/KG	10	0	4	40.0%	1.636	1.923	5.500	FALSE	FALSE	5.590	5.500
METALS	Arsenic	MG/KG	10	0	10	100.0%	5.290	1.405	7.500	TRUE	TRUE	6.095	6.095
METALS	Barium	MG/KG	10	0	10	100.0%	111.770	34.514	162.000	TRUE	TRUE	131.547	131.547
METALS	Beryllium	MG/KG	10	0	10	100.0%		0.213	0.990	TRUE	TRUE	0.764	0.764
METALS	Cadmium	MG/KG	10	0	10	100.0%	1.573	1.448	4.800	TRUE	TRUE	2.403	2.403
METALS	Calcium	MG/KG	10	0	10	100.0%	6031.000	6852.533	25000.000	FALSE	TRUE	10822.064	10822.064
METALS	Chromium	MG/KG	10	0	10	100.0%	22.160	4.368	27.700	TRUE	TRUE	24.663	24.663
METALS	Cobalt	MG/KG	10	0	10	100.0%	10.810	3.041	17.800	TRUE	TRUE	12.553	12.553
METALS	Copper	MG/KG	10	0	10	100.0%	73.320	85.855	309.000	FALSE	FALSE	133.422	133.422
METALS	Iron	MG/KG	10	0	10	100.0%	26540.000	5054.635	35000.000	TRUE	TRUE	29436.330	29436.330
METALS	Lead	MG/KG	10	0	10	100.0%	270.320	329.896	1050.000	FALSE	TRUE	683.420	683.420
METALS	Magnesium	MG/KG	10	0	10	100.0%	4890.000	1127.987	6490.000	TRUE	FALSE	5536.342	5536.342
METALS	Manganese	MG/KG	10	0	10	100.0%	445.100	151.769	768.000	TRUE	TRUE	532.064	532.064
METALS	Mercury	MG/KG	10	0	4	40.0%	0.043	0.044	0.160	FALSE	TRUE	0.081	0.081
METALS	Nickel	MG/KG	10	0	10	100.0%	27.200	6.366	31.600	FALSE	FALSE	34.349	31.600
METALS	Potassium	MG/KG	10	0	10	100.0%	1899.000	499.098	2630.000	TRUE	TRUE	2184.986	2184.986

		•	1.266	427.232	0.824	29.747	188.428
	95th UCL of	Mean EPC	1.266	427.232	0.824	29.747	188.428
	ognormal		TRUE	TRUE	TRUE	TRUE	TRUE
	T	Normal? ?	FALSE	FALSE	TRUE	TRUE	FALSE
		Max. Hit			1.300		
		std. Dev.	0.507	160.693	0.288	5.196	73.599
		san S	0.853	180.615	0.659	26.770	130.030
		req. (%) Me	30.0%	%0.08	20.0%	100.0%	100.0%
	o. of	its	m	00	7	10	10
ų.	ted N	H	0	0	0	0	0
No. o	Rejec	SOLS					ernesse.
No. of	Valid	Analyses	10	10	10	10	10
		Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
		Parameter	Selenium	Sodium	Thallium	Vanadium	Zinc
		Class	MFTALS	METALS	METALS	METALS	METALS

		3PC	2.000	6.087	7.750	22.095	4.264	72.197	0.782	63164.917	0.631	19.253	193.322	37.100	8904.835	11.983	1.034	3520.734	3.228	7031.528	0.900	36.264
	95th UCL of	Mean	6.957	6.087	7.750	22.095	4.264	72.197	0.782	63164.917	0.631	19.253	193.322	44.167	8904.835	11.983	1.034	3520.734	3.228	7031.528	0.900	36.264
	Lognormal	٤	FALSE	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	TRUE	FALSE	TRUE	FALSE	TRUE
		Normal?	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	FALSE	TRUE	FALSE	TRUE
		Max. Hit	2.000	11.600	7.890	23.600	4.600	100.000	1.300	73500.000	1.000	32.700	322.000	37.100	9280.000	19.600	1.700	4380.000	3.500	9460.000	1.800	61.700
		Std. Dev. 1	1.494	2.770	0.181	7.457	1.311	27.322	0.363	16622.755	0.158	8.079	82.062	11.515	2882.727	6.200	0.285	896.562	1.061	3180.651	0.379	21.177
		Mean	4.300	7.500	7.646	5.170	2.780	47.010	0.391	53640.000	0.550	13.040	146.300	7.210	5904.000	8.430	0.890	3007.000	2.170	5209.000	0.720	24.130
		Freq. (%) 1	20.0%	100.0%	100.0%	40.0%	%0.09	100.0%	20.0%	100.0%	10.0%	100.0%	100.0%	%0.09	100.0%	100.0%	10.0%	100.0%	50.0%	100.0%	10.0%	100.0%
	No. of	Hits	7	10	10	4	9	10	3	10	П	10	10	9	10	10	Н	10	5	10	1	10
jo	Rejected		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of No. of	Valid Rej	Analyses SQLs	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		Units	NG/L	MG/L	MG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	NG/L	UG/L	UG/L	NG/L	NG/L	NG/L
		Parameter	EMIVOLATILE ORGANICS Bis(2-Ethylhexyl)phthalate	Total Organic Carbon	Hd	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Sodium	Vanadium	Zinc
		Class	SEMIVOLATILE ORGANIC	OTHER ANALYSES	OTHER ANALYSES	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS	METALS

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T (d	raging ime ays)
			i oxione rock	22.000.000.000	7.510.1A3 -355. —G	65 35	0.71 855.2	Nc	Car
METALS									
Arsenic		1.96E-10	2.50E-07	2	50	5	25	1,825	25,550
Barium	7.07E-08	100000000000000000000000000000000000000	6.46E-06	2	50	5	25	1,825	25,550
Cadmium		2.38E-10	3.04E-07	2 2 2	50	5	25	1,825	25,550
Copper			8.77E-06	2	50	5	25	1,825	25,550
ead			1.06E-04	2	50	5	25	1,825	25,550
Mercury	5.00E-11		4.56E-09	2	50	5	25	1,825	25,550
Selenium	No reconstruction		2.95E-08	2	50	5	25	1,825	25,550
Silver			7.55E-08	2	50	5	25	1,825	25,550
Thallium			1.93E-08	2 2 2 2 2 2	50	5	25	1,825	25,550
Zinc			1.42E-05	2	50	5	25	1,825	25,550
HERBICIDES									
МСРА			2.58E-04	2	50	5	25	1,825	25,550
EQUATION:	Intake (mg/kg	g-day) =	CA x IR x E BW x AT		l				
	Variables:					Assumptions:			
		al Concentration Rate (m³/da)		m³)		Calculated EP 2 (RME Child		RME	
		re Frequency (50	,		
		re Duration (ye				5			
	BW = Bodyw					25 (Child)			
		ng Time (days)	,			5 x 365 (Nc) 70	x 365 (Car)		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS			1 400			
Acetone			NA	NA		
Benzene		1.90E-13	NA	2.91E-02		5.53E-15
Methylene Chloride	2.61E-12	1.87E-13	8.57E-01	1.65E-03	3.05E-12	3.08E-16
Toluene	2.78E-12	W. M. S. W. W. S.	1.14E-01	NA	2.43E-11	
SEMIVOLATILE ORGANICS						
2.4 Distractalizana			NA	NA		
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene	Value of the second		NA	NA		
2-Methylnaphthalene	1		NA	NA		1
2-Methylphenol		h 15000.0	NA	NA		
3,3'-Dichlorobenzidine			NA NA	NA		
3-Nitroaniline			NA NA	NA NA		
4-Nitroaniline			NA NA	NA NA		
Acenaphthene			NA NA	NA		SHOW THE RESERVE
Acenaphthylene		1.00	NA	NA		
Anthracene			NA NA	NA		
Benzo(a)anthracene			NA.	NA		
Benzo(a)pyrene			NA NA	NA		
Benzo(b)fluoranthene		- Del 19-19	NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		
Chrysene			NA NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA NA	NA.		
Fluoranthene			NA NA	NA NA		
Fluorene			NA NA	NA NA		
Indeno(1,2,3-cd)pyrene			NA NA	NA NA		
N-Nitrosodiphenylamine (1)			NA NA	NA NA		
Naphthalene			NA NA	NA NA		
Pentachlorophenol			NA NA	NA		
Phenanthrene			NA NA	NA NA		
Pyrene	9.43E-11		1.00E-03	NA NA	9.43E-08	
bis(2-Chloroisopropyl) ether bis(2-Ethylhexyl)phthalate	9.43E-11		NA NA	NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE		1	NA	NA		120 20000 2000
4,4'-DDT		9.52E-14	NA	3.40E-01		3.23E-14
Aldrin	4.48E-13	3.20E-14	1.70E+01	1.72E+01	2.63E-14	5.49E-13
Aroclor-1260		CTUTION/CTUTION	NA	NA		22.500000000000000000000000000000000000
Dieldrin		1.70E-13	NA	1.61E+01		2.74E-12
Endosulfan I		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NA	NA		
Endosulfan sulfate			NA	NA		
Endosurian surface Endrin			NA	NA		
Endrin ketone			NA	NA		SEMESTEE SAN
Heptachlor epoxide		3.12E-14	NA	9.10E+00		2.84E-13
alpha-Chlordane			NA	NA		0.0500000000000000000000000000000000000
beta-BHC		0.00E+00	NA	1.86E+00		0.00E+00
delta-BHC		The second second	NA	NA	1	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic		1.96E-10	NA	1.51E+01		2.95E-09
Barium	7.07E-08	TARRINGS DURINGS OF	1.43E-04	NA	4.95E-04	
Cadmium		2.38E-10	NA	6.30E+00		1.50E-09
Copper		2000 CO. 10 CO.	NA	NA		
Lead	SET NO POWER OF ST		NA	NA		
Mercury	5.00E-11		8.57E-05	NA	5.83E-07	
Selenium			NA	NA		
Silver			NA	NA		
Thallium			NA	NA		
Zinc			NA	NA		
HERBICIDES						2
МСРА			NA	NA		
Total HQ & CR					4.96E-04	4.45E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 7-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME)

	SURFACE SOIL	AVERAGE	CONVERSION	AIR
COMPOUND	EPC Data mg/kg	TSP (ug/m³)	FACTOR (kg/ug)	CALCULATED EPO (mg/m³)
	mg/kg	(ug/m/)	("6" "6")	,
VOLATILE ORGANICS				
Acetone	7.67E-03	3.80E+01	1.00E-09	2.91E-10
Benzene	6.39E-03	3.80E+01	1.00E-09	2.43E-10
Methylene Chloride	6.27E-03	3.80E+01	1.00E-09	2.38E-10
Γoluene	6.67E-03	3.80E+01	1.00E-09	2.53E-10
SEMIVOLATILE ORGANICS				
2,4-Dinitrotoluene	2.69E-01	3.80E+01	1.00E-09	1.02E-08
2,6-Dinitrotoluene	2.04E-01	3.80E+01	1.00E-09	7.77E-09
2-Methylnaphthalene	2.02E-01	3.80E+01	1.00E-09	7.68E-09
2-Methylphenol	0.00E+00	3.80E+01	1.00E-09	0.00E+00
3,3'-Dichlorobenzidine	2.35E-01	3.80E+01	1.00E-09	8.93E-09
3-Nitroaniline	5.68E-01	3.80E+01	1.00E-09	2.16E-08
4-Nitroaniline	5.68E-01	3.80E+01	1.00E-09	2.16E-08
A	0.00E+00	3.80E+01	1.00E-09	0.00E+00
Acenaphthene	0.00E+00	3.80E+01	1.00E-09	0.00E+00
Acenaphthylene Anthracene	2.17E-01	3.80E+01	1.00E-09	8.25E-09
	2.45E-01	3.80E+01	1.00E-09	9.30E-09
Benzo(a)anthracene	2.39E-01	3.80E+01	1.00E-09	9.07E-09
Benzo(a)pyrene	2.27E-01	3.80E+01	1.00E-09	8.64E-09
Benzo(b)fluoranthene	2.27E-01 2.23E-01	3.80E+01	1.00E-09	8.49E-09
Benzo(g,h,i)perylene	2.50E-01	3.80E+01	1.00E-09	9.49E-09
Benzo(k)fluoranthene	2.15E-01	3.80E+01	1.00E-09	8.16E-09
Butylbenzylphthalate	10X55-74555	3.80E+01	1.00E-09	8.93E-09
Carbazole	2.35E-01	3.80E+01	1.00E-09	7.33E-09
Chrysene	1.93E-01		1.00E-09	1.12E-08
Di-n-butylphthalate	2.94E-01	3.80E+01	1.00E-09	8.02E-09
Dibenz(a,h)anthracene	2.11E-01	3.80E+01	1.00E-09	0.00E+00
Dibenzofuran	0.00E+00	3.80E+01	3 VS2 CCC	7.11E-09
Fluoranthene	1.87E-01	3.80E+01	1.00E-09	0.00E+00
Fluorene	0.00E+00	3.80E+01	1.00E-09	
Indeno(1,2,3-cd)pyrene	2.24E-01	3.80E+01	1.00E-09	8.51E-09
N-Nitrosodiphenylamine (1)	2.15E-01	3.80E+01	1.00E-09	8.16E-09 8.04E-09
Naphthalene	2.12E-01	3.80E+01	1.00E-09	2.36E-08
Pentachlorophenol	6.21E-01	3.80E+01	1.00E-09	
Phenanthrene	2.32E-01	3.80E+01	1.00E-09	8.82E-09
Pyrene	1.57E-01	3.80E+01	1.00E-09	5.96E-09
bis(2-Chloroisopropyl) ether	2.26E-01	3.80E+01	1.00E-09	8.60E-09
bis(2-Ethylhexyl)phthalate	3.81E-01	3.80E+01	1.00E-09	1.45E-08
PESTICIDES/PCB			17.2	
4,4'-DDD	2.45E-03	3.80E+01	1.00E-09	9.33E-11
4,4'-DDE	6.17E-03	3.80E+01	1.00E-09	2.34E-10
4,4'-DDT	3.20E-03	3.80E+01	1.00E-09	1.22E-10
Aldrin	1.08E-03	3.80E+01	1.00E-09	4.09E-11
Aroclor-1260	2.08E-02	3.80E+01	1.00E-09	7.89E-10
Dieldrin	5.71E-03	3.80E+01	1.00E-09	2.17E-10
Endosulfan I	1.09E-03	3.80E+01	1.00E-09	4.14E-11
Endosulfan sulfate	0.00E+00	3.80E+01	1.00E-09	0.00E+00
Endosurian surrace Endrin	2.04E-03	3.80E+01	1.00E-09	7.75E-11
Endrin ketone	0.00E+00	3.80E+01	1.00E-09	0.00E+00
Heptachlor epoxide	1.05E-03	3.80E+01	1.00E-09	3.99E-11
alpha-Chlordane	0.00E+00	3.80E+01	1.00E-09	0.00E+00
beta-BHC	0.00E+00	3.80E+01	1.00E-09	0.00E+00
delta-BHC	0.00E+00	3.80E+01	1.00E-09	0.00E+00

TABLE 7-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME)

COMPOUND	SURFACE SOIL EPC Data mg/kg	AVERAGE TSP (ug/m³)	CONVERSION FACTOR (kg/ug)	AIR CALCULATED EPC (mg/m³)
METALS				
Arsenic	6.59E+00	3.80E+01	1.00E-09	2.50E-07
Barium	1.70E+02	3.80E+01	1.00E-09	6.46E-06
Cadmium	8.00E+00	3.80E+01	1.00E-09	3.04E-07
Copper	2.31E+02	3.80E+01	1.00E-09	8.77E-06
Lead	2.78E+03	3.80E+01	1.00E-09	1.06E-04
Mercury	1.20E-01	3.80E+01	1.00E-09	4.56E-09
Selenium	7.75E-01	3.80E+01	1.00E-09	2.95E-08
Silver	1.99E+00	3.80E+01	1.00E-09	7.55E-08
Thallium	5.07E-01	3.80E+01	1.00E-09	1.93E-08
Zinc	3.74E+02	3.80E+01	1.00E-09	1.42E-05
HERBICIDES				
МСРА	6.78E+03	3.80E+01	1.00E-09	2.58E-04
EQUATION:	Calculated Air EPC	C(mg/m3) = So	il EPC x TSP x CF	
	Variables:		Assumptions:	
	TSP = Total Suspen CF = Conversion Fa		s Average value - 3 10-9 kg/ug	8 ug/m3

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate	Exposure Frequency	Exposure Duration (years)	Body Weight (kg)	T	raging ime avs)
SAFERE	(mg/kg-day)	(mg/kg-day)	(mg/m^3)	(m³/day)	(days/year)	(years)	(kg)	Nc	Car
VOLATILE ORGANICS							1-19-		
VOLATILE ORGANICS				500		25	70	9,125	25,550
Acetone	The state of the s		2.91E-10	20	20	25	70	5000000000	25,550
Benzene		1.36E-12	2.43E-10	20	20	25	70	9,125	
Methylene Chloride	3.73E-12	1.33E-12	2.38E-10	20	20	25	70	9,125	25,550
Andread State Control of the Control	3.97E-12	1.502	2.53E-10	20	20	25	70	9,125	25,550
Toluene	3.97E-12		2.552 .0						
SEMIVOLATILE ORGANICS									
2.4 Dinitrataluana		10 100	1.02E-08	20	20	25	70	9,125	25,550
2,4-Dinitrotoluene		100	7.77E-09	20	20	25	70	9,125	25,550
2,6-Dinitrotoluene			7.68E-09	20	20	25	70	9,125	25,550
2-Methylnaphthalene			0.00E+00	20	20	25	70	9,125	25,550
2-Methylphenol				20	20	25	70	9,125	25,550
3,3'-Dichlorobenzidine			8.93E-09		20	25	70	9,125	25,550
3-Nitroaniline			2.16E-08	20		25	70	9,125	25,550
4-Nitroaniline			2.16E-08	20	20			9,125	25,550
Acenaphthene			0.00E+00	20	20	25	70		
Acenaphthylene	0.4701		0.00E+00	20	20	25	70	9,125	25,550
			8.25E-09	20	20	25	70	9,125	25,550
Anthracene			9.30E-09	20	20	25	70	9,125	25,550
Benzo(a)anthracene			9.07E-09	20	20	25	70	9,125	25,550
Benzo(a)pyrene	1			20	20	25	70	9,125	25,550
Benzo(b)fluoranthene			8.64E-09			25	70	9,125	25,550
Benzo(g,h,i)perylene			8.49E-09	20	20			9,125	25,550
Benzo(k)fluoranthene			9.49E-09	20	20	25	70		
Butylbenzylphthalate		7.	8.16E-09	20	20	25	70	9,125	25,550
			8.93E-09	20	20	25	70	9,125	25,550
Carbazole	0.74		7.33E-09	20	20	25	70	9,125	25,550
Chrysene		1		20	20	25	70	9,125	25,550
Di-n-butylphthalate			1.12E-08		20	25	70	9,125	25,550
Dibenz(a,h)anthracene		1 8	8.02E-09	20		25	70	9,125	25,550
Dibenzofuran			0.00E+00	20	20				25,550
Fluoranthene			7.11E-09	20	20	25	70	9,125	
Fluorene			0.00E+00	20	20	25	70	9,125	25,550
			8.51E-09	20	20	25	70	9,125	25,550
Indeno(1,2,3-cd)pyrene			8.16E-09	20	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			8.04E-09	20	20	25	70	9,125	25,550
Naphthalene			2002 (SUBSTITUTE)		20	25	70	9,125	25,550
Pentachlorophenol			2.36E-08	20			70	9,125	25,550
Phenanthrene			8.82E-09	20	20	25			25,550
Pyrene			5.96E-09	20	20	25	70	9,125	
bis(2-Chloroisopropyl) ether	1.35E-10		8.60E-09	20	20	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate			1.45E-08	20	20	25	70	9,125	25,550
PESTICIDES/PCB									
4 # 555			9.33E-11	20	20	25	70	9,125	25,550
4,4'-DDD			2.34E-10	20	20	25	70	9,125	25,550
4,4'-DDE		C 00E 13		20	20	25	70	9,125	25,550
4,4'-DDT	1 0005100000000000000000000000000000000	6.80E-13	1.22E-10		20	25	70	9,125	25,550
Aldrin	6.40E-13	2.28E-13	4.09E-11	20	55.0	25	70	9,125	25,550
Aroclor-1260			7.89E-10	20	20				25,55
Dieldrin		1.21E-12	2.17E-10	20	20	25	70	9,125	
Endosulfan I			4.14E-11	20	20	25	70	9,125	25,55
			0.00E+00	20	20	25	70	9,125	25,55
Endosulfan sulfate			7.75E-11	20	20	25	70	9,125	25,55
Endrin			0.00E+00	20	20	25	70	9,125	25,55
Endrin ketone					20	25	70	9,125	25,55
Heptachlor epoxide		2.23E-13	3.99E-11	20	3.435.47		70	9,125	25,55
alpha-Chlordane			0.00E+00	20	20	25	7/308		
beta-BHC		0.00E+00	0.00E+00	20	20	25 25	70 70	9,125 9,125	25,550 25,550
				20	20				

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime ays)
	(**************************************		- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	ST0555000001	37-10-10 - 2001		329752	Nc	Car
METALS									
Arsenic		1.40E-09	2.50E-07	20	20	25	70	9,125	25,550
Barium	1.01E-07	1.102 07	6.46E-06	20	20	25	70	9,125	25,550
Cadmium	1.012 07	1.70E-09	3.04E-07	20	20	25	70	9,125	25,550
Copper		A11.546.550	8.77E-06	20	20	25	70	9,125	25,550
Lead			1.06E-04	20	20	25	70	9,125	25,550
Mercury	7.14E-11		4.56E-09	20	20	25	70	9,125	25,550
Selenium	0.551677976.57		2.95E-08	20	20	25	70	9,125	25,550
Silver	-		7.55E-08	20	20	25	70	9,125	25,550
Thallium			1.93E-08	20	20	25	70	9,125	25,550
Zinc			1.42E-05	20	20	25	70	9,125	25,550
HERBICIDES									
MCPA	- -1		2.58E-04	20	20	25	70	9,125	25,550
EQUATION:	Intake (mg/kg	g-day) =	CA x IR x E BW x AT						
	Variables:					Assumptions:			
	IR = Inhalatio	al Concentration Rate (m³/da	y)	/m³)		Calculated EP 20 (RME All I	Receptors)	RME	

20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 (Car)

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

IR = Inhalation Rate (m³/day)
EF = Exposure Frequency (days/yr)
ED = Exposure Duration (years)
BW = Bodyweight (kg)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS				Thou		
Acetone			NA	NA		2.055.14
Benzene		1.36E-12	NA	2.91E-02	4.24E 12	3.95E-14 2.20E-15
Methylene Chloride	3.73E-12	1.33E-12	8.57E-01	1.65E-03	4.36E-12	2.20E-13
Toluene	3.97E-12		1.14E-01	NA	3.47E-11	
SEMIVOLATILE ORGANICS						
2.4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		_
3-Nitroaniline			NA	NA		
4-Nitroaniline		artin - carl	NA	NA		5-5074386
Acenaphthene		1-7-1-1	NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene		1000	NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		10000
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA NA		
N-Nitrosodiphenylamine (1)			NA	NA NA		
Naphthalene			NA	NA NA		
Pentachlorophenol			NA NA	NA NA		
Phenanthrene			NA NA	NA NA		
Pyrene			1.00E-03	NA NA	1.35E-07	
bis(2-Chloroisopropyl) ether bis(2-Ethylhexyl)phthalate	1.35E-10		NA	NA NA	1.552.07	
PESTICIDES/PCB						
			NIA	NA		
4,4'-DDD			NA NA	NA NA		
4,4'-DDE		6.80E-13	NA NA	3.40E-01		2.31E-13
4,4'-DDT	6.40E-13	6.80E-13 2.28E-13	1.70E+01	1.72E+01	3.76E-14	3.92E-12
Aldrin	0.40E-13	Z.Z0E-13	NA NA	NA	CONTROL OF THE STATE OF	7.0000000000000000000000000000000000000
Aroclor-1260		1.21E-12	NA NA	1.61E+01		1.95E-11
Dieldrin		1.215-12	NA	NA		
Endosulfan I			NA.	NA		
Endosulfan sulfate			NA	NA		
Endrin			NA NA	NA		
Endrin ketone		2.23E-13	NA	9.10E+00		2.03E-12
Heptachlor epoxide		2.2315-13	NA	NA		
alpha-Chlordane		0.00E+00	NA	1.86E+00	1	0.00E+00
beta-BHC	1	0.001.00	NA	NA		
delta-BHC	1				l l	1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic		1.40E-09	NA	1.51E+01		2.11E-08
Barium	1.01E-07		1.43E-04	NA	7.07E-04	
Cadmium		1.70E-09	NA	6.30E+00		1.07E-08
Copper			NA	NA		
Lead	145.000 PERCONSTAN		NA	NA		
Mercury	7.14E-11		8.57E-05	NA	8.33E-07	
Selenium			NA	NA		
Silver			NA	NA		
Thallium			NA	NA		
Zinc			NA	NA		
HERBICIDES						
MCPA			NA	NA		
Total HQ & CR					7.08E-04	3.18E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration

Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate	Exposure Frequency	Exposure Duration	Body Weight (kg)	T	raging ime ays)
M. Les Linds	(mg/kg-day)	(mg/kg-day)	(mg/m³)	(m³/day)	(days/year)	(years)	(kg)	Nc	Car
OLATILE ORGANICS					G 111				
			2015 10	20	250	1	70	365	25,550
Acetone		1272/2020/02	2.91E-10		250	í	70	365	25,550
Benzene		6.79E-13	2.43E-10	20	250	1	70	365	25,550
Methylene Chloride	4.67E-11	6.67E-13	2.38E-10	20		1	70	365	25,550
Coluene	4.96E-11		2.53E-10	20	250	. 1	70	303	25,550
SEMIVOLATILE ORGANIC	S								
			1.02E-08	20	250	1	70	365	25,550
2,4-Dinitrotoluene			7.77E-09	20	250	1	70	365	25,550
2,6-Dinitrotoluene				20	250	1	70	365	25,550
2-Methylnaphthalene			7.68E-09		250	i	70	365	25,550
2-Methylphenol			0.00E+00	20		1 1	70	365	25,550
3,3'-Dichlorobenzidine	100		8.93E-09	20	250	1.55			25,550
3-Nitroaniline			2.16E-08	20	250	1	70	365	
4-Nitroaniline			2.16E-08	20	250	1	70	365	25,550
		1	0.00E+00	20	250	1	70	365	25,550
Acenaphthene			0.00E+00	20	250	1	70	365	25,550
Acenaphthylene				20	250	ì	70	365	25,550
Anthracene			8.25E-09		250	i	70	365	25,550
Benzo(a)anthracene			9.30E-09	20	5/15/01/00	1	70	365	25,550
Benzo(a)pyrene			9.07E-09	20	250	1	70	365	25,550
Benzo(b)fluoranthene			8.64E-09	20	250	1			25,550
Benzo(g,h,i)perylene	a toward	5 1 PK	8.49E-09	20	250	1	70	365	
Benzo(k)fluoranthene			9.49E-09	20	250	1	70	365	25,550
			8.16E-09	20	250	1	70	365	25,550
Butylbenzylphthalate			8.93E-09	20	250	1	70	365	25,550
Carbazole				20	250	i	70	365	25,55
Chrysene			7.33E-09	GE SATE A	250		70	365	25,55
Di-n-butylphthalate			1.12E-08	20			70	365	25,550
Dibenz(a,h)anthracene		1	8.02E-09	20	250	1			25,550
Dibenzofuran			0.00E+00	20	250	1	70	365	
Fluoranthene		1	7.11E-09	20	250	1	70	365	25,55
			0.00E+00	20	250	1	70	365	25,55
Fluorene		1	8.51E-09	20	250	1	70	365	25,550
Indeno(1,2,3-cd)pyrene			F. 45 CO. 10 CO.	20	250	1	70	365	25,55
N-Nitrosodiphenylamine (1)			8.16E-09			1 1	70	365	25,55
Naphthalene			8.04E-09	20	250	1	70	365	25,55
Pentachlorophenol			2.36E-08	20	250	ı			25,55
Phenanthrene			8.82E-09	20	250	1	70	365	25,55
Pyrene		1	5.96E-09	20	250	1	70	365	
	1.68E-09		8.60E-09	20	250	1	70	365	25,55
bis(2-Chloroisopropyl) ether bis(2-Ethylhexyl)phthalate	1.0015-07		1.45E-08	20	250	1	70	365	25,55
PESTICIDES/PCB									
			9.33E-11	20	250	1	70	365	25,55
4,4'-DDD				20	250	l - i	70	365	25,55
4,4'-DDE		2 322322	2.34E-10	0.53994	100000000000000000000000000000000000000	i	70	365	25,55
4,4'-DDT		3.40E-13	1.22E-10	20	250	121	70	365	25,55
Aldrin	8.00E-12	1.14E-13	4.09E-11	20	250	1	2,12,50	365	25,55
Aroclor-1260			7.89E-10	20	250	1	70		
Dieldrin		6.07E-13	2.17E-10	20	250	1	70	365	25,55
		000000000000000000000000000000000000000	4.14E-11	20	250	1	70	365	25,55
Endosulfan I			0.00E+00	20	250	1	70	365	25,55
Endosulfan sulfate				20	250	i	70	365	25,55
Endrin			7.75E-11	0.5553	555000000000	i	70	365	25,55
Endrin ketone			0.00E+00	20	250	1	70	365	25,55
Heptachlor epoxide		1.12E-13	3.99E-11	20	250	1	100000	190337200	25,55
alpha-Chlordane			0.00E+00	20	250	1	70	365	
beta-BHC		0.00E+00	0.00E+00	20	250	1	70	365	25,55
DCIA-DITC	1		0.00E+00	20	250	1	70	365	25,55

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	1	Averaging Time (days)	
	(5 - 5 - 7 /	, , , , , , , , ,		8 500	31 8 150 2		121 (7.8)	Nc	Car	
METALS										
Arsenic		7.00E-10	2.50E-07	20	250	1	70	365	25,550	
Barium	1.26E-06	0.0000000000000000000000000000000000000	6.46E-06	20	250	1	70	365	25,550	
Cadmium		8.50E-10	3.04E-07	20	250	1	70	365	25,550	
Copper		Lambara Caro	8.77E-06	20	250	1	70	365	25,550	
Lead			1.06E-04	20	250	1	70	365	25,550	
Mercury	8.92E-10		4.56E-09	20	250	1	70	365	25,550	
Selenium			2.95E-08	20	250	1	70	365	25,550	
Silver			7.55E-08	20	250	1	70	365	25,550	
Thallium			1.93E-08	20	250	1	70	365	25,550	
Zinc			1.42E-05	20	250	1	70	365	25,550	
HERBICIDES										
MCPA			2.58E-04	20	250	1	70	365	25,550	

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m3/day)

EF = Exposure Frequency (days/yr) ED = Exposure Duration (years)

BW = Bodyweight (kg)

Assumptions:

Calculated EPC Air Data - RME

20 (all receptors)

250 (RME Construction Workers)

1 (Upper bound period of Construction Worker)

70 (Adult Male)

1 x 365 (Nc) 70 x 365 (Car)

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS		150	KINDS Ex			aldere is
		1 44	NA	NA		
Acetone	1	6.79E-13	NA	2.91E-02		1.98E-14
Benzene	4.67E-11	6.67E-13	8.57E-01	1.65E-03	5.44E-11	1.10E-15
Methylene Chloride	4.96E-11	0.0712-13	1.14E-01	NA	4.34E-10	1000
Toluene	4.96E-11		1.146-01	177.		
SEMIVOLATILE ORGANICS						
			NA	NA		
2,4-Dinitrotoluene			NA NA	NA NA		
2,6-Dinitrotoluene			NA NA	NA NA		
2-Methylnaphthalene			200,000	NA NA		
2-Methylphenol			NA	NA NA		
3,3'-Dichlorobenzidine		-	NA	55555		
3-Nitroaniline			NA	NA NA		
4-Nitroaniline			NA	NA NA		
Acenaphthene			NA	NA		
Acenaphthylene	- 1	ka . Tak	NA	NA		The TOTAL
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene		100000000000000000000000000000000000000	NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate		4.17	NA	NA		
Carbazole			NA	NA		
			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Fluoranthene			NA.	NA		
Fluorene			NA NA	NA		
Indeno(1,2,3-cd)pyrene			NA NA	NA NA		
N-Nitrosodiphenylamine (1)			NA NA	NA NA		
Naphthalene			100 100 100	NA NA		
Pentachlorophenol			NA NA	NA NA		
Phenanthrene			NA	12.000		
Pyrene	5050000000000		NA 1 00E 03	NA NA	1.68E-06	
bis(2-Chloroisopropyl) ether	1.68E-09		1.00E-03	NA	1.00E-00	
bis(2-Ethylhexyl)phthalate			NA	NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA NA		
4,4'-DDE			NA	NA 2 40E 01		1.15E-13
4,4'-DDT	5475-7475-000-	3.40E-13	NA	3.40E-01	4.70E 12	1.15E-13 1.96E-12
Aldrin	8.00E-12	1.14E-13	1.70E+01	1.72E+01	4.70E-13	1.90E-12
Aroclor-1260	A (PANA) (SA)		NA	NA		0.225.13
Dieldrin		6.07E-13	NA	1.61E+01		9.77E-12
Endosulfan I		1	NA	NA		
Endosulfan sulfate			NA	NA		
Endosurian surface			NA	NA		
Endrin ketone			NA	NA		grigation rece
Heptachlor epoxide		1.12E-13	NA	9.10E+00	1	1.02E-12
			NA	NA		
alpha-Chlordane		0.00E+00	NA	1.86E+00		0.00E+00
beta-BHC	1	0.000	NA	NA	I	1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						T- HIN
Arsenic		7.00E-10	NA	1.51E+01		1.05E-08
Barium	1.26E-06	659596555655555	1.43E-04	NA	8.84E-03	2000-00000
Cadmium		8.50E-10	NA	6.30E+00		5.35E-09
Copper		ARMS - BUSINESS.	NA	NA		
Lead	200.2004 2004 2		NA	NA		
Mercury	8.92E-10		8.57E-05	NA	1.04E-05	
Selenium	2.500,000,000,000		NA	NA		
Silver			NA	NA		
Thallium			NA	NA		
Zinc			NA	NA		
HERBICIDES						
МСРА			NA	NA		-
Total HQ & CR					8.86E-03	1.59E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate	Exposure Frequency	Exposure Duration (years)	Body Weight (kg)	Ti	raging me ays)
	(mg/kg-day)	(mg/kg-day)	(mg/m³)	(m³/day)	(days/year)	(years)	(vg)	Nc	Car
OLATILE ORGANICS									
OLATILE ORGANICS						22	70	0.125	25,550
Acetone			2.91E-10	20	250	25	70	9,125	202020000
Benzene		1.70E-11	2.43E-10	20	250	25	70	9,125	25,550
Methylene Chloride	4.67E-11	1.67E-11	2.38E-10	20	250	25	70	9,125	25,550
Foluene	4.96E-11		2.53E-10	20	250	25	70	9,125	25,550
	1.702 11			100.00					
SEMIVOLATILE ORGANICS		4121							
2,4-Dinitrotoluene			1.02E-08	20	250	25	70	9,125	25,550
2,6-Dinitrotoluene			7.77E-09	20	250	25	70	9,125	25,550
			7.68E-09	20	250	25	70	9,125	25,550
2-Methylnaphthalene		19	0.00E+00	20	250	25	70	9,125	25,550
2-Methylphenol			8.93E-09	20	250	25	70	9,125	25,550
3,3'-Dichlorobenzidine			2.16E-08	20	250	25	70	9,125	25,550
3-Nitroaniline		1	2.16E-08	20	250	25	70	9,125	25,550
4-Nitroaniline			0.00E+00	20	250	25	70	9,125	25,550
Acenaphthene				20	250	25	70	9,125	25,550
Acenaphthylene			0.00E+00		250	25	70	9,125	25,550
Anthracene			8.25E-09	20	250	25	70	9,125	25,550
Benzo(a)anthracene			9.30E-09	20	3575485	25	70	9,125	25,55
Benzo(a)pyrene	10.41	100000000	9.07E-09	20	250		70	9,125	25,550
Benzo(b)fluoranthene			8.64E-09	20	250	25	5162	9,125	25,550
Benzo(g,h,i)perylene			8.49E-09	20	250	25	70		25,550
Benzo(k)fluoranthene			9.49E-09	20	250	25	70	9,125	
Butylbenzylphthalate			8.16E-09	20	250	25	70	9,125	25,550
Carbazole			8.93E-09	20	250	25	70	9,125	25,55
			7.33E-09	20	250	25	70	9,125	25,55
Chrysene			1.12E-08	20	250	25	70	9,125	25,55
Di-n-butylphthalate	1		8.02E-09	20	250	25	70	9,125	25,55
Dibenz(a,h)anthracene	4		0.00E+00	20	250	25	70	9,125	25,55
Dibenzofuran			7.11E-09	20	250	25	70	9,125	25,55
Fluoranthene			0.00E+00	20	250	25	70	9,125	25,55
Fluorene				20	250	25	70	9,125	25,55
Indeno(1,2,3-cd)pyrene			8.51E-09		250	25	70	9,125	25,55
N-Nitrosodiphenylamine (1)			8.16E-09	20	97777494	25	70	9,125	25,55
Naphthalene			8.04E-09	20	250		70	9,125	25,55
Pentachlorophenol			2.36E-08	20	250	25		9,125	25,55
Phenanthrene			8.82E-09	20	250	25	70	50.55.50.70.00	25,55
Pyrene			5.96E-09	20	250	25	70	9,125	25,55
bis(2-Chloroisopropyl) ether	1.68E-09		8.60E-09	20	250	25	70	9,125	
bis(2-Ethylhexyl)phthalate	5 - 5 xuva (#### (2.5, \$6/)		1.45E-08	20	250	25	70	9,125	25,55
PESTICIDES/PCB									
4 41 0000			9.33E-11	20	250	25	70	9,125	25,55
4,4'-DDD			2.34E-10	20	250	25	70	9,125	25,55
4,4'-DDE		8.50E-12	1.22E-10	20	250	25	70	9,125	25,55
4,4'-DDT	0.005.10			20	250	25	70	9,125	25,55
Aldrin	8.00E-12	2.86E-12	4.09E-11	20	250	25	70	9,125	25,55
Aroclor-1260			7.89E-10		250	25	70	9,125	25,55
Dieldrin		1.52E-11	2.17E-10	20	250	25	70	9,125	25,55
Endosulfan I			4.14E-11	20		25	70	9,125	25,55
Endosulfan sulfate			0.00E+00	20	250	25	70	9,125	25,55
Endrin			7.75E-11	20	250	25	9.19.50	9,125	25,55
Endrin ketone			0.00E+00	20	250	25	70		
Heptachlor epoxide		2.79E-12	3.99E-11	20	250	25	70	9,125	25,55
alpha-Chlordane	1		0.00E+00	20	250	25	70	9,125	25,55
beta-BHC	1	0.00E+00	0.00E+00	20	250	25	70	9,125	25,55
delta-BHC	1		0.00E+00	(2007)	250	25	70	9,125	25,55

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
METALC			P 42 0				2829	Nc	Car
METALS									
Arsenic		1.75E-08	2.50E-07	20	250	25	70	9,125	25,550
Barium	1.26E-06	CONTRACTOR OF THE CONTRACTOR O	6.46E-06	20	250	25	70	9,125	25,550
Cadmium		2.12E-08	3.04E-07	20	250	25	70	9,125	25,550
Copper			8.77E-06	20	250	25	70 70	9,125	25,550
Lead			1.06E-04	20	250	25	70	9,125	25,550
Mercury	8.92E-10		4.56E-09	20	250	25 25	70	9,125	25,550
Selenium			2.95E-08	20	250	25	70	9,125	25,550
Silver			7.55E-08	20	250	25	70	9,125	25,550
Thallium			1.93E-08	20	250	25	70	9,125	25,550
Zinc			1.42E-05	20	250	25	70	9,125	25,550
HERBICIDES									
MCPA			2.58E-04	20	250	25	70	9,125	25,550
EQUATION:	Intake (mg/	kg-day) =	CA x IR x I						

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m3/day)

EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)

BW = Bodyweight (kg) AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME

20 (all receptors)

250 (RME Industrial Workers)

70 (Adult Male)

5 x 365 (Nc) 70 x 365 (Car)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
		177	NA	NA		
Acetone		1.70E-11	NA	2.91E-02	No. 1000000000000000000000000000000000000	4.94E-13
Benzene	4.67E-11	1.67E-11	8.57E-01	1.65E-03	5.44E-11	2.75E-14
Methylene Chloride	4.96E-11	1.072	1.14E-01	NA	4.34E-10	
Γoluene	4.90E-11	1 1 1 1 1	1.142 01			11100.01
SEMIVOLATILE ORGANICS		1.11				- 1
		-	NA	NA		
2,4-Dinitrotoluene			NA NA	NA		
2,6-Dinitrotoluene			100,000,00	NA NA		
2-Methylnaphthalene			NA			
2-Methylphenol			NA	NA	Tight	ALC: NO
3,3'-Dichlorobenzidine			NA	NA		
3-Nitroaniline			NA	NA		
		1111111111	NA	NA		The last
4-Nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA NA	NA		
Anthracene	7.3.7	1 - 34 - 45	91000	NA NA	100	ACT LEGIT
Benzo(a)anthracene			NA			
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
			NA	NA		
Benzo(k)fluoranthene	100000	1 4 1 3 1 1	NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA	(4)	is a
Chrysene	1		NA NA	NA		
Di-n-butylphthalate			C009.01	NA NA		
Dibenz(a,h)anthracene			NA	0.0000000		
Dibenzofuran			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA.	NA		
Pentachlorophenol			273374000	NA NA		
Phenanthrene			NA	5030		
Pyrene	50 000000000000000000000000000000000000		NA	NA	1 600 06	
bis(2-Chloroisopropyl) ether	1.68E-09		1.00E-03	NA	1.68E-06	
bis(2-Ethylhexyl)phthalate	300,000,000		NA	NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE			NA	NA		0.000 10
4.4'-DDT		8.50E-12	NA	3.40E-01	VEST000	2.89E-12
	8.00E-12	2.86E-12	1.70E+01	1.72E+01	4.70E-13	4.90E-11
Aldrin	0.502.12		NA	NA		
Aroclor-1260		1.52E-11	NA	1.61E+01		2.44E-10
Dieldrin		1.526-11	NA NA	NA		
Endosulfan I			NA NA	NA NA		
Endosulfan sulfate				NA NA		
Endrin			NA	502510-71		
Endrin ketone			NA	NA	1	2.54E-11
Heptachlor epoxide		2.79E-12	NA	9.10E+00		2.54E-11
alpha-Chlordane			NA	NA		0.005.0
		0.00E+00	NA	1.86E+00		0.00E+00
beta-BHC		100000000000000000000000000000000000000	NA	NA	1	1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic		1.75E-08	NA	1.51E+01		2.63E-07
Barium	1.26E-06	1.5.400350003792	1.43E-04	NA	8.84E-03	
Cadmium		2.12E-08	NA	6.30E+00		1.34E-07
Copper		8.8	NA	NA		
Lead			NA	NA		
Mercury	8.92E-10		8.57E-05	NA	1.04E-05	
Selenium			NA	NA		
Silver		100	NA	NA		
Thallium			NA	NA		
Zinc			NA	NA		
HERBICIDES						
МСРА			NA	NA		
Total HQ & CR					8.86E-03	3.98E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate	Exposure Frequency	Exposure Duration	Body Weight (kg)	Ti	aging me ays)
	(mg/kg-day)	(mg/kg-day)	(mg/m³)	(m³/day)	(days/year)	(years)	(vR)	Nc	Car
OLATILE ORGANICS									
OLATILE ORGANICS				27	1223		25	1 025	25,550
Acetone			2.91E-10	2	50	5	25	1,825	100000000000000000000000000000000000000
Benzene	1000	1.90E-13	2.43E-10	2	50	5	25	1,825	25,550
Methylene Chloride	2.61E-12	1.87E-13	2.38E-10	2	50	5	25	1,825	25,550
	2.78E-12	100000000000000000000000000000000000000	2.53E-10	2	50	5	25	1,825	25,550
Toluene	2.761-12	0.00							
SEMIVOLATILE ORGANICS	126								
A District		-0141	1.02E-08	2	50	5	25	1,825	25,550
2,4-Dinitrotoluene		47	7.77E-09	2	50	5	25	1,825	25,550
2,6-Dinitrotoluene		634	7.68E-09	2	50	5	25	1,825	25,550
2-Methylnaphthalene					50	5	25	1,825	25,550
2-Methylphenol			0.00E+00	2	50	5	25	1,825	25,550
3,3'-Dichlorobenzidine			8.93E-09	2			25	1,825	25,550
3-Nitroaniline			2.16E-08	2	50	5			1000000
4-Nitroaniline			2.16E-08	2	50	5	25	1,825	25,550
Acenaphthene			0.00E+00	2	50	5	25	1,825	25,550
Acenaphthylene	To be	685 21	0.00E+00	2	50	5	25	1,825	25,550
			8.25E-09	2	50	5	25	1,825	25,550
Anthracene			9.30E-09	2	50	5	25	1,825	25,550
Benzo(a)anthracene			9.07E-09	2	50	5	25	1,825	25,550
Benzo(a)pyrene				2	50	5	25	1,825	25,550
Benzo(b)fluoranthene			8.64E-09		27,22	5	25	1,825	25,550
Benzo(g,h,i)perylene		ohn er stelle	8.49E-09	2	50		25	1,825	25,550
Benzo(k)fluoranthene			9.49E-09	2	50	5	1000000		25,550
Butylbenzylphthalate			8.16E-09	2	50	5	25	1,825	
Carbazole			8.93E-09	2	50	5	25	1,825	25,550
Chrysene			7.33E-09	2	50	5	25	1,825	25,550
			1.12E-08	2	50	5	25	1,825	25,550
Di-n-butylphthalate			8.02E-09	2	50	5	25	1,825	25,550
Dibenz(a,h)anthracene			0.00E+00	2	50	5	25	1,825	25,550
Dibenzofuran				2	50	5	25	1,825	25,550
Fluoranthene			7.11E-09		50	5	25	1,825	25,550
Fluorene			0.00E+00	2		5	25	1,825	25,550
Indeno(1,2,3-cd)pyrene			8.51E-09	2	50			1,825	25,550
N-Nitrosodiphenylamine (1)			8.16E-09	2	50	5	25		
Naphthalene			8.04E-09	2	50	5	25	1,825	25,550
Pentachlorophenol			2.36E-08	2	50	5	25	1,825	25,550
			8.82E-09	2	50	5	25	1,825	25,550
Phenanthrene			5.96E-09	2	50	5	25	1,825	25,55
Pyrene	0.400.11			2	50	5	25	1,825	25,550
bis(2-Chloroisopropyl) ether	9.43E-11		8.60E-09	2	50	5	25	1,825	25,55
bis(2-Ethylhexyl)phthalate			1.45E-08		30			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	100 A 100 A
PESTICIDES/PCB				3					
4,4'-DDD			9.33E-11	2	50	5	25	1,825	25,55
4,4'-DDE			2.34E-10	2	50	5	25	1,825	25,55
		9.52E-14	1.22E-10	2	50	5	25	1,825	25,55
4,4'-DDT	4.48E-13	3.20E-14	4.09E-11	2	50	5	25	1,825	25,55
Aldrin	4,46E-13	J.20L-14	7.89E-10	2	50	5	25	1,825	25,55
Aroclor-1260		1 705 13		2	50	5	25	1,825	25,55
Dieldrin		1.70E-13	2.17E-10		50	5	25	1,825	25,55
Endosulfan I			4.14E-11	2			25	1,825	25,55
Endosulfan sulfate			0.00E+00	2	50	5			25,55
Endrin			7.75E-11	2	50	5	25	1,825	5090050000
Endrin ketone	1		0.00E+00	2	50	5	25	1,825	25,55
Heptachlor epoxide		3.12E-14	3.99E-11	2	50	5	25	1,825	25,55
[NG (Red) [이상 [전] 시간 (시간 사람이 있는) 이 시간	1		0.00E+00	2	50	5	25	1,825	25,55
alpha-Chlordane		0.00E+00	0.00E+00	2	50	5	25	1,825	25,55
beta-BHC	1	U.UUETUU	0.00E+00	2	50	5	25	1,825	25,55
delta-BHC	OI .		U.UULTUU	-					

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TABLE 7-38

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child Absorbed Dose (Nc) (mg/kg-day)	Child Absorbed Dose (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Conv. Factor (kg/mg)	Child Skin Surface Area Contact (cm²/event)	Adherence Factor (mg sed/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averaging Time (days)	ging ne 'S)
			6								Child(Ne)	Car
Volatile Organics												
Acetone			1.44E-02	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Toluene			8.00E-03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Semiyolatile Organics												
2.4-Dimethylphenol			3.20E-02	1.0E-06	2,170	1.0		25	\$	25	1,825	25,550
2.4-Dinitrotoluene			3.14E-01	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Benzo(a)anthracene			2.50E-02	1.0E-06	2,170	1.0		25	2	22	1,825	25,550
Benzo(a)pyrene			3.00E-02	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Benzo(b)fluoranthene			4.30E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Benzo(g,h,i)perylene			3.10E-02	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Benzo(k)fluoranthene			3.30E-02	1.0E-06	2,170	0.1		25	S	25	1,825	25,550
Chrysene			4.80E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Fluoranthene			7.00E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Indeno(1.2.3-cd)pyrene			2.40E-02	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Phenanthrene			3.50E-02	1.0E-06	2,170	1.0		25	8	25	1,825	25,550
Pyrene			4.70E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
bis(2-Ethylhexyl)phthalate			7.70E-02	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Pesticides												
4 4'-DDD			6.46E-03	1.0E-06	2,170	1.0		25	5	25	1,825	25,55
4.DDF			4.82E-02	1.0E-06	2.170	1.0		25	2	25	1.825	25,550
44'-DDT			4 90E-03	1.0E-06	2.170	1.0		25	2	25	1,825	25,550
Dialdein			1 26E-01	1 OF OK	2 170	1.0		25	8	25	1 825	25.550
Dielann			1 435 03	20.00	100	2		3 6	. •	3.0	1 875	25 550
Endosuitan			1.432-03	00-00	2,170	0.7		3 6	, ,	1 1	3001	26,660
Endosulfan II			3.025-03	1.0E-06	7,170	0.1		57	0	7	1,623	42,330

TABLE 7-38

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc)	Child Absorbed Dose (Car)	EPC Sediment	Conv. Factor	Child Skin Surface Area Contact (cm²/event)	Adherence Factor (mg sed/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(mg/kg-day)	(mg/kg-day)	(Sy/Sim)	(Smg)	(1000)	(Child(Nc)	Car
Metals												
Aluminum			1.83E+04	1.0E-06	2,170	1.0		25	2	52	1,825	25,550
Antimony			5.50E+00	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Arsenic			6.10E+00	1.0E-06	2,170	1.0		25	8	25	1,825	25,550
Barium			1.32E+02	1.0E-06	2,170	534		23	v 1	25	1,825	25,550
Beryllium			7.64E-01	1.0E-06				22	n 4	55	278,1	25,550
Cadmium	1.43E-07		2.40E+00	1.0E-06	2,170	1.0	10.0	22	0 4	9 %	1,025	36 650
Calcium			1.08E+04	1.0E-06	2,170	0.0		2 %	n v	3 %	1,825	25,550
Chromium			2.47E+01	1.0E-06	2,170	0.0		3 %	٠,٧	1 %	1 825	25.550
Cobalt			1.26E+01	1.0E-06	2,170	0.0		3 %		25	1,825	25.550
Copper			7 045404	1.05-06	2,170	0.0		25	S	25	1,825	25,550
ron			K 93E403	10000	2170	10		25	2	25	1,825	25,550
Lead			\$ 54F+03	1 OF-06	2170	1.0		25	s	25	1,825	25,550
Magnesium			\$ 32F+02	1 0E-06	2.170	1.0		25	s	25	1,825	25,550
Manganese			8.11E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Mercury			3 16E+01	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Dotocom			2.18E+03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Calanium			1.27E+00	1.0E-06	2,170	1.0		25	9	25	1,825	00000
Sodium	_		4.27E+02	1.0E-06	2,170	1.0		25	· ·	52	1,825	25,550
Thallium			8.24E-01	1.0E-06	2,170	1.0		25	· ·	22 25	1,825	055,550
Vanadium			2.97E+01	1.0E-06	2,170	1.0		25	2	2 2	1,825	000,02
Zinc			1.88E+02	1.0E-06	2,170	1.0		23	2	a	1,825	066,62
EQUATION:	2 2 3											
	Absorbed Dose (mg/kg-day) =		CSxCFxSAxAFxABSxEFxED BWxAT	Fred								
	Variables:				Assumptions:			Variables:			Assumptions:	
	Sezimen C = 20	Concentration	C = Cleaning Concentration in Sodiment (me sediment/(ce)	ediment/ke)	FPC - Sediment Data - RME	Data - RME		EF = Exposure Frequency (events/year)	requency (event	s/year)	25 (RME)	
	CS = Cnemical CF = Conversion SA = Surface A AF = Sediment ABS = Absorpt	CCS = Chemical Concentration in Security CS = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF = Sediment to Skin Adherence Fac ABS = Absorption Factor (unitless)	U.S. = Curental Contentration in Science (ing see CF = Conversion Factor (10-6 kg/mg) AF = Sediment to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitless)	(4	10-6 2,170 (RME Child) 1.0 (RME all receptors) Compound Specific PCBs and 0	10-6 2,170 (RME child) 1.0 (RME all receptors) Compound Specific PCBs and Cd, (EPA, 1992b)	I, (EPA, 1992b)	ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	Duration (years) at (kg) Time (days)		5 (RME) 25 kg (child) 5 x 365 (Nc), 70 x 365 (Car)	t 365 (Car

. Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RM (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
Acetone			1.00E-01	NA		
Toluene			1.20E-01	NA		
Semivolatile Organics						
2,4-Dimethylphenol			2.00E-02	NA		
2,4-Dinitrotoluene		1 1	2.00E-03	NA		
Benzo(a)anthracene		1 1	NA	1.46E+00		
Benzo(a)pyrene		1 1	NA	1.46E+01		1
Benzo(b)fluoranthene		1 1	NA	1.46E+00		
Benzo(g,h,i)perylene		1 1	NA	NA		1
Benzo(k)fluoranthene		1 1	NA	1.46E+00		
Chrysene		1 1	NA	1.46E-01		
Fluoranthene		1 1	4.00E-02	NA		
Indeno(1,2,3-cd)pyrene		1 1	NA	1.46E+00		
Phenanthrene		1 1	NA	NA		
Pyrene		1 1	3.00E-02	NA		i i
bis(2-Ethylhexyl)phthalate		1 1	2.00E-02	1.40E-02		
Pesticides						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE		1 1	NA	NA		
4,4'-DDT		1 1	5.00E-04	3.40E-01		
Dieldrin		1 1	5.00E-05	1.60E+01		
Endosulfan I		1 1	6.00E-03	NA		
Endosulfan II			NA	NA		
Metals						
Aluminum			NA	NA		
Antimony -		1 1	4.00E-04	NA		
Arsenic		1 1	2.94E-04	1.79E+00	2	
Barium			7.00E-03	NA		
Beryllium		1 1	5.00E-06	4.30E+03		
Cadmium	1.43E-07	1 1	3.00E-05	NA	4.76E-03	
Calcium		1 1	NA	NA		
Chromium		1 1	2.50E-04	NA		
Cobalt	1	1 1	NA	NA		
Copper		1	2.00E-02	NA		
Iron		1 1	NA	NA NA		
Lead			NA	NA		
Magnesium			NA	NA NA		
Manganese		1 1	5.00E-03	NA NA		
Mercury	1	1 1	4.50E-05	NA NA		
Nickel		1 1	1.00E-03	NA NA		
Potassium			NA	NA NA		
Selenium			3.00E-03	NA NA		
Sodium	1	1 1	NA ZOOF OF	NA NA		
Thallium		1	7.00E-05	NA NA		
Vanadium			7.00E-03	NA NA		
Zinc			1.50E-01	NA		

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 7-36

CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child Intake (Nc) (mg/kg-dav)	Child Intake (Car) (mg/kg-dav)	EPC Sediment (mg/kg)	Child Ingestion Rate (mg sed/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Aver Ti (de	Averaging Time (days)
	0.0.									Nc	Car
Volatile Organics											
Acetone	7.88E-09		1.44E-02	200	1.0E-06	-	25	\$	25	1,825	25,550
Toluene	4.38E-09		8.00E-03	200	1.0E-06	-	25	5	25	1,825	25,550
Semivolatile Organics											
2 4-Dimethylphenol	1.75E-08		3.20E-02	200	1.0E-06	-	25	S	25	1,825	25,550
2.4-Dinitrotoluene	1.72E-07		3.14E-01	200	1.0E-06	-	25	5	25	1,825	25,550
Benzo(a)anthracene		9.78E-10	2.50E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Benzo(a)pyrene		1.17E-09	3.00E-02	200	1.0E-06	-	25	8	25	1,825	25,550
Benzo(b)fluoranthene		1.68E-09	4.30E-02	200	1.0E-06	-	25	\$	25	1,825	25,550
Benzo(g,h,i)perylene			3.10E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Benzo(k)fluoranthene		1.29E-09	3.30E-02	200	1.0E-06	-	25	S	25	1,825	25,550
Chrysene		1.88E-09	4.80E-02	200	1.0E-06	-	25	\$	25	1,825	25,550
Fluoranthene	3.84E-08	See State See	7.00E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Indeno(1,2,3-cd)pyrene		9.39E-10	2.40E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Phenanthrene			3.50E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Pyrene	2.58E-08		4.70E-02	200	1.0E-06		25	2	25	1,825	25,550
bis(2-Ethylhexyl)phthalate	4.22E-08	3.01E-09	7.70E-02	200	1.0E-06	-	25	2	52	1,825	25,550
Pesticides											Ì
4.4'-DDD	3.54E-09	2.53E-10	6.46E-03	200	1.0E-06	-	25	9	25	1,825	25,550
4.4'-DDE			4.82E-02	200	1.0E-06	-	25	2	25	1,825	25,550
4,4'-DDT	2.68E-09	1.92E-10	4.90E-03	200	1.0E-06		25	S	25	1,825	25,550
Dieldrin	1.78E-09	1.27E-10	3.26E-03	200	1.0E-06		25	\$	25	1,825	25,550
Endosulfan I	7.82E-10		1.43E-03	200	1.0E-06	-	25	\$	25	1,825	25,550
Endosulfan II			3.05E-03	200	1.0E-06	-	25	9	25	1,825	25,550

TABLE 7-36

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte		Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Ingestion Rate (mg sed/day)	Conv. Factor (kg/mg)	Fraction Ingested (unidess)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (dč	Averaging Time (days)
				Es es	0:	61		N2	HS.		Nc	Car
Metals												
Aluminum				1.83E+04	200	1.0E-06	200	25	5	25	1.825	25,550
Antimony		3.01E-06		5.50E+00	200	1.0E-06	-	25	٠,	25	1,825	25,550
Arsenic		3.34E-06	2.39E-07	6.10E+00	200	1.0E-06	-	25	5	25	1,825	25,550
Barium		7.21E-05		1.32E+02	200	1.0E-06	-	25	5	25	1,825	25,550
Beryllium		4.19E-07	2.99E-08	7.64E-01	200	1.0E-06	-	25	2	25	1,825	25,550
Cadmium		1.32E-06		2.40E+00	200	1.0E-06	-	25	5	25	1,825	25,550
Calcium				1.08E+04	200	1.0E-06		25	5	25	1,825	25,550
Chromium		1.35E-05		2.47E+01	200	1.0E-06	-	25	5	25	1,825	25,550
Cobalt		10000000000000000000000000000000000000		1.26E+01	200	1.0E-06	-	25	5	25	1,825	25,550
Copper		7.31E-05		1.33E+02	200	1.0E-06	-	25 ·	5	25	1,825	25,550
Iron				2.94E+04	200	1.0E-06	-	25	2	25	1,825	25,550
Lead				6.83E+02	200	1.0E-06	-	25	2	25	1,825	25,550
Magnesium		C0070000000000000000000000000000000000		5.54E+03	200	1.0E-06	-	25	2	25	1,825	25,550
Manganese		2.92E-04		5.32E+02	200	1.0E-06	-	25	5	25	1,825	25,550
Mercury		4.44E-08		8.11E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Nickel		1.73E-05		3.16E+01	200	1.0E-06	-	25	2	25	1,825	25,550
Potassium				2.18E+03	200	1.0E-06	-	25	2	25	1,825	25,550
Selenium		6.94E-07		1.27E+00	200	1.0E-06	T.	25	2	25	1,825	25,550
Sodium				4.27E+02	200	1.0E-06	-	25	2	25	1,825	25,550
Thallium		4.51E-07		8.24E-01	200	1.0E-06	_	25	2	25	1,825	25,550
Vanadium		1.63E-05		2.97E+01	200	1.0E-06	-	25	5	25	1,825	25,550
Zinc		1.03E-04		1.88E+02	200	1.0E-06	-	25	'n	23	1,825	25,550
FOIIATION												
	Intake (m	g/kg-day) =	Intake (mg/kg-day) = CSxIRxCFxFIxEFxED	FIXEFXE	-							
			BWxAT	H								
	Y2	Variables:						Assumptions:				
	S	S = Chemica	Concentration	in Sediment	CS = Chemical Concentration in Sediment (mg sediment/kg)	(2)		EPC - Sedime	EPC - Sediment Data - RME			
	H	t = Ingestion	IR = Ingestion Rate (mg sediment/day)	nent/day)				200 (RME Child)	(pli			
	ם ו	F = Conversi	CF = Conversion Factor (10-6 kg/mg)	kg/mg)				10-6				
	H	= Fraction	FI = Fraction Ingested (unitless)	ss)				I de marin				
	E 13	h = Exposur	EF = Exposure Frequency (days/years)	ays/years)				25 (KME)				
	BI	ED = Exposure Durant BW = Rodymaight (kg)	c Duranon (yes	(61)				of (Child)				
			T. T. T. T. T.					E - 20E (No. 70 - 30E (C)	C) 375 0			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
Acetone	7.88E-09		1.00E-01	NA	7.88E-08	
Toluene	4.38E-09		2.00E-01	NA	2.19E-08	
Semivolatile Organics						
2.4-Dimethylphenol	1.75E-08		2.00E-02	NA	8.77E-07	
2,4-Dinitrotoluene	1.72E-07		2.00E-03	NA	8.61E-05	
Benzo(a)anthracene		9.78E-10	NA	7.30E-01		7.14E-10
Benzo(a)pyrene		1.17E-09	NA	7.30E+00		8.57E-09
Benzo(b)fluoranthene		1.68E-09	NA	7.30E-01		1.23E-09
Benzo(g,h,i)perylene			NA	NA		0.435.10
Benzo(k)fluoranthene		1.29E-09	NA	7.30E-01		9.43E-10
Chrysene		1.88E-09	NA	7.30E-02	0.500.07	1.37E-10
Fluoranthene	3.84E-08		4.00E-02	NA	9.59E-07	C 00E 10
Indeno(1,2,3-cd)pyrene		9.39E-10	NA	7.30E-01		6.86E-10
Phenanthrene			NA	NA	0.500.07	
Pyrene	2.58E-08	43934393	3.00E-02	NA L 40E 02	8.58E-07	4.22E-11
bis(2-Ethylhexyl)phthalate	4.22E-08	3.01E-09	2.00E-02	1,40E-02	2.11E-06	4,22E-11
Pesticides						
4.4'-DDD	3.54E-09	2.53E-10	5.00E-04	2.40E-01	7.08E-06	6.07E-11
4,4'-DDE		1 5 6 6	NA	NA	10000	6 50F 11
4,4'-DDT	2.68E-09	1.92E-10	5.00E-04	3.40E-01	5.37E-06	6.52E-11
Dieldrin	1.78E-09	1.27E-10	5.00E-05	1.60E+01	3.57E-05	2.04E-09
Endosulfan I	7.82E-10		6.00E-03	NA	1.30E-07	
Endosulfan II			NA	NA		
Metals						
Aluminum			NA	NA		
Antimony	3.01E-06		4.00E-04	NA	7.53E-03	
Arsenic	3.34E-06	2.39E-07	3.00E-04	1.75E+00	1.11E-02	4.17E-07
Barium	7.21E-05		7.00E-02	NA	1.03E-03	500000
Beryllium	4.19E-07	2.99E-08	5.00E-03	4.30E+00	8.37E-05	1.29E-07
Cadmium	1.32E-06		5.00E-04	NA	2.63E-03	
Calcium			NA	NA	02022002	
Chromium	1.35E-05		5.00E-03	NA	2.70E-03	
Cobalt			NA	NA	1 025 05	
Copper	7.31E-05		4.00E-02	NA	1.83E-03	
Iron			NA	NA		
Lead			NA	NA		
Magnesium	864243000000000		NA 5 copp co	NA NA	5.83E-02	
Manganese	2.92E-04		5.00E-03	NA NA	1.48E-04	
Mercury	4.44E-08		3.00E-04	NA NA	8.66E-04	
Nickel	1.73E-05		2.00E-02	NA NA	8.00E-04	
Potassium	7579749479		NA CODE OZ	NA NA	1.39E-04	1
Selenium	6.94E-07		5.00E-03	NA NA	1.596*04	
Sodium			NA ZOOF OS	NA NA	6.45E-03	
Thallium	4.51E-07		7.00E-05 7.00E-03	NA NA	2.33E-03	
Vanadium	1.63E-05		7.00E-03 3.00E-01	NA NA	3.44E-04	
Zinc	1,03E-04		3,00E-01	INA.	A CONTRACTOR	
Totals - HO & CR	1				9.57E-02	5.61E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.



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TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Child Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averaging Time (days)	iging ne ys)	
										Nc	Car	-
VOLATILE ORGANICS												
Acetone	8.40E-09		7.67E-03	200	1.0E-06	-	50	5	25	1,825	25,550	
Benzene Methylene Chloride	6.88E-09	5.00E-10 4.91E-10	6.39E-03 6.27E-03	200	1.0E-06 1.0E-06		20 20	v v	25	1,825	25,550	
Toluene	7.31E-09		6.67E-03	200	1.0E-06	-	20		25	1,825	25,550	
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene	2.95E-07		2.69E-01	200	1.0E-06	-	50	5	25	1,825	25,550	
2,6-Dinitrotoluene	2.24E-07		2.04E-01	200	1.0E-06	-	20	5	25	1,825	25,550	
2-Methylnaphthalene			2.02E-01	200	1.0E-06		50	v.	25	1,825	25,550	
2-Meunylphenoi 3 3'-Dichlorobenzidine		1.84E-08	2 35E-01	200	1.0E-06		20	n v	5,5	1,825	25,550	
3-Nitroaniline			5.68E-01	200	1.0E-06		20	, v	25	1,825	25,550	
4-Nitroaniline			5.68E-01	200	1.0E-06		20	5	25	1,825	25,550	
Acenaphthene				200	1.0E-06		50	5	25	1,825	25,550	
Acenaphthylene	100			200	1.0E-06		20	S	25	1,825	25,550	
Anthracene	2.38E-07		2.17E-01	200	1.0E-06	-	20	5	25	1,825	25,550	
Benzo(a)anthracene		1.91E-08	2.45E-01	200	1.0E-06	-	50	5	25	1,825	25,550	
Benzo(h)ducrenthere		1.87E-08	2.39E-01	200	1.0E-06		20	io ii	25	1,825	25,550	
Benzo(g.h.i)pervlene		11,02-00	2.23E-01	200	1.0E-06	-	20	יי ר	25	1,825	25,530	
Benzo(k)fluoranthene		1.96E-08	2.50E-01	200	1.0E-06	-	50	٠,	25	1.825	25,550	
Butylbenzylphthalate	2.35E-07		2.15E-01	200	1.0E-06	-	50	3	25	1,825	25,550	_
Carbazole		1.84E-08	2.35E-01	200	1.0E-06	1	20	5	25	1,825	25,550	
Chrysene		1.51E-08	1.93E-01	200	1.0E-06	-	20	5	25	1,825	25,550	_
Di-n-butylphthalate	3.22E-07		2.94E-01	200	1.0E-06	_	20	5	25	1,825	25,550	
Dibenz(a,h)anthracene		1.65E-08	2.11E-01	200	1.0E-06	1	20	5	25	1,825	25,550	
Dibenzofuran				200	1.0E-06	-	20	5	25	1,825	25,550	
Fluoranthene	2.05E-07		1.87E-01	200	1.0E-06	-	20	5	25	1,825	25,550	
Fluorene				200	1.0E-06	-	20	S	25	1,825	25,550	_
Indeno(1,2,3-cd)pyrene		1.75E-08	2.24E-01	200	1.0E-06	1	50	5	25	1,825	25,550	

TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

	Child	Child		Child				Child	Child			_
	Intake	Intake	EPC	Ingestion	Conv.	Fraction	Exposure	Exposure	Body	Averaging	aging	_
Analyte	(Nc)	(Car)	Soil	Rate	Factor	Ingested	Frequency	Duration	Weight	Ē	Time	_
v	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg soil/day)	(kg/mg)	(unitless)	(days/year)	(years)	(kg)	(days)		-
					The second second					Nc	Car	-
N-Nitrosodiphenylamine (1)		1.68E-08	2.15E-01	200	1.0E-06	-	50	5	25	1,825	25,550	
Naphthalene			2.12E-01	200	1.0E-06	-	50	5	25	1,825	25,550	_
Pentachlorophenol	6.80E-07	4.86E-08	6.21E-01	200	1.0E-06	-	20	5	25	1,825	25,550	-
Phenanthrene			2.32E-01	200	1.0E-06	-	20	S	25	1,825	25,550	_
Pyrene	1.72E-07		1.57E-01	200	1.0E-06	-	20	S	25	1,825	25,550	
bis(2-Chloroisopropyl) ether	2.48E-07		2.26E-01	200	1.0E-06	-	20	S	25	1,825	25,550	_
bis(2-Ethylhexyl)phthalate	4.18E-07	2.98E-08	3.81E-01	200	1.0E-06	-	20	2	25	1,825	25,550	
PESTICIDES/PCB				i.i.								
4.4-DDD	2.69E-09	1.92E-10	2.45E-03	200	1.0E-06		50	9	25	1,825	25,550	
4.4'-DDE			6.17E-03	200	1.0E-06	-	50	5	25	1,825	25,550	
4.4'-DDT	3.51E-09	2.51E-10	3.20E-03	200	1.0E-06	_	50	2	25	1,825	25,550	-
Aldrin	1.18E-09	8.42E-11	1.08E-03	200	1.0E-06	-	50	5	25	1,825	25,550	_
Aroclor-1260		1.62E-09	2.08E-02	200	1.0E-06	-	20	5	25	1,825	25,550	_
Dieldrin	6.26E-09	4.47E-10	5.71E-03	200	1.0E-06	-	50	S	25	1,825	25,550	
Endosulfan I	1.19E-09		1.09E-03	200	1.0E-06	-	50	2	25	1,825	25,550	
Endosulfan sulfate				200	1.0E-06	-	20	5	25	1,825	25,550	
Endrin	2.24E-09		2.04E-03	200	1.0E-06	-	20	5	25	1,825	25,550	
Endrin ketone	0):			200	1.0E-06	-	50	2	25	1,825	25,550	
Heptachlor epoxide	1.15E-09	8.22E-11	1.05E-03	200	1.0E-06	_	20	2	25	1,825	25,550	
alpha-Chlordane				200	1.0E-06		20	2	25	1,825	25,550	
beta-BHC				200	1.0E-06	-	50	5	25	1,825	25,550	
delta-BHC				200	1.0E-06	-	20	5	25	1,825	25,550	

TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

METALS Arsenic 7.22E-06 5.16E-07 6 Barium 1.86E-04 8.76E-06 1.86E-04 Cadmium 8.76E-06 2.53E-04 1.31E-07 Mercury 8.50E-07 8.50E-07 1.31E-07 Selenium 2.18E-06 2.55E-07 1.10E-04 Zinc 4.10E-04 4.10E-04 6 MCPA 7.44E-06 6	6.59E+00 1.70E+02 8.00E+00 2.31E+02 2.78E+03 1.20E-01 7.75E-01 1.99E+00 5.07E-01 3.74E+02	200 1.0E-06 200 1.0E-06 200 1.0E-06 200 1.0E-06 200 1.0E-06 200 1.0E-06 200 1.0E-06 200 1.0E-06 200 1.0E-06 200 1.0E-06		20 20 20 20 20 20 20 20 20 20 20 20 20 2	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Nc 1,825 1,825 1,825 1,825 1,825 1,825	
T.22E-06 5.16E-07 1.86E-04 1.86E-04 8.76E-06 2.53E-04 1.31E-07 8.50E-07 2.18E-06 5.55E-07 4.10E-04 T.44E-06 TON:	22 24 2 24 2					1,825 1,825 1,825 1,825 1,825	
m 8.76E-04 8.76E-06 2.53E-04 1.31E-07 m 8.50E-07 2.18E-06 5.55E-07 4.10E-04 7.44E-06						1,825	
W 8.76E-06 2.53E-04 3.53E-04 1.31E-07 M 8.50E-07 2.18E-06 5.55E-07 4.10E-04 7.44E-06 TION:						1,825	
y 1.31E-07 m 8.50E-07 2.18E-06 5.55E-07 4.10E-04 7.44E-06						1,825	
m 8.50E-07 8.50E-07 2.18E-06 5.55E-07 4.10E-04 7.44E-06 7.44E-06						1,825	
M 1.31E-07 M 8.50E-07 2.18E-06 5.55E-07 4.10E-04 7.44E-06						1001	
m 8.50E-07 2.18E-06 5.55E-07 4.10E-04 7.44E-06						1,823	
CIDES 7.44E-06 7.44E-06						1.825	
CIDES 7.44E-06 7.44E-06	200000				2/2/	1,825	
4.10E-04 CIDES 7.44E-06 FION:			-			1,825	
7.44E-06					5000	1,825	
7.44E-06		90590					
EQUATION:	6.78E+00		П	50 5	25	1,825	
EQUATION:							
Intake (mg/kg -day) = $CS \times IR \times CF \times FI \times EF \times ED$ $BW \times AT$	Ex Elx EEx ED x AT						
Variables							
TAXABLE			Assumptions:				
CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg)	ition in Soil (mg soil/R oil/day) 10-6 kg/mg)	(B)	EPC Soil Data - RME 200 (RME Child) 10-6	RME			
FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg)	nitless) y (days/years) (years)		1 50 (RME) 5 (RME) 25 (Child)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
			THE PERSON NAMED IN			
VOLATILE ORGANICS						
Acetone	8.40E-09		1.00E-01	NA	8.40E-08	Normal September
Benzene	- CTS107-AFS	5.00E-10	NA	2.90E-02		1.45E-11
Methylene Chloride	6.88E-09	4.91E-10	6.00E-02	7.50E-03	1.15E-07	3.68E-12
foluene	7.31E-09		2.00E-01	NA	3.65E-08	
						9.8
SEMIVOLATILE ORGANICS			12772221321	242	1 400 04	3-27
2,4-Dinitrotoluene	2.95E-07	7	2.00E-03	NA NA	1.48E-04	
2,6-Dinitrotoluene	2.24E-07		1.00E-03	NA NA	2.24E-04	
2-Methylnaphthalene			NA	NA		
2-Methylphenol			5.00E-02	NA 4 COE OL		8.28E-09
3,3'-Dichlorobenzidine		1.84E-08	NA	4.50E-01 NA		0.20E-09
3-Nitroaniline			NA	75.5000		
1-Nitroaniline			NA	NA NA		
Acenaphthene			6.00E-02	NA NA		
Acenaphthylene	12720000		NA	0.000.000	7.93E-07	
Anthracene	2.38E-07	1.015.00	3.00E-01	NA 7.30E-01	1.932-01	1.40E-08
Benzo(a)anthracene		1.91E-08	NA NA	7.30E+00		1.36E-07
Benzo(a)pyrene		1.87E-08	NA NA	7.30E-01		1.30E-08
Benzo(b)fluoranthene		1.78E-08	NA NA	7.30E-01 NA		1.505-50
Benzo(g,h,i)perylene		1.067.00	NA NA	7.30E-01		1.43E-08
Benzo(k)fluoranthene		1.96E-08	NA 2.00E+00	7.30E-01 NA	1.18E-07	1132-00
Butylbenzylphthalate	2.35E-07	1 045 00		2.00E-02	1.102-07	3.68E-10
Carbazole		1.84E-08	NA	7.30E-02	100	1.10E-09
Chrysene	270702742	1.51E-08	NA	7.30E-02 NA	3.22E-06	1.102-05
Di-n-butylphthalate	3.22E-07		1.00E-01	7.30E+00	3.22E-00	1.21E-07
Dibenz(a,h)anthracene		1.65E-08	NA	NA NA		1.212-07
Dibenzofuran		-	NA 100F 02	NA NA	5.13E-06	-
Fluoranthene	2,05E-07		4.00E-02	NA NA	3,13E-00	
Fluorene			4.00E-02 NA	7.30E-01		1.28E-08
Indeno(1,2,3-cd)pyrene		1.75E-08	NA NA	4.90E-03		8.24E-11
N-Nitrosodiphenylamine (1)		1.68E-08	NA NA	NA NA		0.2.2
Naphthalene	C 00E 07	4 06E 00	3.00E-02	1.20E-01	2.27E-05	5.83E-09
Pentachlorophenol	6.80E-07	4.86E-08	25.214.72	NA NA	Z.Z.Z.	1,000
Phenanthrene	7.22		NA 3.00E-02	NA NA	5.73E-06	
Pyrene	1.72E-07		1.00E-02	NA NA	2.48E-04	
bis(2-Chloroisopropyl) ether	2.48E-07	2 005 00	2.00E-03	1.40E-02	2.09E-05	4.18E-10
bis(2-Ethylhexyl)phthalate	4.18E-07	2.98E-08	2.00E-02	1,402-02	2.032.00	
PESTICIDES/PCB		1 8 8	F 4 1 1 1			
	2.69E-09	1.92E-10	5.00E-04	2.40E-01	5.38E-06	4.61E-11
4,4'-DDD	2,092-09	1.720-10	NA	NA	SW20000	
4,4'-DDE	3.51E-09	2.51E-10	5.00E-04	3.40E-01	7.02E-06	8.52E-11
4,4'-DDT	1.18E-09	8.42E-11	3.00E-05	1.70E+01	3.93E-05	1.43E-09
Aldrin	1.102-09	1.62E-09	NA	7.70E+00	Myse Asservan.	1.25E-08
Aroclor-1260	6.26E-09	4.47E-10	5.00E-05	1.60E+01	1.25E-04	7.15E-09
Dieldrin	1.19E-09	-C-1712-10	6.00E-03	NA NA	1.99E-07	302/8 2/62/
Endosulfan I Endosulfan sulfate	1.192-09		5.00E-05	NA	15000010	
Endosultan sultate Endrin	2.24E-09		3.00E-04	NA	7.45E-06	
Endrin ketone			NA	NA		
Heptachlor epoxide	1.15E-09	8.22E-11	1.30E-05	9.10E+00	8.85E-05	7.48E-10
alpha-Chlordane			6.00E-05	1.30E+00	1782 STEELS SPEE	- Corrector
beta-BHC			NA	1.80E+00		
delta-BHC	1		NA	NA		1
METALS			2.005.04	1.755-00	2.41E-02	9.03E-07
Arsenic	7.22E-06	5.16E-07	3.00E-04	1.75E+00	2.41E-02 2.66E-03	J. U.J.L-U.
Barium	1.86E-04	1	7.00E-02	NA NA	1.75E-02	
Cadmium	8.76E-06		5.00E-04	NA NA	6.32E-03	
Copper	2.53E-04		4.00E-02	NA NA	0.5215-05	
Lead			NA 2 OOE OA	NA NA	4.38E-04	
Mercury	1.31E-07		3.00E-04	NA NA	1.70E-04	
Selenium	8.50E-07		5.00E-03 5.00E-03	NA NA	4.36E-04	
Silver	2.18E-06		73.55.55.55.55.55.55.55.55.55.55.55.55.55	NA NA	7.93E-03	
Thallium	5.55E-07		7.00E-05	NA NA	1.37E-03	
Zinc	4,10E-04		3.00E-01	INA	1.375-03	
HERBICIDES						
A (CDA	7.44E-06		5.00E-04	NA	1.49E-02	
MCPA	7.445-00			V35447	297.000.000.000	gonages
		- 1			7.67E-02	1.25E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-30

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

	Child	Child			Child				Child	Child		
	Absorbed	Absorbed	EPC	Conv.	Skin Surface	Adherence	Absorption	Exposure	Exposure	Body	Aver	Averaging
Analyte	Dose (Nc)	Dose (Car)	Soil	Factor	Area Contact	Factor	Factor	Frequency	Duration	Weight	Ē	Time
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm²/event)	(mg soil/cm²)	(unitless)	(events/year)	(years)	(kg)	op)	(days)
VOLATILE ORGANICS												
Acetone			7.67E-03	1.00E-06	2,300	1.0		50	\$	25	1,825	25,550
Benzene			6.39E-03	1.00E-06	2,300	1.0		50	\$	25	1,825	25,550
Methylene Chloride			6.27E-03	1.00E-06	2,300	1.0		20	8	25	1,825	25,550
Toluene		1	6.67E-03	1.00E-06	2,300	1.0		20	8	25	1,825	25,550
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene			2.69E-01	1.00E-06	2,300	1.0		50	'n	25	1,825	25,550
2,6-Dinitrotoluene			2.04E-01	1.00E-06	2,300	1.0		50	2	25	1,825	25,550
2-Methylnaphthalene			2.02E-01	1.00E-06	2,300	1.0		90	2	25	1,825	25,550
2-Methylphenol			0.0000000000000000000000000000000000000	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
3,3'-Dichlorobenzidine			2.35E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
3-Nitroaniline			5.68E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
4-Nitroaniline			5.68E-01	1.00E-06	2,300	0.1		20	50	25	1,825	25,550
Acenaphthene				1.00E-06	2,300	0.1		20	S	25	1,825	25,550
Acenaphthylene			SECTION SECTION	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Anthracene			2.17E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Benzo(a)anthracene			2.45E-01	1.00E-06	2,300	1.0		20	\$	25	1,825	25,550
Benzo(a)pyrene			2.39E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Benzo(b)fluoranthene			2.27E-01	1.00E-06	2,300	0.1		20	S	25	1,825	25,550
Benzo(g,h,i)perylene			2.23E-01	1.00E-06	2,300	0.1		20	2	25	1,825	25,550
Benzo(k)fluoranthene			2.50E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Butylbenzylphthalate			2.15E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Carbazole			2.35E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Chrysene			1.93E-01	1.00E-06	2,300	1.0		20	3	25	1,825	25,550
Di-n-butylphthalate			2.94E-01	1.00E-06	2,300	0.1		20	2	25	1,825	25,550
Dibenz(a,h)anthracene			2.11E-01	1.00E-06	2,300	0.1		20	2	25	1,825	25,550
Dibenzofuran				1.00E-06	2,300	0.1		20	2	25	1,825	25,550
Fluoranthene			1.87E-01	1.00E-06	2,300	1.0		20	'n	25	1,825	25,550
Fluorene				1.00E-06	2,300	1.0		50	S	25	1,825	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Absorpted Area Contact Area Contact Andretence Area Contact Eactor Cm ² /event) (mg/kg.day) (mg/k		Child	Child			Child				Child	Child		12	
Composition	Analyte	Absorbed Dose (Nc)	Absorbed Dose (Car)	Soil	Conv. Factor	Skin Surface Area Contact	Adherence	Absorption Factor	Exposure	Exposure	Body	Aver	aging me	-
1.23-cd/pyrene 2.24E-01 1.00E-06 2.300 1.0 50 5 2.5 1.825 sodiplexylamine (1) 2.12E-01 1.00E-06 2.300 1.0 50 5 2.5 1.825 there 2.12E-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 three 2.12E-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 three 2.3E-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 three 2.3E-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 cubbs 2.3E-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 cubbs 2.3E-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 cubbs 2.3E-02 2.300 1.0 50 <t< th=""><th></th><th>(mg/kg-day)</th><th>(mg/kg-day)</th><th>(mg/kg)</th><th>(kg/mg)</th><th>(cm²/event)</th><th>(mg soil/cm²)</th><th>(unitless)</th><th>(events/year)</th><th>(years)</th><th>(kg)</th><th>2p)</th><th>iys)</th><th></th></t<>		(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm²/event)	(mg soil/cm²)	(unitless)	(events/year)	(years)	(kg)	2p)	iys)	
2.24E-01 1.00E-06 2.300 1.0 50 5 2.5 1.825 sodiphytamic (1) three 2.24E-01 1.00E-06 2.300 1.0 50 5 2.5 1.825 three chorephand 1.00E-06 2.300 1.0 50 5 2.5 1.825 three 2.12E-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 thromophand 2.3E-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 chorespropyl) cher 2.3FE-01 1.00E-06 2.300 1.0 50 5 2.5 2.5 1.825 CIDES/PCB 2.3E-01 1.00E-06 2.300 1.0 50 5 2.5 1.825 District properties 2.3E-02 1.0 50 5 5 2.5 1.825 District properties 2.3E-02 1.0 50 5 5 2.5 1.825		Total Control of the	AN ANDRONA CONTROL							The second secon		Nc	Car	
1,215c 1,000c-06 2,300 1,0 50 50 50 50 50	Indeno(1,2,3-cd)pyrene			2.24E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550	
C1DES/PCB C1DE-01 C1DE-06 C1300 L10 S0 S S S S L1825 L	N-Nitrosodiphenylamine (1)			2.15E-01	1.00E-06	2,300	1.0		50	S	25	1,825	25,550	_
Composition Control	Naphthalene			2.12E-01	1.00E-06	2,300	1.0		90	\$	25	1,825	25,550	_
1,27E-01 1,00E-06 2,300 1,0 50 5 5 1,825 1,8	Pentachlorophenol			6.21E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550	_
1,57E-01 1,00E-06 2,300 1,0 50 5 25 1,825 1,	Phenanthrene			2.32E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	
1,00E-06 1,00E-06 2,300 1.0 5.0 5.0 5.0 1,825	Pyrene			1.57E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	
halate 3.81E-01 1.00E-06 2,300 1.0 50 5 25 1,825 6.17E-03 1.00E-06 2,300 1.0 50 5 25 1,825 6.17E-09 1.00E-06 2,300 1.0 50 5 25 1,825 1.121E-09 1.00E-06 2,300 1.0 50 5 25 1,825 1.121E-09 1.00E-06 2,300 1.0 50 5 25 1,825 1.121E-09 5.10E-03 1.00E-06 2,300 1.0 50 5 25 1,825 1.09E-03 1.00E-06 2,300 1.0 50 5 25 1,825 1.09E-03 1.00E-06 2,300 1.0 50 5 25 1,825 1.09E-06 2,300 1.0 5 5 25 1,825 1.09E-06 2,300 1.0 5 5 25 1,825 1.05E-03 1.00E-06 2,	bis(2-Chloroisopropyl) ether			2.26E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550	_
2.45E-03 1.00E-06 2,300 1.0	bis(2-Ethylhexyl)phthalate			3.81E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	
2.45E-03 1.00E-06 2,300 1.0 50 5 25 1,825 6.17E-03 1.00E-06 2,300 1.0 50 5 25 1,825 3.20E-03 1.00E-06 2,300 1.0 50 5 25 1,825 1.02E-09 1.00E-06 2,300 1.0 6.06 50 5 25 1,825 1.09E-03 1.00E-06 2,300 1.0 6.06 50 5 25 1,825 1.09E-03 1.00E-06 2,300 1.0 50 5 25 1,825 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 1.05E-03 1.00E-06 2,300 1.0 5 5 25 1,825 1.05E-04 2,300 1.0 5 5 25 1,825 1.05E-06 2,300 1.0 5 5 25 1,825 1.00E-06 2,300 1.0														_
245E-03 1,00E-06 2,300 1,0 50 5 25 1,825 260 3,20E-03 1,00E-06 2,300 1,0 50 5 25 1,825 260 1,00E-06 2,300 1,0 50 5 25 1,825 1,08E-03 1,00E-06 2,300 1,0 50 5 25 1,825 m I 1,09E-03 1,00E-06 2,300 1,0 50 5 25 1,825 m I 1,09E-03 1,00E-06 2,300 1,0 50 5 25 1,825 tone 2,04E-03 1,00E-06 2,300 1,0 50 5 25 1,825 tone 2,04E-03 1,00E-06 2,300 1,0 5 25 1,825 tone 2,04E-03 1,00E-06 2,300 1,0 5 25 1,825 tone 2,04E-03 1,00E-06 2,300 1,0 5 25 1,825	PESTICIDES/PCB													
260 6.17E-03 1.00E-06 2,300 1.0 50 5 25 1,825 260 1.02E-03 1.00E-06 2,300 1.0 50 5 25 1,825 260 1.121E-09 2.00E-03 1.00E-06 2,300 1.0 50 5 25 1,825 an uliate 5.71E-03 1.00E-06 2,300 1.0 50 5 25 1,825 tone 5.71E-03 1.00E-06 2,300 1.0 50 5 25 1,825 tone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 tone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 tone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 tone 2.300 1.0 5 5 25 1,825 tone 2.300 1.0 5	4.4-DDD			2.45E-03	1.00E-06	2,300	1.0		20	\$	25	1.825	25.550	
250 3.20E-03 1.00E-06 2,300 1.0 6 5,300 1.0 50 5 25 1,825 260 1.08E-03 1.00E-06 2,300 1.0 0.06 50 5 25 1,825 m I 1.00E-05 2,300 1.0 0.06 50 5 25 1,825 m sufate 1.00E-06 2,300 1.0 50 5 25 1,825 stone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 stone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 stone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 store 1.00E-06 2,300 1.0 50 5 25 1,825 store 1.00E-06 2,300 1.0 50 5 25 1,825 store 1.00E-06	4,4'-DDE			6.17E-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	
260 1.08E-03 1.00E-06 2,300 1.0 50 5 25 1,825 260 2.08E-02 1.00E-06 2,300 1.0 0.06 50 5 25 1,825 n I 1.00E-06 2,300 1.0 6 5 2 2 1,825 n sulfate 1.09E-03 1.00E-06 2,300 1.0 50 5 2 2 1,825 tone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 tone 1.00E-06 2,300 1.0 50 5 25 1,825 ordane 1.00E-06 2,300 1.0 50 5 25 1,825 ordane 1.00E-06 2,300 1.0 5 5 25 1,825 ordane 1.00E-06 2,300 1.0 5 5 25 1,825 1.00E-06 2,300 1.0 5 5 2	4,4'-DDT			3.20E-03	1.00E-06	2,300	1.0		50	\$	25	1,825	25,550	_
1.121E-09 2.08E-02 1.00E-06 2.300 1.0 0.06 5.0 5.0 2.5 1.825 1.825 1.825 1.825 1.825 1.825 1.825 1.825 1.825 1.825 1.825 1.825 1.825 1.825 1.00E-06 2.300 1.0 0.0	Aldrin			1.08E-03	1.00E-06	2,300	1.0		50	2	25	1,825	25,550	
1.00E-06 2,300 1.0 50 5 25 1,825 Iffant I 1.09E-03 1.00E-06 2,300 1.0 50 5 25 1,825 Iffant sulfate 2.30E-03 1.0 1.0 50 5 25 1,825 ketone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 hilorepoxide 1.00E-06 2,300 1.0 50 5 25 1,825 hiloredate 2.30C 1.0 50 5 25 1,825 HC	Aroclor-1260		1.121E-09	2.08E-02	1.00E-06	2,300	1.0	90.0	90	5	25	1,825	25,550	_
Ifan I 1.09E-03 1.00E-06 2,300 1.0 50 5 25 1,825 Ifan sulfate 1.00E-06 2,300 1.0 50 5 25 1,825 ketone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 ilor epoxide 1.05E-03 1.00E-06 2,300 1.0 50 5 25 1,825 ilor epoxide 1.00E-06 2,300 1.0 50 5 25 1,825 Ilor epoxide 2.300 1.0 50<	Dieldrin			5.71E-03	1.00E-06	2,300	1.0		20	8	25	1,825	25,550	_
Ifan sulfate 1.00E-06 2,300 1.0 50 5 25 1,825 Ketone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 Indepoxide 1.05E-03 1.00E-06 2,300 1.0 50 5 25 1,825 Indepoxide 1.00E-06 2,300 1.0 50 5 25 1,825 Incepoxide 2,300 1.0 50 5 25 1,825 Incepoxide 2,300 1.0 50 5 25 1,825 Incepox 2,300 1.0 50 5 25 1,825 HC 2,300 1.0 50 5 25 1,825 HC 2,300 1.0 50 5 25 1,825	Endosulfan I			1.09E-03	1.00E-06	2,300	1.0		20	2	25	1,825	25,550	_
ketone 2.04E-03 1.00E-06 2,300 1.0 50 5 25 1,825 Inderepoxide 1.05E-03 1.00E-06 2,300 1.0 50 5 25 1,825 Inflordanc 1.00E-06 2,300 1.0 50 5 25 1,825 Inc. 1.00E-06 2,300 1.0 50 5 25 1,825 HC 1.00E-06 2,300 1.0 50 5 25 1,825 HC 2,300 1.0 50 5 25 1,825	Endosulfan sulfate				1.00E-06	2,300	1.0		20	\$	25	1,825	25,550	_
one 1,05E-03 1,00E-06 2,300 1.0 50 5 25 1,825 repoxide 1,05E-03 1,00E-06 2,300 1.0 50 5 25 1,825 rdane 1,00E-06 2,300 1.0 50 5 25 1,825 1,00E-06 2,300 1.0 50 5 25 1,825 1,00E-06 2,300 1.0 50 5 25 1,825	Endrin			2.04E-03	1.00E-06	2,300	1.0		20	s	25	1,825	25,550	_
epoxide 1.05E-03 1.00E-06 2,300 1.0 50 5 25 1,825 rdane 1.00E-06 2,300 1.0 50 5 25 1,825 rdane 1.00E-06 2,300 1.0 50 5 25 1,825 1.00E-06 2,300 1.0 50 5 25 1,825 1.00E-06 2,300 1.0 50 5 25 1,825	Endrin ketone				1.00E-06	2,300	1.0		20	5	25	1,825	25,550	_
rdane 1.00E-06 2,300 1.0 50 5 25 1,825	Heptachlor epoxide			1.05E-03	1.00E-06	2,300	1.0		20	2	25	1,825	25,550	_
1.00E-06 2,300 1.0 50 5 25 1,825 1.00E-06 2,300 1.0 50 5 25 1,825	alpha-Chlordane				1.00E-06	2,300	1.0		20	9	25	1,825	25,550	_
1.00E-06 2,300 1.0 50 5 25 1,825	beta-BHC				1.00E-06	2,300	1.0		20	s	25	1,825	25,550	-
	delta-BHC				1.00E-06	2,300	1.0		20	S	25	1,825	25,550	

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TABLE 7-30

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc) (mg/kg-day)	Child Absorbed Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Child Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averaging Time (days)	ging s)
METALS											Ne.	Car
Arsenic			6.59E+00	1.00E-06	2,300	1.0		90	٧.	25	1.825	25,550
Barium			1.70E+02	1.00E-06	2,300	0.1		50	8	25	1,825	25,550
Cadmium	1.01E-06		8.00E+00	1.00E-06	2,300	1.0	0.01	90	5	25	1,825	25,550
Copper			2.31E+02	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Lead			2.78E+03	1.00E-06	2,300	0.1		20	5	25	1,825	25,550
Mercury			1.20E-01	1.00E-06	2,300	0.1		20	90 1	25	1,825	25,550
Selenium			7.75E-01	1.00E-06	2,300	0.1		20	v 4	55 55	1,825	25,550
Thallium			5.07E-01	1.00E-06	2,300	0.0		0° 5°	n v	3 5	1,825	25,550
Zinc			3.74F+02	1 00F-06	2,300	0.1		200	٧ ٧	3 %	1 875	25,550
4117				2020	2001	2		3	,	3	2001	0000
HERBICIDES												
MCPA			6.78E+00	1.00E-06	2,300	1.0		90	8	25	1,825	25,550
EQUATION:		10-40-00	201									
Absorbed	Absorbed Dose (mg/kg-day) = LOX LF X DAX AFX ABS X LF X LL X BW x AT	COLUMN	BW x AT	T X E D								
	Variables:				Assumptions:			Variables:			Assumptions:	
				,				1		28		
	CS = Chemical Concentration in Soil (mg soil/kg)	centration in Soi	(mg soil/kg)		EPC Soil Data - RME	3		EF = Exposure Frequency (events/year)	equency (events/y	ear)	50 (RME)	
	CF = Conversion Factor (10-6 kg/mg)	actor (10-6 kg/mg	0	77.0	10-6			ED = Exposure Duration (years)	rration (years)		5 (RME)	
	SA = Surface Area Contact (cm²)	Contact (cm²)			2,300 (RME Child)			BW = Bodyweight (kg)	(kg)		25 kg (child)	
	AF =Soil to Skin Adherence Factor (mg/cm2)	herence Factor (mg/cm²)	_	1.0 (RME all receptors)	ors)		AT = Averaging Time (days)	ime (days)		5 x 365 (Nc), 70 x 365 (Car)	x 365 (Car)
	ABS = Absorption Factor (unitless)	Factor (unitless)		•	Compound Specific PCBs and Cd (EPA, 1992b)	PCBs and Cd (E)	A, 1992b)					
					(Default Assumption 0% = 0.0)	n 0% = 0.0)						

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		-
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			2.00E-03	NA		-
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			5.00E-02	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate	-20		2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA NA		2.
Dibenz(a,h)anthracene			NA NA	1.46E+01		
Dibenzofuran	1 100		NA	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene	1		3.00E-02	NA		7
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB						
4,4'-DDD			5.00E-04	2.40E-01		7
4,4'-DDE			NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		Sentitive statement
Aroclor-1260		1.12E-09	NA	8.11E+00		9.09E-09
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane	F		6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
	1		NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
METALS		1				
Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Thallium Zinc	1.01E-06		2.94E-04 7.00E-03 3.00E-05 2.00E-02 NA 4.50E-05 3.00E-03 7.00E-05 2.00E-02	1.79E+00 NA NA NA NA NA NA NA NA	3.36E-02	
HERBICIDES			-			
МСРА	-		5.00E-04	NA		
Totals - HQ & CR					3.36E-02	9.09E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	87	Averaging Time (days)
										Nc	Car
VOLATILE ORGANICS											
Acetone	6.00E-10	700000000000000000000000000000000000000	7.67E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Benzene		1.79E-10	6.39E-03	100	1.00E-06		20	25	70	9,125	25,550
Methylene Chloride Toluene	4.91E-10 5.22E-10	1.73E-10	6.27E-03	100	1.00E-06		2 8	25 25	20.02	9,125	25,550
SEMIVOLATILE ORGANICS									Una		
2 4-Dinitrotoluene	2.11E-08		2.69E-01	100	1.00E-06		20	25	70	9,125	25,550
2,6-Dinitrotoluene	1.60E-08		2.04E-01	100	1.00E-06	-	20	25	70	9,125	25,550
2-Methylnaphthalene			2.02E-01	100	1.00E-06	-	20	25	70	9,125	25,550
2-Methylphenol	0.00E+00	100000000000000000000000000000000000000	0.00E+00	100	1.00E-06		20	25	70	9,125	25,550
3,3'-Dichlorobenzidine		6.57E-09	2.35E-01	100	1.00E-06	-	20	25	70	9,125	25,550
3-Nitroaniline			5.68E-01	100	1.00E-06	-	20	25	70	9,125	25,550
4-Nitroaniline	And the Control of th		5.68E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Acenaphthene	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Acenaphthylene			0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Anthracene	1.70E-08		2.17E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(a)anthracene		6.84E-09	2.45E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(a)pyrene		6.67E-09	2.39E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(b)fluoranthene		6.36E-09	2.27E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(g,h,i)perylene		2000	2.23E-01	100	1.00E-06		20	25	20	9,125	25,550
Benzo(k)fluoranthene		6.98E-09	2.50E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Butylbenzylphthalate	1.68E-08		2.15E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Carbazole		6.57E-09	2.35E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Chrysene	0.0000000000000000000000000000000000000	5.39E-09	1.93E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Di-n-butylphthalate	2.30E-08		2.94E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenz(a,h)anthracene		5.90E-09	2.11E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenzofuran			0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Fluoranthene	1.46E-08		1.87E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Fluorene	0.00F+00		0 00F+00	100	1 005 06	-	00	36	1	3010	022 30

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TABLE 7-16

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
Indeno(1,2,3-cd)pyrene		6.26E-09	2.24E-01	100	1.00E-06	_	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)		6.01E-09	2.15E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Naphthalene	200		2.12E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Pentachlorophenol	4.86E-08	1.74E-08	6.21E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Phenanthrene		CORPACION PARTICIO	2.32E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Pyrene	1.23E-08		1.57E-01	100	1.00E-06	-	20	25	70	9,125	25,550
bis(2-Chloroisopropyl) ether	1.77E-08		2.26E-01	100	1.00E-06	_	20	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate	2.98E-08	1.07E-08	3.81E-01	100	1.00E-06	-	20	25	70	9,125	25,550
PESTICIDES/PCB											
4,4'-DDD	1.92E-10	6.86E-11	2.45E-03	100	1.00E-06	-	20	25	70	9,125	25,550
4,4'-DDE	470 00000000000000000000000000000000000		6.17E-03	100	1.00E-06	-	20	25	70	9,125	25,550
4,4'-DDT	2.51E-10	8.95E-11	3.20E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Aldrin	8.42E-11	3.01E-11	1.08E-03	100	1.00E-06		20	25	70	9,125	25,550
Aroclor-1260		5.80E-10	2.08E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Dieldrin	4.47E-10	1.60E-10	5.71E-03	100	1.00E-06	_	20	25	70	9,125	25,550
Endosulfan I	8.52E-11		1.09E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endosulfan sulfate	0.00E+00		0.00E+00	100	1.00E-06	_	20	25	70	9,125	25,550
Endrin	1.60E-10		2.04E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endrin ketone			0.00E+00	100	1.00E-06	_	20	25	70	9,125	25,550
Heptachlor epoxide	8.22E-11	2.94E-11	1.05E-03	100	1.00E-06	-	20	25	70	9,125	25,550
alpha-Chlordane	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
beta-BHC		0.00E+00	0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
delta-BHC		OCCUPANION DE PROPERTO DE PROP	0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
			1.00E-01	NA		
Acetone			NA NA	2.90E-02		
Benzene			6.00E-02	6.00E-02		
Methylene Chloride			1.20E-01	NA		
Γoluene			11.20	1000		
SEMIVOLATILE ORGANICS						
2.4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			5.00E-02	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		L 33
Acenaphthene	2 3 7 3	1 6 7	6.00E-02	NA		7 . 53
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		1000
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		10 85
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		0.3
Di-n-butylphthalate		E STATE OF	8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA NA		
Fluoranthene			4.00E-02	NA NA		
Fluorene			4.00E-02	NA LACELOO		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		1
Naphthalene			NA 2 00F 02	NA 1.20E-01		
Pentachlorophenol			3.00E-02	NA		
Phenanthrene			NA 3.00E-02	NA NA		
Pyrene			1.00E-02	NA NA		
bis(2-Chloroisopropyl) ether			2.00E-03	1.40E-02		
bis(2-Ethylhexyl)phthalate			2,0012-02	1,402-02		
PESTICIDES/PCB						
4,4'-DDD			5.00E-04	2.40E-01		
4,4-DDE			NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		2790000000
Aroclor-1260		2.02E-09	NA	8.11E+00		1.64E-08
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin ketone			NA	NA	- 2	
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane	1000		6.00E-05	1.30E+00		1
beta-BHC	E PAY AND A		NA	1.80E+00		
delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic			2.94E-04	1.79E+00		
Barium			7.00E-03	NA		
Cadmium	3.63E-07		3.00E-05	NA	1.21E-02	
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA		
HERBICIDES						
МСРА			5.00E-04	NA	1	
Totals - HQ & CR					1.21E-02	1.64E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

STACK/FUGITIVE EMISSIONS PARAMETERS AND VENT/EXHAUST DATA:

COMPANY NAME AlliedSignal, Chesterfield Facility

50233

REGISTRATION NO.

12-15-97

DATE

UNIT REFERENCE NUMBER	FUGITIVE EMISSIONS? (Yes/No)		VENT/STACK INFORMATION	ATION		X	EXIT GAS PARAMETERS	\$3
		Stack Reference Number	Configuration (Code H)	Height (ft.)	Diameter (ff.)	Velocity (ft./min.)	Volume (acfm)	Temp. (° F.)
31-A-1	No No	31-6	n	30	0.2	113	3	122
31-A-2 31-B-2	ON.	31-12		113	1.33	3240	4500	115
25-B-1	o _N	25-20	1	98	1.33	400	562	100
5-C-1 5-E-1	o N	5-4	-	119	0.83	1025	295	100
5-D-1	o N	5-8	-	121	0.5	1200	235	100
75-D-1	o _N	75-1		160	0.833	2933	1600	90
75-D-2	o Z	75-2	1	160	0.167	2282	20	112
5-E-2 5-CR-2 5-CR-4 5-CR-6 5-CR-8	⁹ Z	5-40		æ	1.33	2100	3000	100
5-CR-1 5-CR-3 5-CR-5 5-CR-7	o Z	5-10	-	20	35×25	2286	20,000	07
12-CR-1	N	12-27	ю	16.8	-	860	3000	06

COMPANY NAM	COMPANY NAME AlliedSignal, Chesterfield Facility	sterfield Facility		DATE	12-15-97	REGISTRATION NO.	NO. 50233	
UNIT REFERENCE NUMBER	FUGITIVE EMISSIONS? (Yes/No)		VENT/STACK INFORMATION	ATION		EX	EXIT GAS PARAMETERS	S
		Stack Reference Number	Configuration (Code H)	Height (ft.)	Diameter (ft.)	Velocity (ft./min.)	Volume (acfm)	Temp. (° F.)
12-CR-2	oN.	12-1	-	30	1	3846	3000	115
12-CR-3	o _N	12-26	ε	15	0.92' x 1.08'	4025	4000	02
12-CR-3	No	12-22	3	18	0.92' x 1.08'	4025	4000	200
12-CR-3	N _o	12-23	3	15	0.92'×1.08'	7754	7700	200
6-SP-1	o _N	6-3	1	74.8	-	4076	3200	001
6-SP-2	o _N	6-5	-	89	3.5' x 3.5'	1021	12200	100
6-SP-3	o _N	6-1	99 (note 1)	89	3.5' x 3.5'	1021	12200	100
26-SP-1 26-SP-9	o _N	31-10	-	113	1.67	2800	0009	140
26-SP-2	o Z	26-1	-	90	7	3300	41500	100
26-SP-3 26-SP-5 26-SP-7	o _N	31-11		113	167	2150	4640	124

NOTE: 1). Enclosed with downward louvers.

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Sheet No. 2

STACK/FUGITIVE EMISSIONS PARAMETERS AND VENT/EXHAUST DATA:

COMPANY NAME AlliedSignal, Chesterfield Facility

50233

REGISTRATION NO.

12-15-97

DATE

UNIT	FUGITIVE EMISSIONS? (Yes/No)		VENT/STACK INFORMATION	IATION		EX	EXIT GAS PARAMETERS	es.
		Stack Reference Number	Configuration (CodeH)	Height (ft.)	Diameter (ft.)	Velocity (ff./min.)	Volume (acfm)	Temp. (°F.)
26-SP-4	No	26-9	-	57.9	35'×3.5'	3385	41500	100
26-SP-6	<u>0</u>	26-13	ю	23	1.5	3112	5500	100
26-SP-8	No	26-12	31.4	83.9	2	1719	5400	100
26-SP-10	Z	26-3	1	20	4	3300	41500	100
26-SPD	o _N	26-5	1	68.9	-	2406	3200	100
6-DTC-13	o _N	6-33	-	34.1	2'x25'	1511	7814	115
6-DTC-14	No	6-34	1	34.1	Z'x25'	1511	7814	115
6-DTC-15	N	6-35		59	Z'x2.5'	1511	7814	115
6-DTC-16	No	96-36	- - -	42.3	2*25	1511	7814	115
26-ANSO-1	N	26-22	e constant interests	28	1.x15	1500	2000	80
14-NRR-1	N	14.3	۰	٥	٠	٠	٠	٤
F-DHT	Yes	NA A	MA	NA A	NA	NA	NA	NA

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Sheet No. 3

STACK/FUGITIVE EMISSIONS PARAMETERS AND VENT/EXHAUST DATA:

COMPANYNAME	E AlliedSignal,Chesterfield Facility	sterfield Facility		DATE	12-15-97	REGISTRATIONNO.	VO. 50233	
UNIT REFERENCE NI IMBER	FUGITIVE EMISSIONS?		VENT/STACK INFORMATION	IATION		EX	EXIT GAS PARAMETERS	S
		Stack Reference Number	Configuration (CodeH)	Height (ft.)	Diameter (ft.)	Velocity (ff./min.)	Volume (acfm)	Temp. (°F.)
6-0V-1	S.	6-2	-	65.6	1.3	716	1000	563
26-0V-2	N _O	26-7	° 7-	65.6	1.3	716	1000	563
4-SG-1 4-SG-2	S.	4-6 (note 1)	-	50	S	2246	43682	977
4-SG-1	No	4-7	1	20	w	2245	43682	776
4-SG-2	o _N	4-8	1	20	5	2245	43682	977
4-SG-3 4-SG-4	o _N	4-4 (note 2)	-	20	w	2040	40055	932
4-SG-3 4-SG-4	N _O	4-5	,	50	a	2040	40055	932
4-HE-260	o _N	14	-	45	1,5	482	2360	932
4-HE-66	o _N	4-2	-	25	3.5	210	2022	1274
5-HE-1	o _N	5-2	-	25	2	5729	6364	830
5-HE-259	o _N	5-3	-	45	2	1254	3940	932
14-HE-42	o _N	14-2	-	23	3	147	1040	572
14-HE-36	o _N	14-1	,	34	1.5	230	406	752
NOTE								

NOTE:
1) Stack 4-6 is designated for start-up use for SG-1 and SG-2.
2) Stack 4-4 is designated for start-up use for SG-3 and SG-4.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
TOT ATTLE OBCANICS						
OLATILE ORGANICS	avenue.			2422	TUD DELCOND	
cetone	8.40E-09	drawa a a a	1.00E-01	NA POPE OR	8.40E-08	1.45E-11
enzene	5 00F 00	5.00E-10	NA 6.00E-02	2.90E-02 7.50E-03	1.15E-07	3.68E-12
lethylene Chloride	6.88E-09 7.31E-09	4.91E-10	2.00E-02	NA NA	3.65E-08	J.00L-12
oluene	7.316-09		2.002-01			
EMIVOLATILE ORGANICS				- 1		
4-Dinitrotoluene	2.95E-07		2.00E-03	NA	1.48E-04	
6-Dinitrotoluene	2.24E-07		1.00E-03	NA	2.24E-04	
-Methylnaphthalene			NA	NA NA		
-Methylphenol		1.84E-08	5.00E-02 NA	NA 4.50E-01		8.28E-09
3'-Dichlorobenzidine -Nitroaniline		1.84E-08	NA	NA NA		0.200
-Nitroaniline -Nitroaniline			NA	NA		
cenaphthene			6.00E-02	NA		
cenaphthylene	Liberta de la companya del companya del companya de la companya de		NA	NA	= 00F 0F	200
inthracene	2.38E-07		3.00E-01	NA 7.20F.01	7.93E-07	1.40E-08
enzo(a)anthracene		1.91E-08 1.87E-08	NA NA	7.30E-01 7.30E+00		1.40E-08 1.36E-07
enzo(a)pyrene		1.87E-08 1.78E-08	NA NA	7.30E-01		1.30E-08
enzo(b)fluoranthene enzo(g,h,i)perylene		1,702-00	NA	NA		
enzo(g,n,)peryiene lenzo(k)fluoranthene	The same of the sa	1.96E-08	NA	7.30E-01		1.43E-08
lutylbenzylphthalate	2.35E-07		2.00E+00	NA	1.18E-07	
Carbazole		1.84E-08	NA	2.00E-02		3.68E-10
Chrysene		1.51E-08	NA	7.30E-02	3.22E-06	1.10E-09
Di-n-butylphthalate	3.22E-07	1.65E-08	1.00E-01 NA	NA 7,30E+00	3.22E-00	1.21E-07
Dibenz(a,h)anthracene		1.05E-08	NA NA	NA NA		1.212.07
Dibenzofuran Tuoranthene	2.05E-07		4.00E-02	NA	5.13E-06	
luorene	2.032 07		4.00E-02	NA		200/2006/2006
ndeno(1,2,3-cd)pyrene		1.75E-08	NA	7.30E-01		1.28E-08
V-Nitrosodiphenylamine (1)	111	1.68E-08	NA	4.90E-03		8.24E-11
Vaphthalene			NA 2 COT CO	NA 1.20E-01	2.27E-05	5.83E-09
entachlorophenol	6.80E-07	4.86E-08	3.00E-02 NA	NA	2.27E-03	3,63E-03
henanthrene	1.72E-07		3.00E-02	NA NA	5.73E-06	
Pyrene pis(2-Chloroisopropyl) ether	2.48E-07		1.00E-03	NA	2.48E-04	
is(2-Ethylhexyl)phthalate	4.18E-07	2.98E-08	2.00E-02	1.40E-02	2.09E-05	4.18E-10
PESTICIDES/PCB						37
	2 (05 00	1.005.10	5.00E-04	2.40E-01	5.38E-06	4.61E-11
,4'-DDD	2.69E-09	1.92E-10	NA	NA NA	3.38E-00	4.01.5-11
,4'-DDE ,4'-DDT	3.51E-09	2.51E-10	5.00E-04	3.40E-01	7.02E-06	8.52E-11
Aldrin	1.18E-09	8.42E-11	3.00E-05	1.70E+01	3.93E-05	1.43E-09
Aroclor-1260	1155151.07.007.00	1.62E-09	NA	7.70E+00	000000000000000000000000000000000000000	1.25E-08
Dieldrin	6,26E-09	4.47E-10	5.00E-05	1.60E+01	1.25E-04	7.15E-09
ndosulfan I	1.19E-09		6.00E-03 5.00E-05	NA NA	1.99E-07	2011
indosulfan sulfate	2.24E-09		3.00E-05 3.00E-04	NA NA	7.45E-06	
Indrin Indrin ketone	2.246-09		NA	NA NA	STATE OF STA	Yar District
Heptachlor epoxide	1.15E-09	8.22E-11	1.30E-05	9.10E+00	8.85E-05	7.48E-10
lpha-Chlordane	72772502-268	CONTRACT.	6.00E-05	1.30E+00		
eta-BHC			NA	1.80E+00		
elta-BHC			NA	NA		
METALS				E - y The		
Arsenic	7.22E-06	5.16E-07	3.00E-04	1.75E+00	2.41E-02	9.03E-07
Barium	1.86E-04		7.00E-02	NA	2.66E-03	
Cadmium	8.76E-06		5.00E-04	NA	1.75E-02	
Copper	2.53E-04		4.00E-02	NA NA	6.32E-03	
ead	1 215 07		NA 3,00E-04	NA NA	4.38E-04	
Mercury	1.31E-07 8.50E-07		5.00E-04 5.00E-03	NA NA	1.70E-04	
Selenium Silver	2.18E-06		5.00E-03	NA	4.36E-04	
Thallium	5.55E-07		7.00E-05	NA	7.93E-03	1 1
line	4.10E-04	1 5	3.00E-01	NA	1.37E-03	
HERBICIDES						
	2.440.04		5.00E-04	NA	1.49E-02	
MCPA	7.44E-06		3,00E-04	INA		
Totals - HQ & CR					7.67E-02	1.25E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Child Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averaging Time (days)	aging ne ys)
							S O			Nc	Car
VOLATILE ORGANICS											
Acetone	8.40E-09	0. 100	7.67E-03	200	1.0E-06		50	ν,	25	1,825	25,550
Benzene Methylene Chloride	6.88E-09	5.00E-10 4.91E-10	6.27E-03	200	1.0E-06		20	n v	25	1,825	25,550
Toluene	7.31E-09		6.67E-03	200	1.0E-06	1	20	S	25	1,825	25,550
SEMIVOLATILE ORGANICS											
2,4-Dinitrotoluene	2.95E-07		2.69E-01	200	1.0E-06	-	20	5	25	1,825	25,550
2,6-Dinitrotoluene	2.24E-07		2.04E-01	200	1.0E-06	-	50	5	25	1,825	25,550
2-Methylnaphthalene			2.02E-01	200	1.0E-06	-	20	5	25	1,825	25,550
2-Methylphenol				200	1.0E-06	-	50	\$	25	1,825	25,550
3,3'-Dichlorobenzidine	11:2-	1.84E-08	2.35E-01	200	1.0E-06	-	20	2	25	1,825	25,550
3-Nitroaniline			5.68E-01	200	1.0E-06		50	5	25	1,825	25,550
4-Nitroaniline			5.68E-01	200	1.0E-06	٠,	20	o i	52.5	1,825	25,550
Acenaphthene				200	1.0E-06		20	n v	3 %	1,825	25,550
Anthracene	2 38F-07		2 17E-01	200	1.0E-06	-	20 20	o v	25	1,825	25,550
Renzo(a)anthracene		1.91E-08	2.45E-01	200	1.0E-06		50	'n	25	1,825	25,550
Benzo(a)pyrene		1.87E-08	2.39E-01	200	1.0E-06	1	20	S	25	1,825	25,550
Benzo(b)fluoranthene		1.78E-08	2.27E-01	200	1.0E-06	-	50	2	25	1,825	25,550
Benzo(g,h,i)perylene			2.23E-01	200	1.0E-06		20	'n	25	1,825	25,550
Benzo(k)fluoranthene		1.96E-08	2.50E-01	200	1.0E-06	-	20	S	25	1,825	25,550
Butylbenzylphthalate	2.35E-07		2.15E-01	200	1.0E-06	-	20	S	25	1,825	25,550
Carbazole		1.84E-08	2.35E-01	200	1.0E-06	-	50	S	25	1,825	25,550
Chrysene		1.51E-08	1.93E-01	200	1.0E-06	-	90	5	25	1,825	25,550
Di-n-butylphthalate	3.22E-07		2.94E-01	200	1.0E-06	-	90	5	25	1,825	25,550
Dibenz(a,h)anthracene		1.65E-08	2.11E-01	200	1.0E-06	-	50	S	25	1,825	25,550
Dibenzofuran				200	1.0E-06	-	90	5	25	1,825	25,550
Fluoranthene	2.05E-07		1.87E-01	200	1.0E-06	-	20	'n	25	1,825	25,550
Fluorene				200	1.0E-06	-	20	S	25	1,825	25,550
Indeno(1,2,3-cd)pyrene		1.75E-08	2.24E-01	200	1.0E-06	1	50	5	25	1,825	25,550

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CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

	Child	Child		Child				Child	Child			_
	Intake	Intake	EPC	Ingestion	Conv.	Fraction	Exposure	Exposure	Body	Averaging	ging	
Analyte	(Nc)	(Car)	Soil	Rate	Factor	Ingested	Frequency	Duration	Weight	Time	ne	
•	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg soil/day)	(kg/mg)	(unitless)	(days/year)	(years)	(kg)	(days)		T
										NC	Cal	Т
J-Nitrosodinhenvlamine (1)		1.68E-08	2.15E-01	200	1.0E-06	-	20	5	25	1,825	25,550	
Janhthalene			2.12E-01	200	1.0E-06	1	50	2	25	1,825	25,550	-
Vantachloronheno!	6.80E-07	4.86E-08	6.21E-01	200	1.0E-06	-	20	2	25	1,825	25,550	
Shenanthrene			2.32E-01	200	1.0E-06	-	20	2	25	1,825	25,550	
Normal	1.72E-07		1.57E-01	200	1.0E-06	-	50	2	25	1,825	25,550	_
yienc is(2-Chloroisonronyl) ether	2 48E-07		2.26E-01	200	1.0E-06	-	20	2	25	1,825	25,550	
ois(2-Ethylhexyl)phthalate	4.18E-07	2.98E-08	3.81E-01	200	1.0E-06	-	20	5	25	1,825	25,550	
PESTICIDES/PCB												
תחת-14	2.69E-09	1.92E-10	2.45E-03	200	1.0E-06	-	50	5	25	1,825	25,550	
1.4'-DDF			6.17E-03	200	1.0E-06	-	20	5	25	1,825	25,550	
4.4'-DDT	3.51E-09	2.51E-10	3.20E-03	200	1.0E-06	-	50	5	25	1,825	25,550	
Aldrin	1.18E-09	8.42E-11	1.08E-03	200	1.0E-06	-	50	5	25	1,825	25,550	
Aroclor-1260		1.62E-09	2.08E-02	200	1.0E-06	-	50	5	25	1,825	25,550	
Dieldrin	6.26E-09	4.47E-10	5.71E-03	200	1.0E-06	-	50	2	25	1,825	25,550	
Endosnifan I	1.19E-09		1.09E-03	200	1.0E-06		50	S	25	1,825	25,550	
Endosnifan sulfate				200	1.0E-06	-	20	5	25	1,825	25,550	
Endrin	2.24E-09		2.04E-03	200	1.0E-06	_	50	5	25	1,825	25,550	
Endrin ketone				200	1.0E-06		50	5	25	1,825	25,550	
Hentachlor enoxide	1.15E-09	8.22E-11	1.05E-03	200	1.0E-06	-	50	2	25	1,825	25,550	
alpha-Chlordane				200	1.0E-06		50	2	25	1,825	25,550	
heta-BHC				200	1.0E-06	-	20	S	25	1,825	25,550	
delta-BHC				200	1.0E-06	-	20	S	25	1,825	25,550	

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TABLE 7-16

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Anolyte	Intoko (Nc)	Intobactor	EPC	Ingestion	Conv.	Fraction	Exposure	Exposure	Body	Aver	Averaging
Allegyte	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg soil/day)	(kg/mg)	Ingested (unitless)	requency (days/year)	(years)	Weight (kg)	(d.	Time (days)
METALS										Nc	Car
Arcanio	\$ 16E 07	1 845 07	001:000	001	70 100 .	\$0 *	ć		·		
Aiseme	3.10E-07	1.64E-07	1 705 00	991	1.00E-06		50	55	20	9,125	25,550
Cadminm	6.26E-07		8 00E+00	81	1.005-00		20	5 5	9,9	9,125	25,550
Copper	1.81E-05		2.31E+02	100	1.00E-06		200	2 50	2 9	9,123	25,530
Lead			2.78E+03	100	1.00E-06		20	25	20	9.125	25,550
Mercury	9.39E-09		1.20E-01	100	1.00E-06	-	20	25	70	9,125	25.550
Selenium	6.07E-08		7.75E-01	100	1.00E-06	-	20	25	70	9,125	25.550
Silver	1.56E-07		1.99E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Thallium	3.97E-08		5.07E-01	100	1.00E-06	_	20	25	70	9,125	25,550
Zinc	2.93E-05		3.74E+02	100	1.00E-06	-	20	25	70	9,125	25,550
HERBICIDES											
MCPA	5.31E-07		6.78E+00	100	1.00E-06	-	20	25	70	9,125	25,550
EQUATION:	II	Intake (mg/kg-day) = CSxIRxCFxFIxEFxED	CSxIRxCEx	FIXEFXED							
			BW X A I								
	Variables:					Assumptions:					
	CS = Chemical Concentration in IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg	ncentration in Soil (m e (mg soil/day) actor (10-6 kg/mg)	Soil (mg soil/kg)			EPC Soil Data - RME 100 (RME Site Worker) 10-6	. RME Worker)				
	FI = Fraction Ingested (unitless) EF = Exposure Frequency (days ED = Exposure Duration (years) BW = Bodyweight (kg)	FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg)	24			1 (All Receptors) 20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult male)	s) Vorker) Vorker)	¥ 9			
	AT = Averaging Time (days)	me (days)				25 x 365 (Nc) 70 x 365 (Car)	0 x 365 (Car)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
realize	6.00E-10		1.00E-01	NA	6.00E-09	
Acetone	0.002 10	1.79E-10	NA	2.90E-02		5.18E-12
Benzene	4.91E-10	1.75E-10	6.00E-02	7.50E-03	8.19E-09	1.32E-12
Methylene Chloride Foluene	5.22E-10	1.7.0	2.00E-01	NA	2.61E-09	
SEMIVOLATILE ORGANICS			1. X 10 10			
SEMIVOLATILE ORGANICS	3			N1.	1.050.05	
2,4-Dinitrotoluene	2.11E-08		2.00E-03	NA	1.05E-05 1.60E-05	
2,6-Dinitrotoluene	1.60E-08		1.00E-03	NA	1.60E-05	6.8
2-Methylnaphthalene			NA	NA	0.005.00	1 1 2 2 2
2-Methylphenol	0.00E+00		5.00E-02	NA	0.00E+00	2005.00
3,3'-Dichlorobenzidine		6.57E-09	NA	4.50E-01		2.96E-09
3-Nitroaniline			NA	NA		
4-Nitroaniline		/	NA	NA	xemeropersoners	
Acenaphthene	0.00E+00		6.00E-02	NA	0.00E+00	
Acenaphthylene	A CONTRACTOR OF THE PARTY OF TH		NA	NA		
Anthracene	1.70E-08		3.00E-01	NA	5.66E-08	
Benzo(a)anthracene		6.84E-09	NA	7.30E-01		4.99E-09
		6.67E-09	NA	7.30E+00		4.87E-08
Benzo(a)pyrene		6.36E-09	NA	7.30E-01		4.64E-09
Benzo(b)fluoranthene		0.502	NA	NA		
Benzo(g,h,i)perylene		6.98E-09	NA	7.30E-01		5.10E-09
Benzo(k)fluoranthene	1.68E-08	0.701.07	2.00E+00	NA	8.41E-09	
Butylbenzylphthalate	1.08E-08	6.57E-09	NA NA	2.00E-02	***************************************	1.31E-10
Carbazole		5.39E-09	NA NA	7.30E-02		3.94E-10
Chrysene	2 202 00	3.39E-09	1.00E-01	NA NA	2.30E-07	
Di-n-butylphthalate	2.30E-08	5 000 00	NA	7.30E+00	2,502 0,	4.31E-08
Dibenz(a,h)anthracene		5.90E-09	NA NA	NA NA		214-7-7-10-10-9-2
Dibenzofuran	57709620024		4.00E-02	NA NA	3.66E-07	
Fluoranthene	1.46E-08	*		NA NA	0.00E+00	
Fluorene	0.00E+00	4 = 4 = 00	4.00E-02	7.30E-01	0,002.00	4.57E-09
Indeno(1,2,3-cd)pyrene		6.26E-09	NA	4.90E-03		2.94E-11
N-Nitrosodiphenylamine (1)		6.01E-09	NA	200000000000000000		2.54211
Naphthalene			NA COOR OF	NA 1 20F 01	1.62E-06	2.08E-09
Pentachlorophenol	4.86E-08	1.74E-08	3.00E-02	1.20E-01	1.0215-00	2.002 03
Phenanthrene	197,250,454,649,937		NA a cop or	NA NA	4.09E-07	
Pyrene	1.23E-08		3.00E-02	NA NA	1.77E-05	
bis(2-Chloroisopropyl) ether	1.77E-08		1.00E-03	NA LAGE 02	1.77E-03 1.49E-06	1.49E-10
bis(2-Ethylhexyl)phthalate	2.98E-08	1.07E-08	2.00E-02	1.40E-02	1.49E-00	1.491-10
PESTICIDES/PCB						
4,4'-DDD	1.92E-10	6.86E-11	5.00E-04	2.40E-01	3.84E-07	1.65E-11
4,4'-DDE	050,000		NA	NA		2015
4,4'-DDT	2.51E-10	8.95E-11	5.00E-04	3.40E-01	5.01E-07	3.04E-11
Aldrin	8.42E-11	3.01E-11	3.00E-05	1.70E+01	2.81E-06	5.11E-10
Aroclor-1260		5.80E-10	NA	7.70E+00	i managaran	4.47E-09
Dieldrin	4.47E-10	1.60E-10	5.00E-05	1.60E+01	8.94E-06	2.55E-09
Endosulfan I	8.52E-11	**************************************	6.00E-03	NA	1.42E-08	
Endosulfan sulfate	0.00E+00		5.00E-05	NA	0.00E+00	
Endrin	1.60E-10		3.00E-04	NA	5.32E-07	
			NA	NA	100000000000000000000000000000000000000	V20020000000000
Endrin ketone	8.22E-11	2.94E-11	1.30E-05	9.10E+00	6.32E-06	2.67E-10
Heptachlor epoxide	0.00E+00	0.00E+00	6.00E-05	1.30E+00	0.00E+00	0.00E+00
alpha-Chlordane	0.00100	0.00E+00	NA	1.80E+00		0.00E+00
beta-BHC		0.002100	NA	NA		
delta-BHC			4,0.4	200000		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic	5.16E-07	1.84E-07	3.00E-04	1.75E+00	1.72E-03	3.22E-07
Barium	1.33E-05		7.00E-02	NA	1.90E-04	
Cadmium	6.26E-07		5.00E-04	NA	1.25E-03	
Copper	1.81E-05		4.00E-02	NA	4.52E-04	
Lead			NA	NA		
Mercury	9.39E-09		3.00E-04	NA	3.13E-05	
Selenium	6.07E-08		5.00E-03	NA	1.21E-05	
Silver	1.56E-07		5.00E-03	NA	3.11E-05	
Thallium	3.97E-08		7.00E-05	NA	5.67E-04	
Zinc	2.93E-05		3.00E-01	NA	9.75E-05	
HERBICIDES						
МСРА	5.31E-07		5.00E-04	NA	1.06E-03	
Totals - HQ & CR					5.48E-03	4.47E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Avel T (d	Averaging Time (days)
								27			Nc	Car
VOLATILE ORGANICS												
Acetone			7.67E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzene Mathema Chlorida			6.39E-03	1.00E-06	5,800	1.0		30	25	9, 62	9,125	25,550
Toluene Caroline			6.67E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
SEMIVOLATILE ORGANICS												
2.4-Dinitrotoluene			2.69E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2,6-Dinitrotoluene			2.04E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2-Methylnaphthalene			2.02E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2-Methylphenol				1.00E-06	5,800	1.0		20	25	70	9,125	25,550
3,3'-Dichlorobenzidine			2.35E-01	1.00E-06	5,800	1.0		20	25	20	9,125	25,550
3-Nitroaniline			5.68E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
4-Nitroaniline			5.68E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Acenaphthene				1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Acenaphthylene			0.0000000000000000000000000000000000000	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Anthracene			2.17E-01	1.00E-06	2,800	1.0		20	25	70	9,125	25,550
Benzo(a)anthracene			2.45E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(a)pyrene			2.39E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(b)fluoranthene			2.27E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(g,h,i)perylene			2.23E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(k)fluoranthene			2.50E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Butylbenzylphthalate			2.15E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Carbazole			2.35E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Chrysene			1.93E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Di-n-butylphthalate			2.94E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Dibenz(a,h)anthracene			2.11E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Dibenzofuran				1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Fluoranthene			1.87E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Fluorene				1 00F-06	2 800	c .		20	25	20	5010	25 550

TABLE 7-24

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc)	Dose (Car)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Averagi Time (days)	Averaging Time (days)	
	(0.0)	(6-6-6-)	10-0-1	0						ì			
Indeno(1.2.3-cd)pyrene			2.24E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
N-Nitrosodiphenylamine (1)			2.15E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	_
Naphthalene			2.12E-01	1.00E-06	5.800	1.0		20	25	70	9,125	25,550	_
Pentachlorophenol			6.21E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	_
Phenanthrene			2.32E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
Pyrene			1.57E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
his/2-Chloroisopropyl) ether			2.26E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
bis(2-Ethylhexyl)phthalate			3.81E-01	1.00E-06	2,800	1.0		20	25	70	9,125	25,550	
PESTICIDES/PCB						L							
4.4'-DDD			2.45E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
4.4-DDE			6.17E-03	1.00E-06	5.800	1.0		20	25	70	9,125	25,550	
4.4-DDT			3.20E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	_
Aldrin			1.08E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	_
Aroclor-1260		2.02E-09	2.08E-02	1.00E-06	5,800	1.0	90.0	20	25	70	9,125	25,550	_
Dieldrin			5.71E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
Endosulfan I			1.09E-03	1.00E-06	5,800	1.0		20	25	20	9,125	25,550	
Endosulfan sulfate				1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
Endrin			2.04E-03	1.00E-06	5,800	1.0		20	25	20	9,125	25,550	
Endrin ketone				1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
Hentachlor enoxide			1.05E-03	1.00E-06	5.800	1.0		20	25	70	9,125	25,550	-
alpha-Chlordane				1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
heta-BHC				1.00E-06	5,800	1.0		20	25	70	9,125	25,550	
delta-BHC				1.00E-06	5.800	1.0		20	25	70	9,125	25,550	

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
METALS			U al de la company de la compa								Nc	Car
Arsenic			6.59E+00	1.00E-06	5.800	1.0		20	25	70	9.125	25.550
Barium			1.70E+02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Cadmium	3.63E-07		8.00E+00	1.00E-06	5,800	1.0	0.01	20	25	70	9,125	25,550
Copper			2.31E+02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Lead			2.78E+03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Mercury			1.20E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Selenium			7.75E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Silver			1.99E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Thallium			5.07E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Zinc			3.74E+02	1.00E-06	2,800	1.0		20	25	70	9,125	25,550
HERBICIDES												
MCPA			6.78E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
EQUATION:	Absorbed dose	Absorbed dose (mg/kg-day) =		CSxCFxSAxAFxABSxEFxED BWxAT	AFXABSXE	ExED						
Variables:			Assumptions:			Variables:				Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF =Soil to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitless)	Soil (mg soil/kg) /mg) or (mg/cm²)		EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd	EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd	nd Cd	EF = Exposure Frequency (e ED = Exposure Duration (ye BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	ents/year) 's)		20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	Car)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		
Benzene			NA NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA NA		
SEMIVOLATILE ORGANICS						
2.4 Di itana			2 000 00			
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			5.00E-02	NA		Y
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-Nitroaniline			NA	NA	1	
4-Nitroaniline			NA	NA	1	
Acenaphthene			6.00E-02	NA	1	
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene		,	NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA NA		
Fluoranthene			4.00E-02	NA NA		
Fluorene			4.00E-02	NA NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA NA	4.90E-03		
Naphthalene						
Pentachlorophenol			NA	NA 1 20F 01		
			3.00E-02	1.20E-01		
Phenanthrene			NA 2 00F 02	NA		
Pyrene			3.00E-02	NA		
ois(2-Chloroisopropyl) ether)	1.00E-03	NA L 10F 02		
pis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02	1	
PESTICIDES/PCB						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA		
1,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1260		2.02E-09	NA	8.11E+00	[1]	1.64E-08
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA NA		
Endrin ketone			NA	NA NA		
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane		0.	6.00E-05	1.30E+00		
70 P (10 C) C) C (10 C) C (10 C) C (10 C) C (10 C)	1				1	
beta-BHC			NA	1.80E+00		
lelta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
	1		2.94E-04	1.79E+00	100	1007
Arsenic			7.00E-03	NA NA		
Barium Cadmium	3.63E-07		3.00E-05	NA NA	1.21E-02	
Cadmium	3.03E-07		2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA	STUTTON OF	TL III
Silver			5.00E-03	NA		
Thallium	A CONTRACT OF		7.00E-05	NA	170	2577
Zinc			2.00E-02	NA		1503
HERBICIDES						
МСРА	1 33		5.00E-04	NA		
Totals - HQ & CR					1.21E-02	1.64E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Conv. Fraction Exposure Exposure Body Averaging Factor Ingested Frequency Duration Weight Time (kg/mg) (unitless) (days/vear) (vears) (kg) (days)	NC NC		18 March 19	1 80 25 70 9,125	25 70 9,125	1.00E-06 1 80 25 70 9,125 25,550	-122		25 70 9.125	25 70	25 70 9,125	25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70 9,125	1 80 25 70	1 80 25 70 9,125	30.00
Ingestion Rate mg soil/day)					001				100		_	_	_			-	_	_	_				_		_	_	_	_	_	100
EPC Total Soils (mg/kg)			200000000000000000000000000000000000000	7.67E-03	6.39E-03	6.67E-03			2.69E-01	2.04E-01	2.02E-01	0.00E+00	2.35E-01	5.68E-01	5.68E-01	0.00E+00	0.00E+00	2.17E-01	2.45E-01	2.39E-01	2.27E-01	2.23E-01	2.50E-01	2.15E-01	2.35E-01	1.93E-01	2.94E-01	2.11E-01	0.00E+00	1 87F-01
Intake (Car) (mg/kg-day)				7 151 10	7.13E-10								2.63E-08					0.0002555550000000000000000000000000000	2.74E-08	2.67E-08	2.54E-08		2.79E-08		2.63E-08	2.16E-08		2.36E-08		
Intake (Nc) (mg/kg-day)				2.40E-09	1 96F-00	2.09E-09			8.43E-08	6.40E-08	0.0000000000000000000000000000000000000	0.00E+00				0.00E+00		6.80E-08						6.72E-08		11.V.2.9.L. P.14.	9.19E-08			5.86E-08
Analyte		VOLATILE ORGANICS		Acetone	Methylene Chloride	Toluene		SEMIVOLATILE ORGANICS	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Methylnaphthalene	2-Methylphenol	3,3'-Dichlorobenzidine	3-Nitroaniline	4-Nitroaniline	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Butylbenzylphthalate	Carbazole	Chrysene	Di-n-butylphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Content Cont	Analyte	Intake (Nc)	Intake (Car)	EPC Total Soils	Ingestion Rate	Conv. Factor	Fraction Ingested	Exposure Frequency	Exposure Duration	Body Weight	Aver Ti	Averaging Time
1.34E-07 2.50E-08 2.24E-01 100 1.00E-06 1 1.04E-07 1.94E-07 6.94E-08 2.12E-01 100 1.00E-06 1 1.00E-06 1 1.00E-08 2.12E-01 100 1.00E-06 1 1.00E-08 1.00E-08 1.00E-06 1 1.00E-08 1.00E-06 1 1.00E-06 1 1.00E-08 1.00E-06 1 1.00E-06		(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg soil/day)	(kg/mg)	(unitless)	(days/year)	(years)	(kg)		(days)
1.3-cd)pyrene 2.56E-08 2.24E-01 100 1.00E-06 1 diphenylamine (1) 1.94E-07 6.94E-08 2.12E-01 100 1.00E-06 1 ophenol 4.91E-08 6.21E-01 100 1.00E-06 1 ene 4.91E-08 2.22E-01 100 1.00E-06 1 roisopropyl) ether 7.09E-08 4.26E-08 2.26E-01 100 1.00E-06 1 DES/PCB 7.69E-08 2.26E-01 100 1.00E-06 1 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 DES/PCB 1.00E-06 3.28E-10 1.08E-03 100 1.00E-06 1 Accomment				The second second second							Nc	Car
194E-07 2.40E-08 2.15E-01 100 1.00E-06 1	Indeno(1,2,3-cd)pyrene		2.50E-08	2.24E-01	100	1.00E-06	1	80	25	70	9,125	25,550
ne 1.94E-07 6.94E-08 6.21E-01 100 1.00E-06 1 ophenol 1.94E-07 6.94E-08 6.21E-01 100 1.00E-06 1 ene 4.91E-08 2.22E-01 100 1.00E-06 1 roisopropyl) ether 7.09E-08 4.26E-08 3.81E-01 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.26E-01 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.26E-01 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.75E-10 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.75E-03 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.75E-03 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.75E-03 100 1.00E-06 1 Accounting 3.37E-10 1.20E-03 1.00E-03 1.00E-06 1 Accounting	N-Nitrosodiphenylamine (1)		2.40E-08	2.15E-01	100	1.00E-06	1	80	25	70	9,125	25,550
ophenol 1.94E-07 6.94E-08 6.21E-01 100 1.00E-06 1 1 2.32E-01 100 1.00E-06 1 1 1.57E-01 100 1.00E-06 1 1 1.00E-09 1.00E-06 1 1 1.00E-09 1.00E-06 1 1 1.00E-09 1.23E-09 1 1.00E-06 1 1 1.00E-	Naphthalene			2.12E-01	100	1.00E-06	-	80	25	70	9,125	25,550
cene 4.91E-08 2.32E-01 100 1.00E-06 1 roisopropyl) ether 7.09E-08 4.26E-08 3.81E-01 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 2.60 1.00E-09 3.58E-10 2.45E-03 100 1.00E-06 1 2.60 1.79E-09 3.58E-10 2.08E-03 100 1.00E-06 1 3.71E-10 1.79E-09 6.39E-10 2.71E-03 100 1.00E-06 1 1.00e 1.00e 1.00E-06 1.00E-06 1 1.00E-06 1 <t< td=""><td>Pentachlorophenol</td><td>1.94E-07</td><td>6.94E-08</td><td>6.21E-01</td><td>100</td><td>1.00E-06</td><td>-</td><td>80</td><td>25</td><td>70</td><td>9,125</td><td>25,550</td></t<>	Pentachlorophenol	1.94E-07	6.94E-08	6.21E-01	100	1.00E-06	-	80	25	70	9,125	25,550
pes/PCB 1.57E-01 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.26E-01 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 Accompanies 1.00E-09 3.58E-10 3.20E-03 100 1.00E-06 1 Accompanies 1.79E-09 3.58E-10 1.08E-03 100 1.00E-06 1 Accompanies 1.79E-09 6.39E-10 1.08E-03 100 1.00E-06 1 Accompanies 1.79E-09 6.39E-10 1.09E-03 100 1.00E-06 1 Accompanies 3.29E-10 1.17E-10 1.05E-03 100 1.00E-06 1 Accompanies 3.29E-10 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1	Phenanthrene			2.32E-01	100	1.00E-06	1	80	25	70	9,125	25,550
DES/PCB 2.26E-01 100 1.00E-06 1 DES/PCB 7.69E-10 4.26E-08 3.81E-01 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 260 1.00E-09 3.58E-10 3.20E-03 100 1.00E-06 1 260 1.79E-09 3.58E-10 1.20E-03 100 1.00E-06 1 n sulfate 0.00E+09 6.39E-10 2.08E-02 100 1.00E-06 1 1 n sulfate 0.00E+00 6.39E-10 2.04E-03 100 1.00E-06 1 1 n sulfate 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1 n sulfate 0.00E+00 0.00E+00 1.00E-06 1 1 n sulfate 0.00E+00 0.00E+00	Pyrene	4.91E-08		1.57E-01	100	1.00E-06	_	80	25	70	9,125	25,550
DES/PCB 3.81E-01 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 260 1.00E-09 3.58E-10 3.20E-03 100 1.00E-06 1 260 1.79E-09 3.58E-10 3.20E-03 100 1.00E-06 1 260 1.79E-09 3.37E-10 1.20E-03 100 1.00E-06 1 an I 3.41E-10 2.32E-09 2.08E-02 100 1.00E-06 1 tone 1.79E-09 6.39E-10 5.71E-03 100 1.00E-06 1 tone 0.00E+00 6.39E-10 5.71E-03 100 1.00E-06 1 tone 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 tone 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 tone 0.00E+00	bis(2-Chloroisopropyl) ether	7.09E-08		2.26E-01	100	1.00E-06	_	80	25	70	9,125	25,550
DES/PCB 7.69E-10 2.75E-10 2.45E-03 100 1.00E-06 1 260 1.00E-09 3.58E-10 3.20E-03 100 1.00E-06 1 260 1.00E-09 3.58E-10 1.08E-03 100 1.00E-06 1 260 1.79E-09 3.58E-10 1.08E-03 100 1.00E-06 1 3.37E-10 1.20E-10 1.08E-03 100 1.00E-06 1 nn I 3.37E-10 2.32E-09 2.08E-02 100 1.00E-06 1 nn sulfate 6.39E-10 5.71E-03 100 1.00E-06 1 nn sulfate 6.39E-10 1.09E-03 100 1.00E-06 1 cone 6.39E-10 1.17E-10 1.05E-03 100 1.00E-06 1 nr epoxide 3.29E-10 1.17E-10 1.05E-03 100 1.00E-06 1 nr epoxide 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 nr epoxide 0.00E	bis(2-Ethylhexyl)phthalate	1.19E-07	4.26E-08	3.81E-01	100	1.00E-06	-	80	25	70	9,125	25,550
260 1.00E-09 3.58E-10 2.45E-03 100 1.00E-06 1 260 1.00E-09 3.58E-10 3.20E-03 100 1.00E-06 1 260 1.00E-09 3.58E-10 1.08E-03 100 1.00E-06 1 1.00E-09 3.37E-10 1.20E-10 1.08E-03 100 1.00E-06 1 1.01 1.02E-10 1.02E-10 1.08E-03 100 1.00E-06 1 1.02 1.03E-09 2.03E-09 2.03E-02 100 1.00E-06 1 1.03E-09 6.39E-10 5.71E-03 100 1.00E-06 1 1.09E-03 1.09E-03 100 1.00E-06 1 1.09E-03 1.09E-03 100 1.00E-06 1 1.09E-04 0.00E+00 0.00E+00 0.00E+0 1.00E-06 1 1.09E-05 1.17E-10 1.05E-03 100 1.00E-06 1 1.09E-06 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06	PESTICIDES/PCB										ŧą.	
260 1.00E-09 3.58E-10 3.20E-03 100 1.00E-06 1 260 3.37E-10 1.20E-10 1.08E-03 100 1.00E-06 1 260 1.79E-09 2.32E-09 2.08E-02 100 1.00E-06 1 1.79E-09 6.39E-10 5.71E-03 100 1.00E-06 1 1.79E-09 6.39E-10 5.71E-03 100 1.00E-06 1 1.79E-09 6.39E-10 1.09E-03 100 1.00E-06 1 1.79E-09 6.39E-10 1.09E-03 100 1.00E-06 1 1.79E-09 6.39E-10 1.17E-10 1.09E-03 100 1.00E-06 1 1.79E-09 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.05E-03 10 1.00E-06 1 1.79E-09 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1.79E-09 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1	4,4'-DDD	7.69E-10	2.75E-10	2.45E-03	100	1.00E-06	-	80	25	70	9,125	25,550
260 1.00E-09 3.58E-10 3.20E-03 100 1.00E-06 1 260 3.37E-10 1.20E-10 1.08E-03 100 1.00E-06 1 an I 1.79E-09 6.39E-10 5.71E-03 100 1.00E-06 1 an sulfate 0.00E+00 6.39E-10 5.71E-03 100 1.00E-06 1 atone 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 ctone 0.00E+00 0.00E+00 1.05E-03 100 1.00E-06 1 ctone 0.00E+00 0.00E+00 0.00E+00 1.05E-03 100 1.00E-06 1 ctone 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 condance 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1.00E-06 1 conde+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1.00E-06 1	4,4'-DDE			6.17E-03	100	1.00E-06	-	80	25	70	9,125	25,550
3.37E-10 1.20E-10 1.08E-03 100 1.00E-06 1	4,4'-DDT	1.00E-09	3.58E-10	3.20E-03	100	1.00E-06		80	25	70	9,125	25,550
r-1260 1.79E-09 2.32E-09 2.08E-02 100 1.00E-06 1 n 3.41E-10 6.39E-10 5.71E-03 100 1.00E-06 1 liffan I 3.41E-10 0.00E+00 1.09E-03 100 1.00E-06 1 ketone 6.39E-10 2.04E-03 100 1.00E-06 1 chlor epoxide 3.29E-10 1.17E-10 1.05E-03 100 1.00E-06 chlordane 0.00E+00 0.00E+00 0.00E+0 0.00E+0 1.00E-06 1 express 0.00E+00 0.00E+0 0.00E+0 1.00E-0 1 express 0.00E+0 0.00E+0 1.00E-0 1 express 0.00E+0 0.00E+0 1.00E-0 1	Aldrin	3.37E-10	1.20E-10	1.08E-03	100	1.00E-06	-	80	25	70	9,125	25,550
ffan I 1.79E-09 6.39E-10 5.71E-03 100 1.00E-06 1 ffan I 3.41E-10 1.09E-03 100 1.00E-06 1 ffan sulfate 0.00E+00 0.00E+00 1.00E-06 1 cetone 6.39E-10 2.04E-03 100 1.00E-06 1 cetone 3.29E-10 1.17E-10 1.05E-03 100 1.00E-06 1 hlordane 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1 HC 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1	Aroclor-1260		2.32E-09	2.08E-02	100	1.00E-06	-	80	25	70	9,125	25,550
ffan I 3.41E-10 1.09E-03 100 1.00E-06 1 ffan sulfate 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 cetone 3.29E-10 0.00E+00 1.00E-06 1 hlor epoxide 3.29E-10 1.17E-10 1.05E-03 100 1.00E-06 hlordane 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 HC 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 HC 0.00E+00 0.00E+00 1.00E-06 1	Dieldrin	1.79E-09	6.39E-10	5.71E-03	100	1.00E-06	-	80	25	70	9,125	25,550
flan sulfate 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 ketone 6.39E-10 2.04E-03 100 1.00E-06 1 ketone 3.29E-10 1.17E-10 1.05E-03 100 1.00E-06 1 hlordane 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1 HC 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1 HC 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 1	Endosulfan I	3.41E-10		1.09E-03	100	1.00E-06	-	80	25	70	9,125	25,550
ketone 6.39E-10 2.04E-03 100 1.00E-06 1 hlordane 3.29E-10 1.17E-10 1.05E-03 100 1.00E-06 1 hlordane 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 HC 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1	Endosulfan sulfate	0.00E+00		0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
ketone 0.00E+00 1.07E-10 1.17E-10 1.05E-03 100 1.00E-06 1 Illordane 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 IC 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1	Endrin	6.39E-10		2.04E-03	100	1.00E-06	-	80	25	70	9,125	25,550
repoxide 3.29E-10 1.17E-10 1.05E-03 100 1.00E-06 1 ordane 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1 0.00E+00 0.00E+00 0.00E+00 1.00E-06 1	Endrin ketone			0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
ordane 0.00E+00 0.00E+00 0.00E+00 100 1.00E-06 1 0.00E+00 0.00E+00 100 1.00E-06 1 0.00E+00 1.00E-06 1	Heptachlor epoxide	3.29E-10	1.17E-10	1.05E-03	100	1.00E-06	_	80	25	70	9,125	25,550
0.00E+00 0.00E+00 1.00E-06 1	alpha-Chlordane	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
0.000=0.00 1.000=0.00	beta-BHC		0.00E+00	0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
0.005.00	delta-BHC			0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Tin (da	Averaging Time (days)
))))			,	ì	Nc	Car
METALS								1			
Arsenic	2.06E-06	7.37E-07	6 59E+00	100	1 00E-06	_	80	35	70	9 125	25 550
Barium	5.32E-05	1	1.70E+02	100	1.00E-06		80	25	70	9,125	25,550
Cadmium	2.50E-06		8.00E+00	100	1.00E-06	_	80	25	70	9,125	25,550
Copper	7.23E-05		2.31E+02	100	1.00E-06		80	25	70	9,125	25,550
Lead			2.78E+03	100	1.00E-06	-	80	25	70	9,125	25,550
Mercury	3.76E-08		1.20E-01	100	1.00E-06		08	25	70	9,125	25,550
Selenium	2.43E-07		1.755-01	001	1.00E-06		080	52	70	9,125	25,550
Silvei Ti-ili:	1 505 07		1.995+00	001	1.00E-00	٠.	90	6 6	0 2	9,125	25,550
Inamum	1.39E-0/		3.0/E-01	001	1.00E-06		80	25	0/2	9,125	25,550
Zinc	1.1/E-04		3.74E+02	100	1.00E-06	-	80	25	70	9,125	25,550
HERBICIDES											
MCPA	2.12E-06		6.78E+00	100	1.00E-06	-	80	25	70	9,125	25,550
EQUATION:	Intake (mg/kg-day) =	*) =	CSxIRxCFxEIxEFxED BWxAT	ELX EE X ED							
	Variables:					Assumptions:	::1				
	CS = Chemical Concentration in IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg	CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg)	il (mg soil/kg) g)			EPC - Soil Data (RME) 100 (RME Adult Work) 10-6	EPC - Soil Data (RME) 100 (RME Adult Worker) 10-6				
	FI = Fraction Ingested (unitless) EF = Exposure Frequency (days	FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years)	ars)			1 (All Receptors) 80 (RME Adult I	1 (All Receptors) 80 (RME Adult Industrial Worker)	Worker)			
	ED = Exposure Duration BW = Bodyweight (kg)	uration (years) t (kg)				25 (Upper bound limit) 70 (Adult male)	ound limit)				
	AT = Averaging Time (days)	ime (dave)				25 v 365 (No.	75 x 365 (Nc) 70 x 365 (Car)	1			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone	2.40E-09		1.00E-01	NA	2.40E-08	
Benzene	2000 Medical Sca	7.15E-10	NA	2.90E-02		2.07E-11
Methylene Chloride	1.96E-09	7.02E-10	6.00E-02	7.50E-03	3.27E-08	5.26E-12
Γoluene	2.09E-09		2.00E-01	NA	1.04E-08	
SEMIVOLATILE ORGANICS						
2.4-Dinitrotoluene	8.43E-08		2.00E-03	NA	4.22E-05	
2,6-Dinitrotoluene	6.40E-08		1.00E-03	NA	6.40E-05	
2-Methylnaphthalene	0.102		NA	NA	*ANDARAS SANCES	
2-Methylphenol	0.00E+00		5.00E-02	NA	0.00E+00	
3,3'-Dichlorobenzidine	0.002.00	2.63E-08	NA	4.50E-01	1992	1.18E-08
3-Nitroaniline			NA	NA		100000000000000000000000000000000000000
4-Nitroaniline		= 3	NA	NA		
Acenaphthene	0.00E+00		6.00E-02	NA	0.00E+00	
Acenaphthylene	0.000		NA	NA	The state of the state of	
Anthracene	6.80E-08		3.00E-01	NA	2.27E-07	
Benzo(a)anthracene	0.002	2.74E-08	NA	7.30E-01		2.00E-08
Benzo(a)pyrene	49	2.67E-08	NA	7.30E+00	14	1.95E-07
Benzo(b)fluoranthene		2.54E-08	NA	7.30E-01		1.86E-08
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		2.79E-08	NA	7.30E-01		2.04E-08
Butylbenzylphthalate	6.72E-08		2.00E+00	NA	3.36E-08	5002001000000
Carbazole	0.722 00	2.63E-08	NA	2.00E-02		5.26E-10
Chrysene		2.16E-08	NA	7.30E-02		1.57E-09
Di-n-butylphthalate	9.19E-08	2.102 00	1.00E-01	NA	9.19E-07	2010/01/20
Dibenz(a,h)anthracene	J.13L 00	2.36E-08	NA	7.30E+00		1.72E-07
Dibenzofuran		2.502.00	NA	NA		
Fluoranthene	5.86E-08		4.00E-02	NA	1.46E-06	
Fluorene	0.00E+00		4.00E-02	NA	0.00E+00	
Indeno(1,2,3-cd)pyrene	0.002.00	2.50E-08	NA	7.30E-01		1.83E-08
N-Nitrosodiphenylamine (1)		2.40E-08	NA	4.90E-03		1.18E-10
Naphthalene		2.102.00	NA	NA		0.1000000000000000000000000000000000000
Pentachlorophenol	1.94E-07	6.94E-08	3.00E-02	1.20E-01	6.48E-06	8.33E-09
Phenanthrene	1.0		NA	NA	ASSESSMENT I	- Automotion of the
Pyrene	4.91E-08		3.00E-02	NA	1.64E-06	
bis(2-Chloroisopropyl) ether	7.09E-08		1.00E-03	NA	7.09E-05	
bis(2-Ethylhexyl)phthalate	1.19E-07	4.26E-08	2.00E-02	1.40E-02	5.97E-06	5.97E-10
PESTICIDES/PCB						
4,4'-DDD	7.69E-10	2.75E-10	5.00E-04	2.40E-01	1.54E-06	6.59E-11
4,4'-DDE			NA	NA	100000000	255345200
4,4'-DDT	1.00E-09	3.58E-10	5.00E-04	3.40E-01	2.00E-06	1.22E-10
Aldrin	3.37E-10	1.20E-10	3.00E-05	1.70E+01	1.12E-05	2.04E-09
Aroclor-1260		2.32E-09	NA	7.70E+00	2022240000	1.79E-08
Dieldrin	1.79E-09	6.39E-10	5.00E-05	1.60E+01	3.58E-05	1.02E-08
Endosulfan I	3.41E-10		6.00E-03	NA	5.68E-08	
Endosulfan sulfate	0.00E+00		5.00E-05	NA	0.00E+00	
Endrin	6.39E-10		3.00E-04	NA	2.13E-06	
Endrin ketone	- Janes		NA	NA	SENTENCE MANUFACTURE	
Heptachlor epoxide	3.29E-10	1.17E-10	1.30E-05	9.10E+00	2.53E-05	1.07E-09
alpha-Chlordane	0.00E+00	0.00E+00	6.00E-05	1.30E+00	0.00E+00	0.00E+0
beta-BHC		0.00E+00	NA	1.80E+00		0.00E+0
delta-BHC	1		NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	(Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic	2.06E-06	7.37E-07	3.00E-04	1.75E+00	6.88E-03	1.29E-06
Barium	5.32E-05		7.00E-02	NA	7.60E-04	(242222)
Cadmium	2.50E-06		5.00E-04	NA	5.01E-03	
Copper	7.23E-05		4.00E-02	NA	1.81E-03	
Lead			NA	NA	The second second	
Mercury	3.76E-08		3.00E-04	NA	1.25E-04	
Selenium	2.43E-07		5.00E-03	NA	4.86E-05	
Silver	6.22E-07		5.00E-03	NA	1.24E-04	
Thallium	1.59E-07		7.00E-05	NA	2.27E-03	
Zinc	1.17E-04		3.00E-01	NA	3.90E-04	
HERBICIDES						
МСРА	2.12E-06		5.00E-04	NA	4.25E-03	
Totals - HQ & CR					2.19E-02	1.79E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

2.35E-01 1.00E-06 5,800 1.0 80 25 70 1.0 1.95E-01 1.00E-06 5,800 1.0 80 25 70 2.94E-01 1.00E-06 5,800 1.0 80 25 70 2.94E-01 1.00E-06 5,800 1.0 80 25 70 2.11E-01 1.00E-06 5,800 1.0 80 25 70 2.10E-01 1.00E-06 5,800 1.0 80 25 70 2.10E-0	Analyte VOLATILE ORGANICS Acetone Benzene Methylene Chloride Toluene 2.4-Dinitrotoluene 2.6-Dinitrotoluene 2.6-Dinitrotoluene 2.4-Chrintaphthalene 2.4-Chrintaphthalene 2.4-Chrintaphthalene 2.5-Nethylphenol 3.4-Dichlorobenzidine 3.4-Vitroaniline 4-Nitroaniline Acenaphthylene Acenaphthylene Benzo(a)anthracene	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	Total Soils (mg/kg) (mg/kg) (mg/kg) (mg/kg) (.27E-03 6.39E-03 6.27E-03 6.67E-01 2.04E-01 2.05E-01 2.35E-01 5.68E-01 2.45E-01 2.27E-01 2.27	Comv. Factor (kg/mg) 1.00E-06	Skin Surface Area Contact (cm²) 5,800	Adherence Factor (mg soil/cm²) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Absorption Factor (unitless)	Exposure Frequency (days/year) (days/year) 80 80 80 80 80 80 80 80 80 80 80 80 80	Exposure Duration (years) (years) 25 25 25 25 25 25 25 25 25 2	Weight (kg) Weight (kg) 70 70 70 70 70 70 70 70 70 7	Ave (d)	Averaging Time (days) (days) (days) (abys) 2 25,550 (2
phthalate phthalate 1.93E-01 1.00E-06 5,800 1.0 80 25 70 2.94E-01 1.00E-06 5,800 1.0 80 25 70 3.800 1.0 80 25 70 3.800 1.0 80 25 70 3.800 3.800 3.80 3.80 3.80 3.800 3.80 3.80 3.80 3.800 3.80 3.80 3.800 3.80 3.80 3.800 3.80 3.80 3.800 3.80 3.80 3.800 3.80 3.80 3.800 3.800 3.80 3.80	arbazole			2.35E-01	1.00E-06	5,800	1.0		80	25	70	9,125	
phthalate 1.05 2.01 1.00E-06 5.800 1.0 80 25 70 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	Carbazole			2.35E-01	1.00E-06	5,800	1.0		08 08	25	0,70	9,125	
2.11E-01 1.00E-06 5,800 1.0 80 25 70 1.00E-06 5,800 1.0 80 25 70 25 70 1.00E-06 5,800 1.0 80 25 70 1.00E-06 5,800 1.00E-0	Chrysene			1.93E-01	1.00E-06	5,800	0.1		08 S	2 %	0 02	9,125	
1,00E-06 5,800 1.0 80 25 70	Di-n-butylphthalate			2.94E-01	1.00E-06	5,800	1.0		2 08	3 23	2 2	9,125	
75 70 10 10 25 70	Jibenzofuran				1.00E-06	5,800	1.0		80	25	70	9,125	
1.00-10.1	Elioranthene			1 975 01	1 000 06	6 900	9		00	36	1	3010	

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TABLE 7-26

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-dav)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Aver Tin (da	Averaging Time (davs)	
				6						6	Nc	Car	-
Indeno(1,2,3-cd)pyrene			2.24E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	-
N-Nitrosodiphenylamine (1)			2.15E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Naphthalene			2.12E-01	1.00E-06	5,800	1.0		80	25	20	9,125	25,550	
Pentachlorophenol			6.21E-01	1.00E-06	5,800	1.0		08	25	70	9,125	25,550	
Phenanthrene			2.32E-01	1.00E-06	5,800	1.0		08	25	70	9,125	25,550	_
Pyrene			1.57E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
bis(2-Chloroisopropyl) ether			2.26E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
bis(2-Ethylhexyl)phthalate			3.81E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
PESTICIDES/PCB													
4,4'-DDD			2.45E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
4,4'-DDE			6.17E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
4,4'-DDT			3.20E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	-
Aldrin		270000000000000000000000000000000000000	1.08E-03	1.00E-06	5,800	1.0	1000	08	25	70	9,125	25,550	
Aroclor-1260		8.08E-09	2.08E-02	1.00E-06	5,800	1.0	90.0	08	25	70	9,125	25,550	
Dieldrin			5.71E-03	1.00E-06	5,800	1.0	1.000	80	25	70	9,125	25,550	
Endosulfan I			1.09E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Endosulfan sulfate			047702307700	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Endrin			2.04E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
Endrin ketone				1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Heptachlor epoxide			1.05E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
alpha-Chlordane				1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
beta-BHC				1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
delta-BHC				1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
				C. Trefassina parts		Section 2		-	500		03000000	600000000000000000000000000000000000000	_

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	veraging Time (days)
	No. post operation and an allow		Judgest acted		N. GEV. A. G.						Nc	Car
METALS												
Arsenic			6.59E+00	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Barium			1.70E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Cadmium	1.452E-06		8.00E+00	1.00E-06	5,800	1.0	0.01	80	25	70	9,125	25,550
Copper			2.31E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Lead			2.78E+03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Mercury			1.20E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Selenium			7.75E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Silver			1.99E+00	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Thallium			5.07E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Zinc			3.74E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
HERBICIDES									7			ì
MCPA			6.78E+00	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
											-	
MOLETINOS												
ECOATION	Absorbed Do	ose (mg/kg-day) =	Absorbed Dose (mg/kg-day) = $CSxCFxSAxAFxABSxEFxED$ BWxAT	XABSXEFXED BW x AT								
Variables:			Assumptions:			Variables:			Assumptions:	::1		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor (me/cm²)	oil (mg soil/kg) ng)		EPC - Soil Data (RME) 10-6 5,800 (RME Adult Worker) 1.0 (RME - All Recentors)	AE) Vorker) ptors)		EF = Exposure Frequency (days ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure Frequency (days/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	(year)	80 (RME Indust 25 (RME Indust 70 (Adult Male) 25 x 365 (Nc). 7	80 (RME Industrial Worker) 25 (RME Industrial Worker) 70 (Adult Male) 25 x 365 (Ne)	(er.)	
ARS = Absorntion Factor (unitless)			Cleaner tary			00	1-1-1			A	/	

Cells in this table were intentionally left blank due to a lack of toxicity data

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA	_	
2-Methylnaphthalene			NA	NA		
2-Methylphenol	1		5.00E-02	NA		
3,3'-Dichlorobenzidine		1	NA	4.50E-01		
3-Nitroaniline			NA	NA		
4-Nitroaniline	1		NA	NA		
Acenaphthene		1	6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene	1		NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene		1	NA	1.46E+01		
Dibenzofuran			NA	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01	1	
Phenanthrene			NA	NA	1	
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE		1	NA	NA	1	
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin		La partier	3.00E-05	1.70E+01		7,000
Aroclor-1260		8.08E-09	NA	8.11E+00		6.55E-0
Dieldrin			5,00E-05	1.60E+01		
Endosulfan I		1	6.00E-03	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin		1	3.00E-04	NA	1	
Endrin ketone		T.	NA	NA		
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
delta-BHC		I .	NA	NA	1	1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic			2.94E-04	1.79E+00	1000	
Barium			7.00E-03	NA		
Cadmium	1.45E-06		3.00E-05	NA	4.84E-02	
Copper			2.00E-02	NA		1 -
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA	Tradition 19	
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA	100	
HERBICIDES	4.00					Y I
МСРА	- 88	The	5.00E-04	NA		
Totals - HQ & CR	3.79				4.84E-02	6.55E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SURFACE WATER FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	2.74E-07	1.96E-08	2.00E-02	1.40E-02	1.37E-05	2.74E-10
METALS						
Antimony	3.03E-06		4.00E-04	NA	7.57E-03	
Arsenic	5.84E-07	4.17E-08	3.00E-04	1.75E+00	1.95E-03	7.30E-08
Barium	9.89E-06	0 900 0000 9000 700	7.00E-02	NA	1.41E-04	1.00 3 - 400 - 41 - 5 - 40 1 2 5 -
Cadmium	1.07E-07		5.00E-04	NA	2.14E-04	
Calcium			NA	NA		
Chromium	8.64E-08		5.00E-03	NA	1.73E-05	
Copper	2.64E-06		4.00E-02	NA	6.59E-05	
Iron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	1.64E-06		5.00E-03	NA	3.28E-04	
Nickel	1.42E-07		2.00E-02	NA	7.08E-06	
Potassium			NA	NA		
Selenium	4.42E-07		5.00E-03	NA	8.84E-05	
Sodium			NA	NA		
Vanadium	1.23E-07		7.00E-03	NA	1.76E-05	
Zinc	4.97E-06		3.00E-01	NA	1.66E-05	
Totals - HQ & CR					1.04E-02	7.33E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child Absorbed Dose (Nc) (mg/kg-day)	Child Absorbed Dose (Car) (mg/kg-day)	Absorbed Dose/Event (mg-cm²-event)	EPC Surface W. (mg/L)	Child Skin Surface Area Contact (cm²)	Kp Permeability Coefficient (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Volumetric Conv. Factor (1 liter/1000 cm²)	B (unidess)	Tau (hours)	Child Body Weight (kg)	Averagi Time (days)	Averaging Time (days)
														Child (Nc)	Car
SEMIVOLATILE ORGANICS			- 5												
bis(2-Ethylhexyl)phthalate	1.64E-07	1.17E-08	8.36E-04	2.00E-03	2,170	3.3E-02	-	25	5	1.0E-03	1.30E+01	2.10E+01	25	1,825	25,550
METALS															
Antimony	1.31E-10		2.21E-05	2.21E-02	2,170	1.0E-03	-	23	8	1.0E-03	NA	NA	25	1.825	25.550
Arsenic	2.54E-11	1.81E-12	4.26E-06	4.26E-03	2,170	1.0E-03	-	25	5	1.0E-03	NA	NA	25	1,825	25,550
Banum	4.29E-10		7.22E-05	7.22E-02	2,170	1.0E-03	-	52	S	1.0E-03	NA	NA	25	1,825	25,550
Calcium	4.03E-12	0	7.8ZE-07	7.82E-04	2,170	1.0E-03		2 %	v v	1.0E-03	NA Y	Y.	25	1,825	25,550
Chromium	1.50E-11		1.26E-06	6.31E-04	2,170	2.0E-03		2 22	n v n	1.0E-03	N AN	N A N	3 %	1,825	25,550
Copper				1.93E-02	2,170	NA	1	25	8	1.0E-03	NA	NA	25	1.825	25,550
Iron			1.93E-04	1.93E-01	2,170	1.0E-03	1	25	2	1.0E-03	NA	NA	25	1,825	25,550
Lead			1.48E-07	3.71E-02	2,170	4.0E-06	-	25	S	1.0E-03	NA	NA	25	1,825	25,550
Magnesium			8.90E-03	8.90E+00	2,170	1.0E-03	-	25	5	1.0E-03	NA	NA	25	1,825	25,550
Manganese	7.12E-11	100	1.20E-05	1.20E-02	2,170	1.0E-03	1	25	2	1.0E-03	NA	NA	25	1,825	25,550
Nickel	6.14E-14		1.03E-07	1.03E-03	2,170	1.0E-04	-	25	2	1.0E-03	N.A.	NA	25	1,825	25,550
rotassium	1. 000		3.52E-03	3.52E+00	2,170	1.0E-03		25	9	1.0E-03	NA	NA	25	1,825	25,550
Sodium	11-376-11		3.23E-06	3.23E-03	2,170	1.0E-03		25	5	1.0E-03	NA	NA	25	1,825	25,550
Vanadiim	5 35E-13		0.03E-03	0.03E+00	2,170	1.0E-03		2 2	n 4	1.0E-03	Y.	YA:	52	1,825	25,550
Zinc	7.76F-11		2.00E-07	3.63E-04	2,170	1.0E-03		9 %	0 4	1.0E-03	Y :	Y.	2 2	1,825	25,550
								1				V.	3	1,041	000,00
EQUATION:															
	Absorbed Do	ose (mg/kg-day) =	Absorbed Dose (mg/kg-day) = DAxSAxKpxETxEFxEDxCF BWxAT	ET x EF x ED 3 BW x AT	10										
	Variables:				Assumptions:			Variables:				Assumptions:	3		
	DA = Absorbed	DA = Absorbed Dose per Event (mg-cm²/event	1g-cm ² /event)		Calculated from EPA, 1992	n EPA, 1992		EF = Exposu	e Frequenc	EF = Exposure Frequency (days/year)		36			
	SA = Surface Ar Kp = Permeabili ET = Exposure 1	SA = Surface Area Contact (cm²) Kp = Permeability Coefficient (cm/hour) ET = Exposure Time (hours/day)	(hour)		2,170 (RME Child) Compound Specifi 1 (RME)	2,170 (RME Child) Compound Specific, EPA, 1992 1 (RME)	72	ED = Exposure Duration (years) CF = Vol. Conv. Factor (1 L/100 BW = Bodyweight (kg)	re Duration nv. Factor (eight (kg)	ED = Exposure Duration (years) CF = Vol. Conv. Factor (1 L/1000 cm²) BW = Bodyweight (kg)		5 (RME) 0.001 25 (Child)			
	Tao = Lag time (hours)	(hours)			Compound Spe	Compound Specific FPA 1992	12	B = Bunge Madel Value	antel Value			Communal Craciffor FB4 1007	C-nife E	1002	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg)	Child CDI (Car) (mg/kg)	Dermal RfD (mg/kg/day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS			= = =			
bis(2-Ethylhexyl)phthalate	1.64E-07	1.17E-08	2.00E-02	1.40E-02	8.20E-06	2.30E-09
METALS						
Antimony	1.31E-10		4.00E-04	NA	3.28E-07	
Arsenic	2.54E-11	1.81E-12	2.94E-04	1.79E+00	8.62E-08	4.54E-11
Barium	4.29E-10	16821622 2000	7.00E-03	NA	6.13E-08	12050175 455
Cadmium	4.65E-12		3.00E-05	NA	1.55E-07	
Calcium			NA	NA		
Chromium	1.50E-11		2.50E-04	NA	6.00E-08	
Copper			2.00E-02	NA		
Iron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	7.12E-11		5.00E-03	NA	1.42E-08	
Nickel	6.14E-14		1.00E-03	NA	6.14E-11	
Potassium			NA	NA		
Selenium	1.92E-11		3.00E-03	NA	6.40E-09	
Sodium			NA	NA		
Vanadium	5.35E-12		7.00E-03	NA	7.64E-10	
Zinc	7.76E-11		1.50E-01	NA	5.17E-10	
Totals - HQ & CR					8.91E-06	2.34E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

TABLE 7-32

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

VOLATILE ORGANICS 2.74E-07 LLS Ony 3.03E-06 3.88E-07 n ium 8.64E-08 r r 2.64E-08	1.96E-08 4.17E-08			((10) (10)	(days/year)	(years)	(kg)	(days)	(days)
2.74E-07 3.03E-06 5.84E-07 9.89E-06 1.07E-07 8.64E-08 2.64E-08	1.96E-08				23. SY CE VI			Child(Nc)	Car
3.03E-06 5.84E-07 9.89E-06 1.07E-07 8.64E-08	1.96E-08 4.17E-08								
3.03E-06 5.84E-07 9.89E-06 1.07E-07 8.64E-08 2.64E-06	4.17E-08	2.00E-03	0.05	-	25	S	25	1,825	25,550
y 3.03E-06 5.84E-07 9.89E-06 1.07E-07 um 8.64E-08	4.17E-08								
5.84E-07 9.89E-06 1.07E-07 um 8.64E-08 2.64E-06	4.17E-08	2.21E-02	0.05	-	25	5	25	1,825	25,550
e B		4.26E-03	0.05	-	25	5	25	1,825	25,550
		7.22E-02	0.05	1	25	5	25	1,825	25,550
Mediate Zariate Marie de		7.82E-04	0.05	-	25	5	25	1,825	25,550
		6.32E+01	0.05	-	25	5	25	1,825	25,550
halo di L		6.31E-04	0.05	-	25	5	25	1,825	25,550
Iron		1.93E-02	0.05	-	25	2	25	1,825	25,550
		1.93E-01	0.05	-	25	5	25	1,825	25,550
Lead		3.71E-02	0.05	-	25	2	25	1,825	25,550
Magnesium		8.90E+00	0.05	-	25	2	25	1,825	25,550
		1.20E-02	0.05	-	25	5	25	1,825	25,550
Nickel 1.42E-07		1.03E-03	0.05	-	25	5	25	1,825	25,550
Potassium		3.52E+00	0.05	1	25	2	25	1,825	25,550
Selenium 4.42E-07		3.23E-03	0.05	1	25	2	25	1,825	25,550
Sodium		7.03E+00	0.05	-	25	2	25	1,825	25,550
Vanadium 1.23E-07		9.00E-04	0.05	-	25	5	25	1,825	25,550
Zinc 4.97E-06		3.63E-02	0.05	-	25	S	25	1,825	25,550
EQUATION: Int	Intake (mg/kg-day) =		CSxCRxETxEFxED BWxAT	Cx EF x ED					
Variables:					Assumptions:				
			111		2 200	and the desired	DAGE		
CS = Chemical Contentration in Surface Water (mg/L) CR = Contact Rate (Liters/hour) ET = Exposure Time (hours/day) EF = Exposure Frequency (days/year) ED = Exposure Duration (years)	Concentration ate (Liters/ho Time (hours/of Frequency (d Duration (yea	n in Surface w our) day) lays/year) irs)	ater (mg/L)		EPC - Surface water Di 0.05 (all recreators) 1 (RME - all recreators) 25 5 (RME)	e water Data - eators) recreators)	KWE		
BW = Bodyweight (kg) AT = Averaging Time (days)	ht (kg) Time (days)				25 (Child) 5 x 365 (Nc),	25 (Child) 5 x 365 (Nc), 70 x 365 (Car)			

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SURFACE WATER FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	2.74E-07	1.96E-08	2.00E-02	1.40E-02	1.37E-05	2.74E-10
METALS						
Antimony	3.03E-06		4.00E-04	NA	7.57E-03	
Arsenic	5.84E-07	4.17E-08	3.00E-04	1.75E+00	1.95E-03	7.30E-08
Barium	9.89E-06		7.00E-02	NA	1.41E-04	
Cadmium	1.07E-07		5.00E-04	NA	2.14E-04	
Calcium			NA	NA		
Chromium	8.64E-08		5.00E-03	NA	1.73E-05	
Copper	2.64E-06		4.00E-02	NA	6.59E-05	
Iron			NA	NA '		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	1.64E-06		5.00E-03	NA	3.28E-04	
Nickel	1.42E-07		2.00E-02	NA	7.08E-06	
Potassium			NA	NA		
Selenium	4.42E-07		5.00E-03	NA	8.84E-05	
Sodium			NA	NA		
Vanadium	1.23E-07		7.00E-03	NA	1.76E-05	
Zinc	4.97E-06		3.00E-01	NA	1.66E-05	
Totals - HQ & CR					1.04E-02	7.33E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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TABLE 7-20

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc)	Intake (Nc) Intake (Car) (mg/kg-dav)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (d	Averaging Time (days)
			5)	j					Nc	Car
ODEANIE OPCANICE											
VOLATILE UNGAMICS											
Acetone	3.42E-08		7.28E-03	480	1.00E-06	1	250	-	70	365	25,550
Benzene		1.34E-10	2.00E-03	480	1.00E-06	1	250		70	365	25,550
Methylene Chloride		2.68E-10	4.00E-03	480	1.00E-06		250	-	70	365	25,550
Toluene	3.04E-08	4.34E-10	6.47E-03	480	1.00E-06	1	250		70	365	25,550
SEMIVOLATILE ORGANICS											
2 Dinitrateduana	1 28E-06		2 73F-01	480	1.00E-06	-	250	-	70	365	25,550
2,4-Dimitrofoliume	3 29F-07		7 00F-02	480	1.00E-06		250	-	70	365	25,550
2. Methylpanhthalene			1.30E-01	480	1.00E-06	-	250	1	70	365	25,550
2-Methylnhenol	0.00E+00		0.00E+00	480	1.00E-06	-	250	-	70	365	25,550
3 3'-Dichlorobenzidine		1.52E-08	2.26E-01	480	1.00E-06	-	250	-	70	365	25,550
3-Nitroaniline			5.46E-01	480	1.00E-06	-	250	-	70	365	25,550
4-Nitroaniline			5.46E-01	480	1.00E-06	-	250	-	70	365	25,550
Acenaphthene	1.55E-07		3.30E-02	480	1.00E-06		250	-	70	365	25,550
Acenaphthylene			9.60E-02	480	1.00E-06	-	250	-	70	365	25,550
Anthracene	6.11E-07		1.30E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(a)anthracene		1.85E-08	2.76E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(a)nvrene		1.88E-08	2.81E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(h)finoranthene		1.93E-08	2.87E-01	480	1.00E-06	П	250	Н	70	365	25,550
Benzo(e h i)nervlene			2.54E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(k)fluoranthene		1.74E-08	2.59E-01	480	1.00E-06	-	250	_	70	365	25,550
Butylhenzylnhthalate	2.16E-07		4.60E-02	480	1.00E-06	1	250	_	70	365	25,550
Carhazole		1.54E-08	2.30E-01	480	1.00E-06	1	250	_	70	365	25,550
Chrysene		1.60E-08	2.38E-01	480	1.00E-06	П	250	-	70	365	25,550
D. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	20 110.		10 777	400	1 005 06	-	050	-	70	365	25 550

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

1.63E-08 3.60E-02 480 1.00E-06 1 250 1 1.63E-08 3.60E-02 480 1.00E-06 1 250 1 1.77E-08 2.23E-01 480 1.00E-06 1 250 1 1.77E-08 2.63E-01 480 1.00E-06 1 250 1 1.77E-08 2.63E-01 480 1.00E-06 1 250 1 1.77E-08 2.85E-01 480 1.00E-06 1 250 1 1.77E-08 2.32E-01 480 1.00E-06 1 250 1 1.77E-09 2.13E-01 480 1.00E-06 1 250 1 1.77E-09 2.46E-02 480 1.00E-06 1 250 1 1.77E-09 2.40E-02 480 1.00E-06 1 250 1 1.77E-09 2.40E-02 480 1.00E-06 1 250 1 1.77E-09 2.34E-02 480 1.00E-06 1 250 1 2.25E-03 480 1.00E-06 1 250 1 2.25E-03 480 1.00E-06 1 2.50 1 2.25E-03 1 2.25E-03 480 1.00E-06 1 2.50 1 2.25E-03 480 1.00E-06 1 2.50 1 2.25E-03 1 2.25E-03 1 2.25E-03 480 1.00E-06 1 2.25E-03 1	Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (d	Averaging Time (days)
(i) 1.63E-06											Nc	Car
e(1) 1.05E-06 1.77E-08 2.32E-01 480 1.00E-06 1 250 1 70 365 1 77E-08 2.32E-01 480 1.00E-06 1 250 1 70 365 1 70 365 1 70 365 1 77E-08 2.32E-01 480 1.00E-06 1 250 1 70 365 1 70 365 1 70 365 1 70E-07 1.00E-06 1 250 1 70 365 1 70 36	Dibenz(a,h)anthracene		1.63E-08	2.42E-01	480	1.00E-06	-	250	-	70	365	25,550
1,05E-06	Dibenzofuran			3.60E-02	480	1.00E-06	1	250	-	70	365	25,550
1.78E-07 1.77E-08 3.68E-02 480 1.00E-06 1 250 1 70 365 2.75E-06 3.93E-08 2.63E-01 480 1.00E-06 1 250 1 70 365 2.75E-06 3.93E-08 2.63E-01 480 1.00E-06 1 250 1 70 365 1.00E-06 2.33E-08 2.48E-01 480 1.00E-06 1 250 1 70 365 1.00E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 1.23E-08 2.40E-10 2.63E-03 480 1.00E-06 1 250 1 70 365 1.35E-08 2.40E-10 3.88E-03 480 1.00E-06 1 250 1 70 365 1.35E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 1.35E-08 3.48E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-10 3.88E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-10 2.34E-02 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-10 2.34E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-10 2.34E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-10 2.34E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-10 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-10 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-11 1.33E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-01 1.35E-03 480 1.00E-06 1 250 1 70 365 1.35E-09 2.40E-01 1.35E-03 480 1.00E-06 1 250 1	Fluoranthene	1.05E-06		2.23E-01	480	1.00E-06		250	-	70	365	25,550
e (1) 6.37E-06 8.265E-01 480 1.00E-06 1 250 1 70 365 2.75E-06 3.93E-08 5.85E-01 480 1.00E-06 1 250 1 70 365 ether 1.00E-06 3.93E-08 5.85E-01 480 1.00E-06 1 250 1 70 365 ate 1.63E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 ate 1.63E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 ate 1.63E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 ate 1.63E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 ate 1.53E-08 1.00E-06 1 0.00E-06 1	Fluorene	1.78E-07		3.80E-02	480	1.00E-06	-	250	-	70	365	25,550
e (1) 6.37E-09 9.50E-02 480 1.00E-06 1 250 1 70 365 2.75E-06 3.93E-08 3.70E-02 480 1.00E-06 1 250 1 70 365 ether 1.02E-06 2.33E-08 2.13E-01 480 1.00E-06 1 250 1 70 365 ate 1.63E-08 2.34E-01 480 1.00E-06 1 250 1 70 365 ate 1.63E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 1.63E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 1.63E-08 8.11E-11 1.21E-03 480 1.00E-06 1 250 1 70 365 1.13E-07 1.61E-09 2.40E-02 480 1.00E-06 1 250 1 70 365 1.13E-07 1.61E-09 2.40E-02 480 1.00E-06 1 250 1 70 365 1.13E-08 3.42E-10 3.18E-03 480 1.00E-06 1 250 1 70 365 1.13E-08 3.42E-10 2.00E-06 1 250 1 70 365 1.13E-08 3.42E-10 3.10E-03 480 1.00E-06 1 250 1 70 365 1.13E-08 3.42E-10 2.00E-09 1.00E-06 1 250 1 70 365 1.13E-08 3.42E-10 3.10E-03 480 1.00E-06 1 250 1 70 365 1.13E-08 3.42E-10 3.10E-03 480 1.00E-06 1 250 1 70 365 1.13E-08 3.42E-10 3.10E-03 480 1.00E-06 1 250 1 70 365 1.13E-08 3.42E-10 1.03E-03 480 1.00E-06 1 250 1 70 365 4.85E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365	Indeno(1,2,3-cd)pyrene		1.77E-08	2.63E-01	480	1.00E-06		250		70	365	25,550
tine 1.02E-06 3.93E-08 3.70E-02 480 1.00E-06 1 250 1 70 365 ene 1.02E-06 2.32E-01 480 1.00E-06 1 250 1 70 365 ene 1.02E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 Allexylphthalate 1.03E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 DES/PCB 1.23E-08 1.76E-10 2.0E-03 480 1.00E-06 1 250 1 70 365 Allexylphthalate 1.63E-08 2.13E-01 480 1.00E-06 1 250 1 70 365 Allexylphthalate 1.63E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 Allexylphthalate 1.63E-09 3.48E-01 480 1.00E-06 1 250 1 70	N-Nitrosodiphenylamine (1)		6.37E-09	9.50E-02	480	1.00E-06	-	250	-	70	365	25,550
rophenol 2.75E-06 3.93E-08 5.88E-01 480 1.00E-06 1 250 1 70 365 ere 1.02E-06 2.33E-08 5.88E-01 480 1.00E-06 1 250 1 70 365 Alexylphthalate 1.02E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 DES/PCB 1.23E-08 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 DES/PCB 1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 DES/PCB 1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 2.54 1.33E-07 1.61E-09 2.40E-03 480 1.00E-06 1 250 1 70 365 2.60 2.40E-03 3.42E-01 480 1.00E-06 1 <t< td=""><td>Naphthalene</td><td></td><td></td><td>3.70E-02</td><td>480</td><td>1.00E-06</td><td>1</td><td>250</td><td>-</td><td>70</td><td>365</td><td>25,550</td></t<>	Naphthalene			3.70E-02	480	1.00E-06	1	250	-	70	365	25,550
ene 1.02E-06 2.22E-01 480 1.00E-06 1 250 1 70 365 Alberyl)phthalate 1.03E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 DES/PCB 1.03E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 DES/PCB 1.23E-08 1.76E-10 2.63E-03 480 1.00E-06 1 250 1 70 365 DES/PCB 1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 250 1.23E-08 2.40E-10 3.58E-09 1.00E-06 1 250 1 70 365 254 1.13E-07 3.43E-01 480 1.00E-06 1 250 1 70 365 260 2.40E-08 3.43E-01 480 1.00E-06 1 250 1 70 365 <td>Pentachlorophenol</td> <td>2.75E-06</td> <td>3.93E-08</td> <td>5.85E-01</td> <td>480</td> <td>1.00E-06</td> <td>_</td> <td>250</td> <td>-</td> <td>70</td> <td>365</td> <td>25,550</td>	Pentachlorophenol	2.75E-06	3.93E-08	5.85E-01	480	1.00E-06	_	250	-	70	365	25,550
1.02E-06	Phenanthrene			2.52E-01	480	1.00E-06	-	250	-	70	365	25,550
DES/PCB 1.00E-06 2.13E-01 480 1.00E-06 1 250 1 70 365 DES/PCB 1.63E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 DES/PCB 1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 254 1.3E-08 2.40E-10 3.58E-03 480 1.00E-06 1 250 1 70 365 254 1.13E-07 1.61E-09 2.40E-02 480 1.00E-06 1 250 1 70 365 254 1.13E-03 3.42E-10 3.10E-03 480 1.00E-06 1 250 1 70 365 360 1.09E-08 3.42E-10 3.10E-03 480 1.00E-06 1 250 1 <th< td=""><td>Pyrene</td><td>1.02E-06</td><td></td><td>2.18E-01</td><td>480</td><td>1.00E-06</td><td>-</td><td>250</td><td>-</td><td>70</td><td>365</td><td>25,550</td></th<>	Pyrene	1.02E-06		2.18E-01	480	1.00E-06	-	250	-	70	365	25,550
DES/PCB 1.63E-06 2.33E-08 3.48E-01 480 1.00E-06 1 250 1 70 365 DES/PCB 1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 25P-CB 1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 254 1.3E-07 1.61E-09 2.40E-10 3.58E-03 480 1.00E-06 1 250 1 70 365 260 2.40E-08 2.16E-03 480 1.00E-06 1 250 1 70 365 260 2.40E-08 3.16E-03 480 1.00E-06 1 250 1 70 365 360 2.40E-08 3.42E-10 3.16E-03 480 1.00E-06 1 250 1 70 365 400 2.20E-03 3.42E-10 2.10E-03 480 1.00E-06 1 250 <t< td=""><td>bis(2-Chloroisopropyl) ether</td><td>1.00E-06</td><td></td><td>2.13E-01</td><td>480</td><td>1.00E-06</td><td>-</td><td>250</td><td>-</td><td>70</td><td>365</td><td>25,550</td></t<>	bis(2-Chloroisopropyl) ether	1.00E-06		2.13E-01	480	1.00E-06	-	250	-	70	365	25,550
DES/PCB 1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 1.68E-08 2.40E-10 3.58E-03 480 1.00E-06 1 250 1 70 365 254 1.68E-08 8.11E-11 1.21E-03 480 1.00E-06 1 250 1 70 365 260 2.40E-09 3.48E-02 480 1.00E-06 1 250 1 70 365 260 2.40E-08 3.4E-02 480 1.00E-06 1 250 1 70 365 1n roll 1.57E-09 2.4E-02 480 1.00E-06 1 250 1 70 365 1n sulfate 1.09E-08 3.4E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 4tone 2.3E-03 480 1.00E-06 1 250 1 70 365 4scE-11 1.03E-03	bis(2-Ethylhexyl)phthalate	1.63E-06	2.33E-08	3.48E-01	480	1.00E-06		250	-	70	365	25,550
1.23E-08 1.76E-10 2.62E-03 480 1.00E-06 1 250 1 70 365 254 1.68E-08 2.40E-10 3.58E-03 480 1.00E-06 1 250 1 70 365 254 1.61E-09 2.40E-10 3.58E-03 480 1.00E-06 1 250 1 70 365 260 2.40E-08 8.11E-11 1.21E-03 480 1.00E-06 1 250 1 70 365 260 2.40E-08 8.11E-11 1.21E-03 480 1.00E-06 1 250 1 70 365 an sulfate 1.09E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 stone 2.31E-03 480 1.00E-06 1 250 1 70 365 stone 2.32E-03 480 1.00E-06 1 250 1 70 365 stone	PESTICIDES/PCB			ļ	ř			į.		V		
1.68E-08 2.40E-10 3.58E-03 480 1.00E-06 1 250 1 70 365 254 1.13E-07 1.51E-03 480 1.00E-06 1 250 1 70 365 260 1.13E-07 1.61E-09 2.40E-02 480 1.00E-06 1 250 1 70 365 260 2.40E-08 2.40E-02 480 1.00E-06 1 250 1 70 365 an I 1.09E-08 3.42E-10 2.34E-02 480 1.00E-06 1 250 1 70 365 an I 1.09E-08 3.42E-10 2.34E-02 480 1.00E-06 1 250 1 70 365 an sulfate 1.09E-08 3.42E-10 2.33E-03 480 1.00E-06 1 250 1 70 365 tone 4.86E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 <td>4,4'-DDD</td> <td>1.23E-08</td> <td>1.76E-10</td> <td>2.62E-03</td> <td>480</td> <td>1.00E-06</td> <td>-</td> <td>250</td> <td>-</td> <td>70</td> <td>365</td> <td>25,550</td>	4,4'-DDD	1.23E-08	1.76E-10	2.62E-03	480	1.00E-06	-	250	-	70	365	25,550
OT 1.68E-08 2.40E-10 3.58E-03 480 1.00E-06 1 250 1 70 365 7-1254 1.13E-07 1.61E-09 2.40E-02 480 1.00E-06 1 250 1 70 365 7-1254 1.13E-07 1.61E-09 2.40E-02 480 1.00E-06 1 250 1 70 365 7-1260 2.40E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 n 1.09E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 lifan sulfate 1.09E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 ketone 1.09E-08 1.00E-06 1 250 1 70 365 hlor epoxide 4.86E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70	4,4'-DDE			7.05E-03	480	1.00E-06	-	250	-	70	365	25,550
F-1254 1.13E-09 8.11E-11 1.21E-03 480 1.00E-06 1 250 1 70 365 7-1254 1.13E-07 1.61E-09 2.40E-02 480 1.00E-06 1 250 1 70 365 7-1260 1.13E-07 1.61E-09 2.44E-02 480 1.00E-06 1 250 1 70 365 n 1.09E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 lifan sulfate 1.09E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 ketone 1.23E-08 480 1.00E-06 1 250 1 70 365 hlor epoxide 4.85E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 HC 8.62E-11 1.23E-03 480 1.00E-06 1 250 1 70	4,4'-DDT	1.68E-08	2.40E-10	3.58E-03	480	1.00E-06	-	250		70	365	25,550
1.13E-07 1.61E-09 2.40E-02 480 1.00E-06 1 250 1 70 365 1 2.40E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 365 1 3.42E-10 2.33E-03 480 1.00E-06 1 250 1 70 365 365 3.42E-10 2.33E-03 480 1.00E-06 1 250 1 70 365 365 365 3.42E-10 2.33E-03 480 1.00E-06 1 250 1 70 365 36	Aldrin	5.68E-09	8.11E-11	1.21E-03	480	1.00E-06	-	250	-	70	365	25,550
1.57E-09 2.34E-02 480 1.00E-06 1 250 1 70 365 1 1.09E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 365 1 3.42E-10 3.32E-03 480 1.00E-06 1 250 1 70 365	Aroclor-1254	1.13E-07	1.61E-09	2.40E-02	480	1.00E-06	-	250	_	70	365	25,550
te 1.09E-08 3.42E-10 5.10E-03 480 1.00E-06 1 250 1 70 365 1.09E-08 2.33E-03 480 1.00E-06 1 250 1 70 365 1.09E-08 2.33E-03 480 1.00E-06 1 250 1 70 365 1.23E-08 2.62E-03 480 1.00E-06 1 250 1 70 365 1.23E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365	Aroclor-1260		1.57E-09	2.34E-02	480	1.00E-06	_	250	-	70	365	25,550
te 1.09E-08 2.33E-03 480 1.00E-06 1 250 1 70 365 1.09E-08 2.33E-03 480 1.00E-06 1 250 1 70 365 1.23E-08 2.62E-03 480 1.00E-06 1 250 1 70 365 ide 4.85E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365	Dieldrin	2.40E-08	3.42E-10	5.10E-03	480	1.00E-06	-	250	-	70	365	25,550
te 1.09E-08 2.33E-03 480 1.00E-06 1 250 1 70 365 1.23E-08 2.62E-03 480 1.00E-06 1 250 1 70 365 1.23E-08 2.75E-03 480 1.00E-06 1 250 1 70 365 4.85E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365	Endosulfan I	1.09E-08		2.33E-03	480	1.00E-06	-	250	1	70	365	25,550
1.23E-08 2.62E-03 480 1.00E-06 1 250 1 70 365 ide 4.85E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 see-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 see-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 see-09 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 result 1.21E-03 480 1.00E-06 1 250 1 70 365	Endosulfan sulfate	1.09E-08		2.33E-03	480	1.00E-06	-	250	-	70	365	25,550
ide 4.85E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 1.01E-03 480 1.00E-06 1 250 1 70 365 1.01E-03 480 1.00E-06 1 250 1 70 365	Endrin	1.23E-08		2.62E-03	480	1.00E-06	1	250	1	70	365	25,550
ide 4.85E-09 6.92E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365 1.00E-06 1 250 1 70 365	Endrin ketone			2.75E-03	480	1.00E-06	-	250	-	70	365	25.550
4.86E-09 6.94E-11 1.03E-03 480 1.00E-06 1 250 1 70 365 8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 1.21E-03 480 1.00E-06 1 250 1 70 365 365 365 365 365 365 365 365	Heptachlor epoxide	4.85E-09	6.92E-11	1.03E-03	480	1.00E-06	-	250	-	70	365	25,550
8.62E-11 1.28E-03 480 1.00E-06 1 250 1 70 365 1 2.1E-03 480 1.00E-06 1 250 1 70 365	alpha-Chlordane	4.86E-09	6.94E-11	1.03E-03	480	1.00E-06	-	250	-	70	365	25,550
1.21E-03 480 1.00E-06 1 250 1 70 365	beta-BHC		8.62E-11	1.28E-03	480	1.00E-06	1	250	-	70	365	25,550
	delta-BHC			1.21E-03	480	1.00E-06	1	250	_	70	365	25,550

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CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

g-day) = CSxIRxCExEtxEFxED g-day) = CSxIRxCExEtxEFxED g-day) = CSxIRxCExetxep g-day) = CSxIRxCExetxep g-day) = CSxIRxCExetxep Tre Duration (years) 1.09E-06 1.00E-06 1.0	(mg/kg-dav)		Intake (Car) (mg/kg-dav)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
Variables: Case C	0	_		i i		ò			,		Nc	Car
Mariables: Conversion Factor Conversion Convers	METALS											
CIDES 2.93E-05		-05		9.52E+00	480	1.00E-06	-	250	****	70	365	25,550
T24E-04 1.54E-02 4.80 1.00E-06 1 250 1 70 365)E-07	6.24E+00	480	1.00E-06	-	250	1	70	365	25,550
CIDES 8,42E-04 2,12E+01 480 1,00E-06 1 250 1 70 365 5,45E-07 2,50E+03 480 1,00E-06 1 250 1 70 365 1,46E-03 1,6E-01 480 1,00E-06 1 250 1 70 365 1,46E-03 3,06E+02 480 1,00E-06 1 250 1 70 365 1,46E-03 3,06E+02 480 1,00E-06 1 250 1 70 365 1,46E-03 3,06E+02 480 1,00E-06 1 250 1 70 365 1,46E-03 6,26E+00 480 1,00E-06 1 250 1 70 365 1,46E-03 6,26E+00 480 1,00E-06 1 250 1 70 365 1,00N:		-04		1.54E+02	480	1.00E-06	-	250		70	365	25,550
Action A		-05		2.12E+01	480	1.00E-06		250		70	365	25,550
CIDES 2.45E-07 2.50E+03 480 1.00E-06 1 2.50 1 70 365 3.21E-06 3.45E-07 1.16E-01 480 1.00E-06 1 2.50 1 70 365 3.45E-07 1.16E-01 480 1.00E-06 1 2.50 1 70 365 1.44E-03 3.06E+02 480 1.00E-06 1 2.50 1 70 365 1.44E-03 3.06E+02 480 1.00E-06 1 2.50 1 70 365 CIDES 2.94E-05 6.26E+00 480 1.00E-06 1 2.50 1 70 365 Intake (mg/kg-day) = CSXIRXCFXEIXEFXED		-04		1.79E+02	480	1.00E-06	-	250		70	365	25,550
SASE-07 1.16E-01 480 1.00E-06 1 250 1 70 365 SASE-07 1.16E-01 480 1.00E-06 1 250 1 70 365 SASE-07 1.16E-01 480 1.00E-06 1 250 1 70 365 SASE-07 1.16E-01 480 1.00E-06 1 250 1 70 365 SASE-07 1.16E-01 480 1.00E-06 1 250 1 70 365 SASE-07 1.16E-01 480 1.00E-06 1 250 1 70 365 SASE-07 1.10E-01 480 1.00E-06 1 250 1 70 365 SASE-07 1.10E-01 1.00E-06 1 250 1 70 365 SASE-07 1.10E-01 1.00E-06 1 250 1 70 365 SASE-07 1.10E-01 1.10E-01 1.00E-06 1 250 1 70 365 SASE-07 1.10E-01 1.10E-01 1.10E-06 1 250 1 70 365 SASE-07 1.10E-01 1.10E-01 1.10E-06 1 250 1 70 365 SASE-07 1.10E-01 1.10E-01 1.10E-06 1 250 1 70 365 SASE-07 1.10E-01 1.10E-01 1.10E-06 1 250 1 70 365 SASE-07 1.10E-01 1.10E-01 1.10E-06 1 250 1 70 365 SASE-07 1.10E-01 1.10E-01 1.10E-06 1 250 1 70 365 SASE-07 1.10E-01 1.10E-01 1.10E-01 1.10E-01 1.10E-01 SASE-07 1.10E-01 1.10E-01 1.10E-01 1.10E-01 1.10E-01 SASE-07 1.10E-01 1.10E-01 1.10E-01 1.10E-01 1.10E-01 SASE-07 1.10E-01 1.10E-01 1.10E-01 1.10E-01 1.10E-01 1.10E-01 SASE-07 1.10E-01				2.50E+03	480	1.00E-06	-	250	-	70	365	25,550
CIDES 3.21E-06		-07		1.16E-01	480	1.00E-06	-	250	-	70	365	25,550
CIDES 1.44E-03 1.16E-01 480 1.00E-06 1 250 1 70 365 1.44E-03 2.94E-05 6.26E+00 480 1.00E-06 1 250 1 70 365 1.44E-03 2.94E-05 6.26E+00 480 1.00E-06 1 250 1 70 365 1.44E-03 2.94E-05 6.26E+00 480 1.00E-06 1 250 1 70 365 1.44E-03 1.44E-03 1.06E-06 1 250 1 70 365 1.44E-03 1.44E-03 1.06E-06 1 250 1 70 365 1.44E-03 1.44E-03 1 1.06E-06 1 250 1 70 365 1.44E-03 1.44E-03 1 1.06E-06 1 250 1 70 365 1.44E-03 1.44E-03 1 1.06E-06 1 250 1 70 365 1.44E-03 1.44E-03 1 1.44E-03 1 1.44E-03 1.44E-03 1 1.44E-03 1 1.44E-03	un	90-		6.84E-01	480	1.00E-06		250		70	365	25,550
CIDES 1.44E-03		-07		1.16E-01	480	1.00E-06	-	250	-	0 :	365	75,550
CIDES 2.94E-05 6.26E+00 480 1.00E-06 1 250 1 70 365		-03	Ī	3.06E+02	480	1.00E-06	-	250	-	70	365	25,550
Titake (mg/kg-day) = CS x IR x CF x F1 x EF x ED Assumptions: CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Rate (mg soil/day) CF = Conversion Rate (unitless) CF = Exposure Frequency (days/years) CF = Exposure Frequency (days/sears) CF = Exposure Prequency (days/sears) CF = Exposure Prequency (days/sears) CF = Conversion Pactor (10-6 kg/mg) CF = Exposure Frequency (days/sears) CF = Conversion Pactor (10-6 kg/mg) CF = Exposure Prequency (days/sears) CF = Exposure Prequency (days) CF = Exposure Prequency (d	HERBICIDES											
TION:												
Intake (mg/kg-day) = CSxIRxCFxFIxEFxED Wariables: CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless) ED = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)		-05		6.26E+00	480	1.00E-06	-	250	-	70	365	25,550
Intake (mg/kg-day) = CSxIRxCFxFIxEFxED Wariables: CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Puration (years) BW = Bodyweight (kg) AT = Averaging Time (days)												
Intake (mg/kg-day) = CS x IR x CF x EI x EF x ED Wariables: CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)												
Soil (mg soil/kg) ymg) i/years)		mg/kg-day)	2000	SXIRXCE	X EL X EF X ED	224						
Soil (mg soil/kg)) g/mg) s/years)				BW X								
Soil (mg soil/kg)) g/mg)	Variable	es:					Assumptions					
y/mg) s/years)	CS = Ch	nemical Con	centration	n in Soil (mg	soil/kg)		EPC - Soil Da	ita (RME)				
ymg) /years)	IR = Ing	gestion Rate	(mg soil/o	lay)	ò		480 (RME CO	onstruction We	orker)			
/years)	CF = Co	onversion Fa	actor (10-6	b kg/mg)			10-6 1 (All Recent	ore)				
	EF = EN	xposure Fre	quency (d	lays/years)			250 (RME CO	onstruction W	orker)			
days)	ED = Ex	xposure Dur	ation (yes	ırs)			1 (Upper bou	nd limit for Co	onstruction Wo	orker)		
	BW = BW $AT = Av$	sodyweight (veraging Til	kg) me (davs)				70 (Adult ma 1 x 365 (Nc)	ie) 70 x 365 (Car)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS				1001		
Acetone	3.42E-08	2-9-21	1.00E-01	NA	3.42E-07	
Benzene		1.34E-10	NA	2.90E-02		3.89E-12
Methylene Chloride		2.68E-10	NA	2.90E-02		7.78E-12
Toluene	3.04E-08	4.34E-10	6.00E-02	7.50E-03	5.06E-07	3.26E-12
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene	1.28E-06		2.00E-03	NA	6.42E-04	
2,6-Dinitrotoluene	3.29E-07	E4 11	1.00E-03	NA	3.29E-04	
2-Methylnaphthalene			NA	NA		
2-Methylphenol	0.00E+00	CHEC	5.00E-02	NA	0.00E+00	J 155
3,3'-Dichlorobenzidine	2.2.22	1.52E-08	NA	4.50E-01		6.82E-09
3-Nitroaniline			NA	NA		
4-Nitroaniline		a policie	NA	NA		
Acenaphthene	1.55E-07	1944	6.00E-02	NA	2.58E-06	
Acenaphthylene			NA	NA		1
Anthracene	6.11E-07	7	3.00E-01	NA	2.04E-06	
Benzo(a)anthracene	0	1.85E-08	NA	7.30E-01		1.35E-08
Benzo(a)pyrene		1.88E-08	NA	7.30E+00		1.38E-07
Benzo(a)pyrene Benzo(b)fluoranthene		1.93E-08	NA	7.30E-01		1.41E-08
Benzo(g,h,i)perylene		1.552 00	NA	NA		
Benzo(g,n,1)perylene Benzo(k)fluoranthene		1.74E-08	NA	7.30E-01		1.27E-08
Butylbenzylphthalate	2.16E-07	11712 00	2.00E+00	NA	1.08E-07	
Carbazole	2.100-07	1.54E-08	NA NA	2.00E-02		3.08E-10
Chrysene	101	1.60E-08	NA	7.30E-02		1.17E-09
Di-n-butylphthalate	1.25E-06		1.00E-01	NA	1.25E-05	3
Dibenz(a,h)anthracene	1.252 00	1.63E-08	NA	7.30E+00		1.19E-07
Dibenzofuran			NA	NA		TOTAL STATE OF THE
Fluoranthene	1.05E-06		4.00E-02	NA	2.62E-05	
Fluorene	1.78E-07		4.00E-02	NA	4.46E-06	
Indeno(1,2,3-cd)pyrene	11702 07	1.77E-08	NA	7.30E-01		1.29E-08
N-Nitrosodiphenylamine (1)		6.37E-09	NA	4.90E-03		3.12E-11
Naphthalene		A.F	NA	NA		
Pentachlorophenol	2.75E-06	3.93E-08	3.00E-02	1.20E-01	9.16E-05	4.71E-09
Phenanthrene	2.7.52		NA	NA		
Pyrene	1.02E-06		3.00E-02	NA	3.41E-05	
bis(2-Chloroisopropyl) ether	1.00E-06		1.00E-03	NA	1.00E-03	
bis(2-Ethylhexyl)phthalate	1.63E-06	2.33E-08	2.00E-02	1.40E-02	8.16E-05	3.26E-10

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
PESTICIDES/PCB		As so so some				
4,4'-DDD	1.23E-08	1.76E-10	5.00E-04	2.40E-01	2.46E-05	4.22E-11
4,4'-DDE			NA	NA		
4,4'-DDT	1.68E-08	2.40E-10	5.00E-04	3.40E-01	3.37E-05	8.17E-11
Aldrin	5.68E-09	8.11E-11	3.00E-05	1.70E+01	1.89E-04	1.38E-09
Aroclor-1254	1.13E-07	1.61E-09	2.00E-05	2.00E+00	5.63E-03	3.22E-09
Aroclor-1260		1.57E-09	NA	7.70E+00		1.21E-08
Dieldrin	2.40E-08	3.42E-10	5.00E-05	1.60E+01	4.79E-04	5.48E-09
Endosulfan I	1.09E-08		6.00E-03	NA	1.82E-06	
Endosulfan sulfate	1.09E-08		5.00E-05	NA	2.19E-04	
Endrin	1.23E-08		3.00E-04	NA	4.09E-05	
Endrin ketone	11202.00		NA	NA		
Heptachlor epoxide	4.85E-09	6.92E-11	1.30E-05	9.10E+00	3.73E-04	6.30E-10
alpha-Chlordane	4.86E-09	6.94E-11	6.00E-05	1.30E+00	8.10E-05	9.03E-11
beta-BHC	1.002 0	8.62E-11	NA	1.80E+00	0.102 00	1.55E-10
delta-BHC	1	0.022 11	NA	NA		1.552 10
METALS						5
Antimony	4.47E-05		4.00E-04	NA	1.12E-01	
Arsenic	2.93E-05	4.19E-07	3.00E-04	1.75E+00	9.77E-02	7.33E-07
Barium	7.24E-04	4.13L-07	7.00E-02	NA NA	1.03E-02	7.33E-07
Cadmium	9.97E-05		5.00E-04	NA NA	1.99E-01	
Copper	8.42E-04		4.00E-02	NA NA	2.10E-02	
Lead	0.42E-04		NA	NA NA	2.10E-02	
Mercury	5.45E-07		3.00E-04	NA NA	1.82E-03	
Selenium	3.43E-07 3.21E-06		5.00E-04 5.00E-03	NA NA	6.43E-04	
Silver	5.45E-07		5.00E-03 5.00E-03	NA NA	1.09E-04	
Zinc	1.44E-03		3.00E-03 3.00E-01	NA NA	4.79E-03	
Zilic	1.44E-03		3.00E-01	INA	4.79E-03	
HERBICIDES						
МСРА	2.94E-05		5.00E-04	NA	5.88E-02	
Totals - HQ & CR					5.16E-01	1.08E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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TABLE 7-28

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils	Conv. Factor	Skin Surface Area Contact	Adherence Factor	Absorption Factor	Exposure Frequency	Exposure Duration (vears)	Body Weight (kg)	Aver Ti	Averaging Time (days)
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(Kg/mg)	(cm)	(mg somem)	(seamin)	(m) (m)		6	Nc	Car
VOLATILE ORGANICS												
Acetone			7.28E-03	1.00E-06	5,800	1.0		250	1	70	365	25,550
Benzene			2.00E-03	1.00E-06	5,800	0.01		250		0 02	365	25,550
Methylene Chloride Toluene			4.00E-03 6.47E-03	1.00E-06	5,800	01		250	×=	70	365	25,550
SEMIVOLATILE ORGANICS	11.7											
A District Summer			2.73E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
2,4-Dinitrotoluene			7.00E-02	1.00E-06	5,800	1.0		250		70	365	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	0.1		250		0,0	365	25,550
2-Methylphenol				1.00E-06	5,800	1.0		250		0/2	365	25,550
3,3'-Dichlorobenzidine			2.26E-01	1.00E-06	5,800	0.0		250		70	365	25,550
3-Nitroaniline			5.46E-01	1.00E-06	5.800	1.0		250	-	70	365	25,550
4-Nitroaniline			3.30E-02	1.00E-06	5,800	1.0		250		70	365	25,550
Acenaphinene			9.60E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Anthracene			1.30E-01	1.00E-06	5,800	0.1		250		9, 02	365	25,550
Benzo(a)anthracene			2.76E-01	1.00E-06	2,800	1.0		250		70	365	25,550
Benzo(a)pyrene			2.81E-01	1.00E-06	5,800	0.1		250		70	365	25,550
Benzo(b)fluoranthene			2.8/E-01	1.00E-06	5.800	1.0		250	1	70	365	25,550
Benzo(g,n,1)peryiene			2 59F-01	1.00E-06	5,800	1.0		250	_	70	365	25,550
Benzo(k)nuoranuiene			4 60F-02	1.00E-06	5.800	1.0		250	-	70	365	25,550
Butylbenzyipnmalate			2.30E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Caroana			2.38E-01	1.00E-06	5,800	1.0		250		70	365	25,550
Di a butdahibalata			2 675.01	1 005.06	5 800	10		250	-	70	365	25.550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)

REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Averaging Time	(days)	ic Car	365 25,550	-					55 25,550				10000 10000	55 25,550					- 1 CO			190	0.50			113-21	55 25,550			910
ly ght						45.05	01/07/20		365		8 5 3 3 6	****	365	25076				-		Crediti					21554		365	27511.0	10100	
Body	(kg		70	70	70	70	70	70	70	70	70	70	70	70		70	70	70	70	70	70	70	70	70	70	70	70	70	70	
Exposure Duration	(years)		-	-	-	-	-	-	1	-	-	-	-			1	-	-	-	-	-	-	-	-	-	-	-	-	-	
Exposure Frequency	(days/year)		250	250	250	250	250	250	250	250	250	250	250	250		250	250	250	250	250	250	250	250	250	250	250	250	250	250	4
Absorption Factor	(unitless)																			90.0	90.0									
Adherence Factor	(mg soil/cm²)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Skin Surface Area Contact	(cm ²)		5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800		5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	000
Conv. Factor	(kg/mg)		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	100
EPC Total Soils	(mg/kg)		2.42E-01	3.60E-02	2.23E-01	3.80E-02	2.63E-01	9.50E-02	3.70E-02	5.85E-01	2.52E-01	2.18E-01	2.13E-01	3.48E-01		2.62E-03	7.05E-03	3.58E-03	1.21E-03	2.40E-02	2.34E-02	5.10E-03	2.33E-03	2.33E-03	2.62E-03	2.75E-03	1.03E-03	1.03E-03	1.28E-03	
Dose (Car)	(mg/kg-day)																		ACCURATION OF THE PERSON OF THE	1.166E-09	1.138E-09									
Dose (Nc)	(mg/kg-day)																		2 Company of Company of Company	8.165E-08	7.966E-08									
Analyte			Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	N-Nitrosodiphenylamine (1)	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	bis(2-Chloroisopropyl) ether	bis(2-Ethylhexyl)phthalate	PESTICIDES/PCB	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Aroclor-1254	Aroclor-1260	Dieldrin	Endosulfan I	Endosulfan sulfate	Endrin	Endrin ketone	Heptachlor epoxide	alpha-Chlordane	beta-BHC	014

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CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc) (mg/kg-dav)	Dose (Car)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	ging 1e s)
			ò					65 65 67	66 Né	22,027	Nc	Car
METALS												
Antimony			9.52E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
Arsenic			6.24E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
Barium			1.54E+02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Cadmium			2.12E+01	1.00E-06	2,800	1.0		250	-	70	365	25,550
Copper			1.79E+02	1.00E-06	5,800	1.0		250		70	365	25,550
Lead			2.50E+03	1.00E-06	2,800	1.0		250	-	0	365	055,52
Mercury			1.16E-01	1.00E-06	2,800	1.0		250	-	70	365	25,550
Selenium			6.84E-01	1.00E-06	2,800	1.0		250	_	70	365	25,550
Silver			1.16E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Zinc		1000	3.06E+02	1.00E-06	5,800	1.0		250	1	70	365	25,550
HERBICIDES												
MCPA			6.26E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
NOT TION.												
ECOALIGN	Absorbed Dos	Absorbed Dose (mg/kg-day) = CSxCFxSAxAFxABSxEFxED RWxAT	CSxCFxSAx	AFXABSXE	EXED							
Variables:			Assumptions:				Variables:			Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg)	me soil/ke)		EPC - Soil Data (RME)	(RME)			EF = Exposure	EF = Exposure Frequency (days/year)	ys/year)	250 (RME Construction Worker)	truction Work	r)
CF = Conversion Factor (10-6 kg/mg)	3		9-01				ED = Exposure	ED = Exposure Duration (years)	(\$	1 (Upper bound limit for CW)	limit for CW)	
SA = Surface Area Contact (cm²)			5,800 (RME Adult Worker)	lult Worker)			BW = Bodyweight (kg)	ight (kg)		70 (Adult Male)		
AF =Soil to Skin Adherence Factor (mg/cm²)	g/cm²)		1.0 (RME - All Receptors)	Receptors)			AT = Averaging Time (days)	g Time (days)		1 x 365 (Nc) 70 x 365 (Car)	x 365 (Car)	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			5.00E-02	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene	100		NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
PESTICIDES/PCB						
			5.00E-04	2.40E-01		
4,4'-DDD	Je to d		NA NA	NA NA		
4,4'-DDE			5.00E-04	3.40E-01		
4,4'-DDT	Maria Company		3.00E-05	1.70E+01		
Aldrin	8.16E-08	1.17E-09	1.90E-05	2.11E+00	4.30E-03	2.46E-09
Aroclor-1254	8.16E-08 7.97E-08	1.17E-09 1.14E-09	NA	8.11E+00	4.501-05	9.23E-09
Aroclor-1260	7.97E-08	1.14E-09	5.00E-05	1.60E+01		3.232 03
Dieldrin			6.00E-03	NA NA		
Endosulfan I	description of the		5.00E-05	NA NA		
Endosulfan sulfate			3.00E-03 3.00E-04	NA NA		
Endrin			NA	NA NA		200
Endrin ketone	Maria de la companya della companya		1.30E-05	9.10E+00		
Heptachlor epoxide			6.00E-05	1.30E+00		
alpha-Chlordane			Property and and an artist of the second	1.80E+00		
beta-BHC			NA NA	NA NA		
delta-BHC			NA	INA		
METALS	100					-30
Antimony			4.00E-04	NA		4.87
Arsenic	1.00		2.94E-04	1.79E+00		
Barium	-88		7.00E-03	NA		
Cadmium			3.00E-05	NA		P(c)
Copper	100		2.00E-02	NA		
Lead			NA	NA		
Mercury	- N		4.50E-05	NA		-
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		11
Zinc			1.50E-01	NA		4
HERBICIDES						
MCDA			5.00E-04	NA		
MCPA	AV.		3.002 0.	10,000		Υ,
	THERE					
Totals - HQ & CR	The state of the state of				4.30E-03	1.17E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

a

		-	No. of Valid	No. of Rejected	No of	4_					Lognormal	Lognormal 95th UCL of	
	Doromotor	Unite	303	SOI	Hite	Fred (%) Mean	Mean	Std Dev	May Hit	Normal?	9 6	Mean	EPC
VOI ATH E ORGANICS	Acetone	Ü	3	2453	1	1 3.0%	6.553	2.577	8.000	FALSE	FALSE	6.976	6.976
VOLATILE ORGANICS	Benzene	UG/KG	34	· ·		2 5.9%	5.963	1.145	2.000	FALSE	FALSE	6.578	2.000
VOLATILE ORGANICS	Toluene	UG/KG	34	Ĭ	0	3 8.8%	990'9	1.100	8.000	FALSE	FALSE	6.591	6.591
SEMIVOLATILE ORGANICS	2,4-Dinitrotoluene	UG/KG	34		0	3 8.8%	248.412	202.253	880.000	FALSE	FALSE	278.937	278.937
SEMIVOLATILE ORGANICS	2,6-Dinitrotoluene	UG/KG	33		_	%0.0 0	196.212	14.845	0.000	TRUE	TRUE	200.587	0.000
SEMIVOLATILE ORGANICS	2-Methylnaphthalene	UG/KG	33		_	2 6.1%	190.545	34.248	130.000	FALSE	FALSE	218.793	130.000
SEMIVOLATILE ORGANICS	3,3'-Dichlorobenzidine	UG/KG	34		0	1 2.9%	230.294	167.232	410.000	FALSE	FALSE	247.172	247.172
SEMIVOLATILE ORGANICS	3-Nitroaniline	UG/KG	34	-	0	1 2.9%	556.985	399.030	990.000	FALSE	FALSE	597.864	597.864
SEMIVOLATILE ORGANICS	4-Nitroaniline	UG/KG	34		0	1 2.9%	556.985	399.030	990.000	FALSE	FALSE	597.864	597.864
SEMIVOLATILE ORGANICS	Acenaphthene	UG/KG	. 33		_	2 6.1%	186.697	44.007	33.000	FALSE	FALSE	236.221	33.000
SEMIVOLATILE ORGANICS	Acenaphthylene	UG/KG	33		-	2 6.1%	189.727	35.601	96.000	FALSE	FALSE	214.874	000.96
SEMIVOLATILE ORGANICS	Anthracene	UG/KG	33		_	2 6.1%	193.030	23.316	130.000	FALSE	FALSE	201.727	130.000
SEMIVOLATILE ORGANICS	Benzo[a]anthracene	UG/KG	34		0	0 29.4%	211.853	210.778	720.000	FALSE	FALSE	343.755	343.755
SEMIVOLATILE ORGANICS	Benzofalpyrene	UG/KG	34		0	2 35.3%	213.471	240.759	940.000	FALSE	FALSE	380.185	380.185
SEMIVOLATILE ORGANICS	Benzo[b]fluoranthene	UG/KG	34		0	.0 29.4%	261.618	393.512	2200.000	FALSE	FALSE	372.032	372.032
SEMIVOLATILE ORGANICS	Benzofghilperylene	UG/KG	34		0	8 23.5%	226.824	204.920	710.000	FALSE	FALSE	306.396	306.396
SEMIVOLATILE ORGANICS	Benzofklfluoranthene	UG/KG	34	8	0	8 23.5%	204.676	189.464	530.000	FALSE	FALSE	294.589	294.589
SEMIVOLATILE ORGANICS	Bis(2-Chloroisopropyl)ether	UG/KG	17		0	1 5.9%	203.235	54.571	410.000	FALSE	FALSE	221.331	221.331
SEMIVOLATILE ORGANICS	Bis(2-Ethylhexyl)phthalate	UG/KG	34		0	9 26.5%	261.353	259.112	1300.000	FALSE	FALSE	327.750	327.750
SEMIVOLATILE ORGANICS	Butylbenzylphthalate	UG/KG	33			1 3.0%	192.303		46.000	FALSE	FALSE	211.222	46.000
SEMIVOLATILE ORGANICS	Carbazole	UG/KG	34		0	3 8.8%	223.824	171.632	410.000	FALSE	FALSE	255.751	255.751
SEMIVOLATILE ORGANICS	Chrysene	UG/KG	34		0	8 52.9%	173.235	(4	670,000	FALSE	FALSE	324.585	324.585
SEMIVOLATILE ORGANICS	Cresols (-o)	UG/KG	33		_	1 3.0%	193.636		120.000	FALSE	FALSE	200.523	120.000
SEMIVOLATILE ORGANICS	Di-n-butylphthalate	UG/KG	34		0	9 26.5%	238.529		1200.000	FALSE	FALSE	294.284	294.284
SEMIVOLATILE ORGANICS	Dibenz[a,h]anthracene	UG/KG	34		0	5 14.7%	220.324		,	FALSE	FALSE	284.260	284.260
SEMIVOLATILE ORGANICS	Dibenzofuran	UG/KG	33		_	1 3.0%	192.000			FALSE	FALSE	215.124	36.000
SEMIVOLATILE ORGANICS	Fluoranthene	UG/KG	34		0	62.9%	192.912		1000.000	FALSE	FALSE	325.407	325.407
SEMIVOLATILE ORGANICS	Fluorene	UG/KG	33		1	1 3.0%	192.061			FALSE	FALSE	214.211	38.000
SEMIVOLATILE ORGANICS	Indeno[1,2,3-cd]pyrene	UG/KG	34		0	8 23.5%	226.676	(4			FALSE	328.688	328.688
SEMIVOLATILE ORGANICS	N-Nitrosodiphenylamine	UG/KG	33			2 6.1%	190.061				FALSE	210.480	95.000
SEMIVOLATILE ORGANICS	Naphthalene	UG/KG	33		1	3 9.1%	183.091	51.639		FALSE	FALSE	246.019	37.000
SEMIVOLATILE ORGANICS	Pentachlorophenol	UG/KG	34		0	2 5.9%	544.721	33.5		FALSE	FALSE	968.659	968.659
SEMIVOLATILE ORGANICS	Phenanthrene	UG/KG	34		0	10 29.4%	197.647			FALSE	FALSE	318.510	318.510
SEMIVOLATILE ORGANICS	Pyrene	UG/KG	34		0	%6:55 61	194.412	273.925	1200.000	FALSE	FALSE	301.259	301.259
PESTICIDES/PCB	4,4'-DDD	UG/KG	34		0	2 5.9%	2.810		15.000	FALSE	FALSE	3.005	3.005
PESTICIDES/PCB	4,4'-DDE	UG/KG	34		0	7 20.6%	7.407	24.205	140.000	FALSE	FALSE	5.784	5.784
PESTICIDES/PCB	4.4'-DDT	UG/KG	34		0	3 8.8%	3.132	3.474	13.000	FALSE	FALSE	3.494	3.494
PESTICIDES/PCB	Aldrin	UG/KG	34		0	1 2.9%	1.286	1.373	1.900	FALSE	FALSE	1.359	1.359
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	33		_	1 3.0%	1.027	0.076	1.100	FALSE	FALSE	1.060	1.060
PESTICIDES/PCB	Aroclor-1260	UG/KG	34		0	2 5.9%	24.544	26.661	28.000	FALSE	FALSE	25.831	25.831
PESTICIDES/PCB	Beta-BHC	UG/KG	34		0	1 2.9%	1.580	3.256	20.000	FALSE	FALSE	1.512	1.512

			Valid	Rejected	No. of						Lognormal	95th UCL of	
	Parameter	Units	Analyses S	SQLs	Hits	Freq. (%) Mean	Mean	Std. Dev.	Max. Hit	Normal?	3	Mean	EPC
PESTICIDES/PCB	Delta-BHC	UG/KG	34	0	_	2.9%	1.293	1.379	2.200	FALSE	FALSE	1.371	1.371
PESTICIDES/PCB	Dieldrin	UG/KG	34	0	e	8.8%	4.416	10.424	62.000	FALSE	FALSE	4.284	4.284
PESTICIDES/PCB	Endosulfan I	UG/KG	34	0	6	8.8%	13.985	73.532	430.000	FALSE	FALSE	4.022	4.022
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	34	0	200	2.9%	2.509	3.094	20.000	FALSE	FALSE	2.611	2.611
PESTICIDES/PCB	Endrin	UG/KG	34	0	2	5.9%	3.300	7.043	43.000	FALSE	FALSE	3.159	3.159
PESTICIDES/PCB	Endrin ketone	UG/KG	34	0		5.9%	4.100	11.832	71.000	FALSE	FALSE	3.449	3.449
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	34	0	34	100.0%	0.335	0.415	2.400	FALSE	TRUE	0.478	0.478
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	34	0	_	2.9%	70.294	45.957	330.000	FALSE	FALSE	74.685	74.685
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	34	0		2.9%	87.206	143.639	900.000	FALSE	FALSE	87.405	87.405
METALS	Aluminum	MG/KG	34	0	34	100.0%	13438.235	2922.173	19300.000	FALSE	FALSE	14793.610	14793.610
METALS	Antimony	MG/KG	34	0	17	7 50.0%	4.735	8.647	52.000	FALSE	TRUE	7.818	7.818
METALS	Arsenic	MG/KG	34	0	35	100.0%	5.229	1.068	8.900	FALSE	TRUE	5.540	5.540
METALS	Barium	MG/KG	34	0	28	8 82.4%	106.394	59.652	357.000	FALSE	TRUE	125.247	125.247
METALS	Beryllium	MG/KG	34	0	36	4 100.0%	0.580	0.171	0.990		FALSE	0.629	0.629
METALS	Cadmium	MG/KG	34	0	77	4 70.6%	1.244	1.956	3.500	FALSE	TRUE	2.060	2.060
METALS	Calcium	MG/KG	34	0	37	4 100.0%	28600.588	521	#########		FALSE	50697.394	50697.394
METALS	Chromium	MG/KG	34	0	75 (4 100.0%	19.894	3.933	27.900		FALSE	21.035	21.035
METALS	Cobalt	MG/KG	34	0	3,	4 100.0%	10.265		21.900	-	TRUE	11.360	11.360
METALS	Copper	MG/KG	34	0	3	4 100.0%	55.347		546.000	_	FALSE	62.403	62.403
METALS	Cyanide	MG/KG	34	_	_	1 2.9%	0.315			F	FALSE	0.377	0.377
METALS	Iron	MG/KG	34	0	3,	4 100.0%	23757.647			eric Value	FALSE	25381.795	25381.795
METALS	Lead	MG/KG	34	_	33	3 97.1%	279.938	542.982	000.989	FALSE	TRUE	619.014	619.014
METALS	Magnesium	MG/KG	34	_	ž (4 100.0%	5178.088			FALSE	TRUE	5854.933	5854.933
METALS	Manganese	MG/KG	34	_	3	4 100.0%	539.426			TRUE	TRUE	603.461	603.461
METALS	Mercury	MG/KG	34	_	3(0 88.2%	0.099	NAME OF STREET	-33	FALSE	FALSE	0.111	0.111
METALS	Nickel	MG/KG	34	_	3	4 100.0%	27.003		50.800	FALSE	TRUE	29.987	29.987
METALS	Potassium	MG/KG	34	_	3,	4 100.0%	1351.500		1960.000) TRUE	TRUE	1434.835	1434.835
METALS	Selenium	MG/KG	34	J	2	0 58.8%	0.638	0.521	1.600	FALSE	FALSE	1.158	1.158
METALS	Silver	MG/KG	34	_	•	4 11.8%	0.546	92.0	3 4.600	FALSE	FALSE	0.750	0.750
METALS	Sodium	MG/KG	34	_	2.	3 67.6%	75.865	72.860	383.00(FALSE	FALSE	93.909	93.909
METALS	Thallium	MG/KG	34	Ŭ		7 20.6%	0.417	0.38	5 1.500	FALSE	FALSE	0.610	0.610
METALS	Vanadium	MG/KG	34	_	3	4 100.0%	23.104	4.422	30.70	TRUE	TRUE	24.387	24.387
METALS	Zinc	MG/KG	34		3	4 100.0%	132.596	107.96	1 620.000	FALSE	FALSE	153.822	153.822
HERBICIDES	MCPA	UG/KG	17	_	0	1 5.9%	4773.529	7020 486	32000.000	FALSE	FAISE	5676 631	5676 621

		Z	No. of No.	No. of	4						Lognormal	Loanormal 95th LICL of	
				elected in						10	Lognomia	Man ED	
Class Pa	Parameter	Units A	Analyses St	SQLs H	Hits Fr	Freq. (%) Mean		Std. Dev. I	Max. Hit	Normal?	į.		
VOLATILE ORGANICS AG	Acetone	UG/KG	33	-	-	3.0%	6.553	2.577	8.000		FALSE	926.9	9.60
	Benzene	UG/KG	34	0	7	5.9%	5.963	1.145	2.000		FALSE	6.578	2.000
	Toluene	UG/KG	34	0	3	8.8%	990.9	1.100	8.000	FALSE	FALSE	6.591	6.591
NICS	2,4-Dinitrotoluene	UG/KG	34	0	ю	8.8%	248.412	202.253	880.000	FALSE	FALSE	278.937	278.937
	2.6-Dinitrotoluene	UG/KG	33	П	0	%0.0	196.212	14.845	0.000	TRUE	TRUE	200.587	0.000
	2-Methylnaphthalene	UG/KG	33	-	7	6.1%	190.545	34.248	130.000	FALSE	FALSE	218.793	130.000
	3,3'-Dichlorobenzidine	UG/KG	34	0	-	2.9%	230.294	167.232	410.000	FALSE	FALSE	247.172	247.172
	3-Nitroaniline	UG/KG	34	0	_	2.9%	556.985	399.030	000.066	FALSE	FALSE	597.864	597.864
100	4-Nitroaniline	UG/KG	34	0	П	2.9%	556.985	399.030	000.066		FALSE	597.864	597.864
	Acenaphthene	UG/KG	33	-	7	6.1%	186.697	44.007	33.000		FALSE	236.221	33.000
	Acenaphthylene	UG/KG	33	-	7	6.1%	189.727	35.601	96.000		FALSE	214.874	96.000
	Anthracene	UG/KG	33	-	7	6.1%	193.030	23.316	130.000	FALSE	FALSE	201.727	130.000
SEMIVOLATILE ORGANICS B	Benzo[a]anthracene	UG/KG	34	0	10	29.4%	211.853	210.778	720.000	FALSE	FALSE	343.755	343.755
	Benzofalpyrene	UG/KG	34	0	12	35.3%	213.471	240.759	940.000	FALSE	FALSE	380.185	380.185
	Benzo[b]fluoranthene	UG/KG	34	0	10	29.4%	261.618	393.512	2200.000	FALSE	FALSE	372.032	372.032
	Benzolghilperylene	UG/KG	34	0	00	23.5%	226.824	204.920	710.000	and a	FALSE	306.396	306.396
	Benzofklfluoranthene	UG/KG	34	0	00	23.5%	204.676	189.464	530.000	FALSE	FALSE	294.589	294.589
	Bis(2-Chloroisopropyl)ether	UG/KG	17	0	1	5.9%	203.235	54.571	410.000	FALSE	FALSE	221.331	221.331
	Bis(2-Ethylhexyl)phthalate	UG/KG	34	0	6	26.5%	261.353	259.112	1300.000	FALSE	FALSE	327.750	327.750
	Butylbenzylphthalate	UG/KG	33	-	1	3.0%	192.303	29.928	46.000		FALSE	211.222	46.000
	Carbazole	UG/KG	34	0	3	8.8%	223.824	171.632	410.000	FALSE	FALSE	255.751	255.751
_	Chrysene	UG/KG	34	0	18	52.9%	173.235	223.256	670.000	FALSE	FALSE	324.585	324.585
	Cresols (-o)	UG/KG	33	-	1	3.0%	193.636	19.814	120.000		FALSE	200.523	120.000
-	Di-n-butylphthalate	UG/KG	34	0	6	26.5%	238.529	215.671	1200.000		FALSE	294.284	294.284
	Dibenzfa,hlanthracene	UG/KG	34	0	2	14.7%	220.324	178.157	470.000	•	FALSE	284.260	284.260
	Dibenzofuran	UG/KG	33	-	1	3.0%	192.000	31.466	36.000	5.820	FALSE	215.124	36.000
-	Fluoranthene	UG/KG	34	0	19	25.9%	192.912	263.225	1000.000		FALSE	325.407	325.407
	Fluorene	UG/KG	33	-	-	3.0%	192.061	31.157	38.000	_	FALSE	214.211	38.000
-	Indeno[1,2,3-cd]pyrene	UG/KG	34	0	00	23.5%	226.676	211.650	790.000		FALSE	328.688	328.688
SEMIVOLATILE ORGANICS N	N-Nitrosodiphenylamine	UG/KG	33	-	7	6.1%	190.061	34.083	95.000		FALSE	210.480	95.000
	Naphthalene	UG/KG	33	-	Э	9.1%	183.091	51.639	37.000		FALSE	246.019	37.000
	Pentachlorophenol	UG/KG	34	0	7	2.9%	544.721	408.400	990.000		FALSE	659.896	659.896
SEMIVOLATILE ORGANICS P	Phenanthrene	UG/KG	34	0	10	29.4%	197.647	187.380	360.000		FALSE	318.510	318.510
	Pyrene	UG/KG	34	0	19	55.9%	194.412	273.925	1200.000		FALSE	301.259	301.259
	4,4'-DDD	UG/KG	34	0	7	2.9%	2.810	3.427	15.000		FALSE	3.005	3.005
	4.4DDE	UG/KG	34	0	7	20.6%	7.407	24.205	140.000	FALSE	FALSE	5.784	5.784
610	4,4'-DDT	UG/KG	34	0	3	8.8%	3.132	3.474	13.000	FALSE	FALSE	3.494	3.494
	Aldrin	UG/KG	34	0	-	2.9%	1.286	1.373	1.900	FALSE	FALSE	1.359	1.359
	Alpha-Chlordane	UG/KG	33	П	1	3.0%	1.027	0.076	1.100		FALSE	1.060	1.060
94U2S	Aroclor-1260	UG/KG	34	0	7	2.9%	24.544	26.661	28.000	-	FALSE	25.831	25.831
	Beta-BHC	UG/KG	34	0	П	2.9%	1.580	3.256	20.000	FALSE	FALSE	1.512	1.512

			<u> </u>	No. of										
				Rejected	No. of						Lognormal	95th UCL of		
	Parameter	Units	Analyses 5	SQLs	Hits	Freq. (%) Mean	Mean	Std. Dev.	Max. Hit	Normal?	3	Mean	EPC	
PESTICIDES/PCB	Delta-BHC	UG/KG	34	0		2.9%	1.293	1.379	2.200	FALSE	FALSE	1.371	1.371	
PESTICIDES/PCB	Dieldrin	UG/KG	34	0	-	8.8%	4.416	10.424	62.000	FALSE	FALSE	4.284	4.284	
PESTICIDES/PCB	Endosulfan I	UG/KG	34	0	_	8.8%	13.985	73.532	430.000	FALSE	FALSE	4.022	4.022	_,
PESTICIDES/PCB	Endosulfan sulfate	UG/KG	34	0		2.9%	2.509	3.094	20.000	FALSE	FALSE	2.611	2.611	
PESTICIDES/PCB	Endrin	UG/KG	34	0	-	5.9%	3.300	7.043	43.000	FALSE	FALSE	3.159	3.159	_
PESTICIDES/PCB	Endrin ketone	UG/KG	34	0	-	5.9%	4.100	11.832	71.000	FALSE	FALSE	3.449	3.449	•
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	34	0	37	100.0%	0.335	0.415	2.400	FALSE	TRUE	0.478	0.478	~
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	34	0		2.9%	70.294	45.957	330.000	FALSE	FALSE	74.685	74.685	10
NITROAROMATICS	2,6-Dinitrotoluene	UG/KG	34	0	_	1 2.9%	87.206	143.639	900.000	FALSE	FALSE	87.405	87.405	10
	Aluminum	MG/KG	34	0	37	100.0%	13438.235	2922.173	19300.000	FALSE	FALSE	14793.610	14793.610	0
	Antimony	MG/KG	34	0	1.	7 50.0%	4.735	8.647	52.000	FALSE	TRUE	7.818	7.818	~
	Arsenic	MG/KG	34	0	3,	100.0%	5.229	1.068	8.900	FALSE	TRUE	5.540	5.540	0
	Barium	MG/KG	34	0	23	8 82.4%	106.394	59.652	357.000	FALSE	TRUE	125.247	125.247	7
	Beryllium	MG/KG	34	0	3,	4 100.0%	0.580	0.171	0.990	TRUE	FALSE	0.629	0.629	6
	Cadmium	MG/KG	34	0	5	4 70.6%	1.244	1.956	3.500	FALSE	TRUE	2.060	2.060	0
	Calcium	MG/KG	34	0	3	4 100.0%	28600.588	521.	#########	FALSE	FALSE	50697.394	50697.39	+
	Chromium	MG/KG	34	0	3,	4 100.0%	19.894	3.933	27.900	TRUE	FALSE	21.035	21.035	10
	Cobalt	MG/KG	34	0	3,	4 100.0%	10.265		21.900	FALSE	TRUE	11.360	11.36	0
	Copper	MG/KG	34	0	3	4 100.0%	55.347	89.252	546.000	_	FALSE	62.403	62.403	3
	Cyanide	MG/KG	34	0	•	1 2.9%	0.315	0.220	1.500	-	FALSE	0.377	0.37	7
	Iron	MG/KG	34	0	34	4 100.0%	23757.647	5597.783	38700.000	TRUE	FALSE	25381.795	25381.79	0
	Lead	MG/KG	34	0	3.	3 97.1%	279.938	542.982	686.000	FALSE	TRUE	619.014	619.01	vt.
	Magnesium	MG/KG		0	3	4 100.0%	5178.088	2028.900	9830.000	FALSE	TRUE	5854.933	5854.93.	3
	Manganese	MG/KG	34	0	3	4 100.0%	539.426	220.701	1080.000	TRUE	TRUE	603.461	603.461	1
	Mercury	MG/KG		0	3	0 88.2%	0.099	0.182	1.000	_	FALSE	0.111	0.11	1
	Nickel	MG/KG		0	3	4 100.0%	27.003	9.145	50.800	Н.	TRUE	29.987	29.98	7
	Potassium	MG/KG	34	0	3	4 100.0%	1351.500	287.221	1960.000	TRUE	TRUE	1434.835	1434.83	2
	Selenium	MG/KG		0	2	0 58.8%	0.638	0.521	1.600	FALSE	FALSE	1.158	1.15	8
	Silver	MG/KG		0	0	4 11.8%	0.546	0.765	4.600	FALSE	FALSE	0.750	0.75(0
	Sodium	MG/KG		_	0 2	3 67.6%	75.865	72.860	383.000	FALSE	FALSE	93.909	93.906	6
	Thallium	MG/KG	8500	_	0	7 20.6%	0.417	0.385	1.500	FALSE	FALSE	0.610	0.610	0
	Vanadium	MG/KG	34	_	3	4 100.0%	23.104	4.422	30.700	TRUE	TRUE	24.387	24.38.	7
	Zinc	MG/KG	3.27	_	3	4 100.0%	132.596	107.961	620.000	FALSE	FALSE	153.822	153.82	7
HERBICIDES	MCPA	UG/KG	17	J	0	1 5.9%	4773.529	7020.486	32000.000	FALSE	FALSE	5626.631	5626.63	_

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CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(mg ng um))	(mg ng uny)	()	(in raay)	(days year)	(Jems)	(86)	Nc	Car
VOLATILE ORGANICS								1,0	
Acetone		45.7% At 25.2% - 1.20	2.65E-10	2	50	5	25	1,825	25,550
Benzene	POVINCE PROGRAMMENT	5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	2	50	5	25	1,825	25,550
Γoluene	2.74E-12	Comments of the	2.50E-10	2	50	5	25	1,825	25,550
SEMIVOLATILE ORGANICS									
A District			1000.00		40				
2,4-Dinitrotoluene 2,6-Dinitrotoluene			1.06E-08	2	50	5	25	1,825	25,550
			0.00E+00	2	50	5	25	1,825	25,550
-Methylnaphthalene			4.94E-09	2	50	5	25	1,825	25,550
-Methylphenol	1		0.00E+00	2	50	5	25	1,825	25,550
,3'-Dichlorobenzidine			9.39E-09	2	50	5	25	1,825	25,550
-Nitroaniline			2.27E-08	2	50	5	25	1,825	25,550
-Nitroaniline			2.27E-08	2	50	5	25	1,825	25,550
Acenaphthene			1.25E-09	2	50	5	25	1,825	25,550
cenaphthylene			3.65E-09	2	50	5	25		
Anthracene	1 3		4.94E-09	2	50	5	25	1,825	25,550
senzo(a)anthracene								1,825	25,550
			1.31E-08	2	50	5	25	1,825	25,550
Senzo(a)pyrene			1.44E-08	2	50	5	25	1,825	25,550
enzo(b)fluoranthene			1.41E-08	2	50	5	25	1,825	25,550
enzo(g,h,i)perylene			1.16E-08	2	50	5	25	1,825	25,550
enzo(k)fluoranthene			1.12E-08	2	50	5	25	1,825	25,550
utylbenzylphthalate			1.75E-09	2	50	5	25	1,825	25,550
arbazole			9.72E-09	2	50	5	25	1,825	25,550
Thrysene			1.23E-08	2	50	5	25	1,825	
i-n-butylphthalate			1.12E-08		1253855			100000000000000000000000000000000000000	25,550
				2	50	5	25	1,825	25,550
ibenz(a,h)anthracene			1.08E-08	2	50	5	25	1,825	25,550
ibenzofuran			1.37E-09	2	50	5	25	1,825	25,550
luoranthene			1.24E-08	2	50	5	25	1,825	25,550
luorene			1.44E-09	2	50	5	25	1,825	25,550
ndeno(1,2,3-cd)pyrene			1.25E-08	2	50	5	25	1,825	25,550
-Nitrosodiphenylamine (1)			3.61E-09	2	50	5	25	1,825	25,550
aphthalene		- 1	1.41E-09	2	50	5	25	1,825	25,550
entachlorophenol			2.51E-08	2	50	5	25		
henanthrene				2	2000000			1,825	25,550
	1 1		1.21E-08	2	50	5	25	1,825	25,550
yrene	0.000.11		1.14E-08	2	50	5	25	1,825	25,550
is(2-Chloroisopropyl) ether	9.22E-11		8.41E-09	2	50	5	25	1,825	25,550
is(2-Ethylhexyl)phthalate			1.25E-08	2	50	5	25	1,825	25,550
ESTICIDES/PCB									
,4'-DDD			1.14E-10	2	50	5	25	1,825	25,550
4'-DDE		1	2.20E-10	2	50	5	25	1,825	25,550
4'-DDT		1.04E-13	1.33E-10	2	50	5	25	1,825	
	5.66E-13	20.000						5.000.000000000000000000000000000000000	25,550
ldrin	5.002-15	4.04E-14	5.17E-11	2	50	5	25	1,825	25,550
roclor-1260		1.000.10	9.82E-10	2	50	5	25	1,825	25,550
ieldrin		1.27E-13	1.63E-10	2	50	5	25	1,825	25,550
ndosulfan I		1	1.53E-10	2	50	5	25	1,825	25,550
ndosulfan sulfate			9.92E-11	2	50	5	25	1,825	25,550
ndrin	1 1		1.20E-10	2	50	5	25	1,825	25,550
ndrin ketone			1.31E-10	2	50	5	25	1,825	25,550
eptachlor epoxide	. 1	0.00E+00	0.00E+00	2	50	5	25	1,825	25,550
pha-Chlordane		210.000.00	4.03E-11	2	50	5	25	1,825	25,550
eta-BHC		4.50E-14	5.74E-11		50				
		4.50E-14		2		5	25	1,825	25,550
elta-BHC	1		5.21E-11	2	50	5	25	1,825	25,550

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(0 0 7/			1 1 1				Nc	Car
METALS								CASILIS SEE	
Arsenic		1.65E-10	2.11E-07	2	50	5	25 25 25	1,825	25,550
Barium	5.22E-08		4.76E-06	2	50	5	25	1,825	25,550
Cadmium	540000000	6.13E-11	7.83E-08	2	50	5	25	1,825	25,550
Copper		(9)000000000000000000000000000000000000	2.37E-06		50	5	25	1,825	25,550
Lead			2.35E-05	2	50	5	25	1,825	25,550
Mercury	4.62E-11		4.22E-09	2 2 2	50	5	25 25 25	1,825	25,550
Selenium			4.40E-08	2	50	5	25	1,825	25,550
Silver			2.85E-08	2 2 2	50	5	25	1,825	25,550
Thallium			2.32E-08	2	50	5	25	1,825	25,550
Zinc			5.85E-06	2	50	5	25	1,825	25,550
HERBICIDES				-					
МСРА			2.14E-07	2	50	5	25	1,825	25,550
EQUATION:	Intake (mg/kg	-day) =	CA x IR x EI BW x AT						
	Variables:					Assumptions:			

Calculated EPC Air Data - RME

5 x 365 (Nc) 70 x 365 (Car)

2 (RME Child) 50

25 (Child)

5

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr)

AT = Averaging Time (days)

BW = Bodyweight (kg)

ED = Exposure Duration (years)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			2000			
Benzene		5 OFF 14	NA	NA		
	0.005.00	5.95E-14	NA	2.91E-02		1.73E-15
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	2.74E-12		1.14E-01	NA	2.40E-11	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA NA	NA NA		I.
2-Methylphenol			NA NA	NA NA		
3,3'-Dichlorobenzidine			NA NA	NA NA		
3-Nitroaniline			NA NA	NA NA		
4-Nitroaniline			NA NA	NA NA		
Acenaphthene			NA NA	NA NA		
Acenaphthylene			NA NA	NA NA		
Anthracene			NA NA	NA NA		
Benzo(a)anthracene			NA NA	1000000		
Benzo(a)pyrene			70000000	NA		
Benzo(b)fluoranthene			NA NA	NA		
Benzo(g,h,i)perylene			NA NA	NA		
Benzo(k)fluoranthene			(C) (C) (C)	NA		
Butylbenzylphthalate			NA	NA		
Carbazole	7		NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		1
Dibenz(a,h)anthracene			NA	NA	8	
Dibenzofuran			NA	NA		
luoranthene			NA	NA		
4.0 Tr (37 Tr (3	1		NA	NA		
Fluorene			NA	NA		
ndeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene		3	NA	NA		
yrene	0.000	1	NA	NA	prepagation	
vis(2-Chloroisopropyl) ether vis(2-Ethylhexyl)phthalate	9.22E-11		1.00E-03 NA	NA NA	9.22E-08	
PESTICIDES/PCB			2356	2113		
,4'-DDD			NA	NA		
,4'-DDE		1	NA NA	NA NA		
,4'-DDT		1.04E-13	. NA	3.40E-01		3.53E-14
Aldrin	5.66E-13	4.04E-14	1.70E+01	1.72E+01	3.33E-14	6.93E-13
aroclor-1260			NA NA	NA NA	3.331-14	0.73E-13
Dieldrin		1.27E-13	NA NA	1.61E+01		2.05E-12
indosulfan I			NA NA	NA NA		2.03E-12
indosulfan sulfate			NA	NA		
indrin			NA	NA		
indrin ketone			NA	NA		
leptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
lpha-Chlordane		5.002.00	NA NA	NA NA		0.00E+00
eta-BHC		4.50E-14	NA NA	1.86E+00		8.36E-14
elta-BHC		1.505-14	NA NA	NA NA		0.30E-14

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Thallium Zinc	5.22E-08 4.62E-11	1.65E-10 6.13E-11	NA 1.43E-04 NA NA NA 8.57E-05 NA NA NA	1.51E+01 NA 6.30E+00 NA NA NA NA NA NA	3.65E-04 5.39E-07	2.48E-09 3.86E-10
HERBICIDES MCPA Total HQ & CR			NA	NA	3.66E-04	2.87E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 7-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME)

GOV MOVIE	SURFACE SOIL	AVERAGE	CONVERSION	AIR
COMPOUND	EPC Data	TSP	FACTOR	CALCULATED EPO
	mg/kg	(ug/m³)	(kg/ug)	(mg/m³)
VOLATILE ORGANICS				
Acetone	6.98E-03	3.80E+01	1.00E-09	2.65E-10
Benzene	2.00E-03	3.80E+01	1.00E-09	7.60E-11
Methylene Chloride	0.00E+00	3.80E+01	1.00E-09	0.00E+00
Toluene	6.59E-03	3.80E+01	1.00E-09	2.50E-10
SEMIVOLATILE ORGANICS				
2,4-Dinitrotoluene	2.79E-01	3.80E+01	1.00E-09	1.06E-08
2,6-Dinitrotoluene	0.00E+00	3.80E+01	1.00E-09	0.00E+00
2-Methylnaphthalene	1.30E-01	3.80E+01	1.00E-09	4.94E-09
2-Methylphenol	0.00E+00	3.80E+01	1.00E-09	0.00E+00
3,3'-Dichlorobenzidine	2.47E-01	3.80E+01	1.00E-09	9.39E-09
3-Nitroaniline	5.98E-01	3.80E+01	1.00E-09	2.27E-08
4-Nitroaniline	5.98E-01	3.80E+01	1.00E-09	2.27E-08
Acenaphthene	3.30E-02	3.80E+01	1.00E-09	1.25E-09
Acenaphthylene Anthracene	9.60E-02	3.80E+01	1.00E-09	3.65E-09
Anthracene Benzo(a)anthracene	1.30E-01	3.80E+01	1.00E-09	4.94E-09
(C. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	3.44E-01	3.80E+01	1.00E-09	1.31E-08
Benzo(a)pyrene Benzo(b)fluoranthene	3.80E-01	3.80E+01	1.00E-09	1.44E-08
Benzo(g,h,i)perylene	3.72E-01	3.80E+01	1.00E-09	1.41E-08
Benzo(k)fluoranthene	3.06E-01	3.80E+01	1.00E-09	1.16E-08
Butylbenzylphthalate	2.95E-01	3.80E+01	1.00E-09	1.12E-08
Carbazole	4.60E-02	3.80E+01	1.00E-09	1.75E-09
Chrysene	2.56E-01	3.80E+01	1.00E-09	9.72E-09
Di-n-butylphthalate	3.25E-01	3.80E+01	1.00E-09	1.23E-08
Dibenz(a,h)anthracene	2.94E-01 2.84E-01	3.80E+01	1.00E-09	1.12E-08
Dibenzofuran	3.60E-02	3.80E+01	1.00E-09	1.08E-08
Fluoranthene	3.25E-01	3.80E+01 3.80E+01	1.00E-09	1.37E-09
Fluorene	3.80E-02	3.80E+01	1.00E-09	1.24E-08
ndeno(1,2,3-cd)pyrene	3.29E-01	3.80E+01	1.00E-09	1.44E-09
N-Nitrosodiphenylamine (1)	9.50E-02	3.80E+01	1.00E-09	1.25E-08
Naphthalene	3.70E-02	3.80E+01	1.00E-09	3.61E-09
Pentachlorophenol	6.60E-01	3.80E+01	1.00E-09 1.00E-09	1.41E-09
Phenanthrene	3.19E-01	3.80E+01	1.00E-09 1.00E-09	2.51E-08 1.21E-08
Pyrene	3.01E-01	3.80E+01	1.00E-09	1.14E-08
ois(2-Chloroisopropyl) ether	2.21E-01	3.80E+01	1.00E-09	8.41E-09
pis(2-Ethylhexyl)phthalate	3.28E-01	3.80E+01	1.00E-09	1.25E-08
PESTICIDES/PCB				
1,4'-DDD	3.00E-03	3.80E+01	1.00E-09	1.14E-10
1,4'-DDE	5.78E-03	3.80E+01	1.00E-09	2.20E-10
1,4'-DDT	3.49E-03	3.80E+01	1.00E-09	1.33E-10
Aldrin	1.36E-03	3.80E+01	1.00E-09	5.17E-11
Aroclor-1260	2.58E-02	3.80E+01	1.00E-09	9.82E-10
Dieldrin	4.28E-03	3.80E+01	1.00E-09	1.63E-10
endosulfan I	4.02E-03	3.80E+01	1.00E-09	1.53E-10
Endosulfan sulfate	2.61E-03	3.80E+01	1.00E-09	9.92E-11
endrin	3.16E-03	3.80E+01	1.00E-09	1.20E-10
Endrin ketone	3.45E-03	3.80E+01	1.00E-09	1.31E-10
leptachlor epoxide	0.00E+00	3.80E+01	1.00E-09	0.00E+00
lpha-Chlordane	1.06E-03	3.80E+01	1.00E-09	4.03E-11
peta-BHC	1.51E-03	3.80E+01	1.00E-09	5.74E-11
lelta-BHC	1.37E-03	3.80E+01	1.00E-09	5.21E-11

TABLE 7-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME)

COMPOUND	SURFACE SOIL EPC Data mg/kg	AVERAGE TSP (ug/m³)	CONVERSION FACTOR (kg/ug)	AIR CALCULATED EPC (mg/m³)
METALS			No.	
Arsenic	5.54E+00	3.80E+01	1.00E-09	2.11E-07
Barium	1.25E+02	3.80E+01	1.00E-09	4.76E-06
Cadmium	2.06E+00	3.80E+01	1.00E-09	7.83E-08
Copper	6.24E+01	3.80E+01	1.00E-09	2.37E-06
Lead	6.19E+02	3.80E+01	1.00E-09	2.35E-05
Mercury	1.11E-01	3.80E+01	1.00E-09	4.22E-09
Selenium	1.16E+00	3.80E+01	1.00E-09	4.40E-08
Silver	7.50E-01	3.80E+01	1.00E-09	2.85E-08
Thallium	6.10E-01	3.80E+01	1.00E-09	2.32E-08
Zinc	1.54E+02	3.80E+01	1.00E-09	5.85E-06
HERBICIDES				
МСРА	5.63E+00	3.80E+01	1.00E-09	2.14E-07
EQUATION:	Calculated Air EPC	C(mg/m3) = So	il EPC x TSP x CF	10000
	Variables:		Assumptions:	
	TSP = Total Suspen		s Average value - 3 10-9 kg/ug	8 ug/m3

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime ays)
	5051 5 838	3 7 7 7	2 5 5	3 550			(8)	Nc	Car
VOLATILE ORGANICS									
Acetone			2 (55 10				2220	Paratists	520/02/20
Benzene		4.050.10	2.65E-10	20	20	25	70	9,125	25,550
	0.000.00	4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
Toluene	3.92E-12		2.50E-10	20	20	25	70	9,125	25,550
SEMIVOLATILE ORGANICS									
.4-Dinitrotoluene			1.06E-08	20	20	25	70	9,125	25,550
2,6-Dinitrotoluene			0.00E+00	20	20	25	70	9,125	100000000000000000000000000000000000000
2-Methylnaphthalene			4.94E-09	20	20	25	70	515 St. 55 St.	25,550
2-Methylphenol			0.00E+00	20	20	25		9,125	25,550
3,3'-Dichlorobenzidine							70	9,125	25,550
3-Nitroaniline			9.39E-09	20	20	25	70	9,125	25,550
			2.27E-08	20	20	25	70	9,125	25,550
-Nitroaniline			2.27E-08	20	20	25	70	9,125	25,550
Acenaphthene			1.25E-09	20	20	25	70	9,125	25,550
Acenaphthylene			3.65E-09	20	20	25	70	9,125	25,550
Anthracene			4.94E-09	20	20	25	70	9,125	25,550
Benzo(a)anthracene	1 1		1.31E-08	20	20	25	70	9,125	25,550
Benzo(a)pyrene	1 1		1.44E-08	20	20	25	70	9,125	25,550
Benzo(b)fluoranthene			1.41E-08	20	20	25	70	1004000000	
Benzo(g,h,i)perylene		1	1.16E-08	20	20	25		9,125	25,550
Benzo(k)fluoranthene							70	9,125	25,550
Butylbenzylphthalate			1.12E-08	20	20	25	70	9,125	25,550
Carbazole			1.75E-09	20	20	25	70	9,125	25,550
			9.72E-09	20	20	25	70	9,125	25,550
Chrysene			1.23E-08	20	20	25	70	9,125	25,550
Di-n-butylphthalate		1	1.12E-08	20	20	25	70	9,125	25,550
Dibenz(a,h)anthracene			1.08E-08	20	20	25	70	9,125	25,550
Dibenzofuran	1 1		1.37E-09	20	20	25	70	9,125	25,550
luoranthene			1.24E-08	20	20	25	70	9,125	25,550
luorene			1.44E-09	20	20	25	70	9,125	25,550
ndeno(1,2,3-cd)pyrene			1.25E-08	20	20	25	70	9,125	
I-Nitrosodiphenylamine (1)			3.61E-09	20	20	25	70		25,550
laphthalene			1.41E-09	20	20			9,125	25,550
entachlorophenol						25	70	9,125	25,550
henanthrene	1		2.51E-08	20	20	25	70	9,125	25,550
[전투] (C. 1) 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1		1.21E-08	20	20	25	70	9,125	25,550
yrene	1 222212		1.14E-08	20	20	25	70	9,125	25,550
is(2-Chloroisopropyl) ether	1.32E-10		8.41E-09	20	20	25	70	9,125	25,550
is(2-Ethylhexyl)phthalate			1.25E-08	20	20	25	70	9,125	25,550
PESTICIDES/PCB									
,4'-DDD			1.14E-10	20	20	25	70	9,125	25,550
,4'-DDE	1		2.20E-10	20	20	25	70	9,125	25,550
,4'-DDT		7.42E-13	1.33E-10	20	20	25	70	9,125	25,550
ldrin	8.09E-13	2.89E-13	5.17E-11	20	20	25	70	9,125	25,550
roclor-1260			9.82E-10	20	20	25	70	9,125	25,550
ieldrin		9.10E-13	1.63E-10	20	20	25	70	9,125	25,550
ndosulfan I			1.53E-10	20	20	25	70	9,125	
ndosulfan sulfate	1		9.92E-11	20	20				25,550
ndrin	1	1				25	70	9,125	25,550
			1.20E-10	20	20	25	70	9,125	25,550
ndrin ketone			1.31E-10	20	20	25	70	9,125	25,550
leptachlor epoxide		0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
lpha-Chlordane			4.03E-11	20	20	25	70	9,125	25,550
eta-BHC		3.21E-13	5.74E-11	20	20	25	70	9,125	25,550
elta-BHC	1 1		5.21E-11	20	20	25	70	9,125	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(mg/ng dm))	(Nc	Car
METALS							17/2		
Arsenic		1.18E-09	2.11E-07	20	20	25	70	9,125	25,550
Barium	7.45E-08	11102	4.76E-06	20	20	25	70	9,125	25,550
Cadmium	7.152.00	4.38E-10	7.83E-08	20	20	25 25	70	9,125	25,550
		1.502.10	2.37E-06	20	20	25	70	9,125	25,550
Copper Lead			2.35E-05	20	20	25	70 70	9,125	25,550
Mercury	6.60E-11		4.22E-09	20	20	25	70	9,125	25,550
Selenium	0.002-11		4.40E-08	20	20	25	70	9,125	25,550
Silver			2.85E-08	20	20		70	9,125	25,550
			2.32E-08	20	20	25 25	70	9,125	25,550
Thallium Zinc			5.85E-06	20	20	25	70	9,125	25,550
HERBICIDES							- 1		
МСРА			2.14E-07	20	20	25	70	9,125	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)

BW = Bodyweight (kg)

AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME

20 (RME All Receptors)

20 (RME Site Worker)

25 (RME Site Worker) 70 (Adult Male)

25 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						-
Acetone			NA	NA		
Benzene		4.25E-13	NA	2.91E-02		1.24E-14
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	3.92E-12	Coverse sis	1.14E-01	NA	3.43E-11	0.002100
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA NA	NA NA		
2-Methylnaphthalene		1	NA NA	20020000		
2-Methylphenol			NA NA	NA NA		
3,3'-Dichlorobenzidine			NA NA	NA NA		
3-Nitroaniline			NA NA	NA NA		
4-Nitroaniline			100	NA NA		
Acenaphthene			NA	NA NA		
Acenaphthylene			NA	NA NA		1
Anthracene			NA	NA NA		
Benzo(a)anthracene			NA	NA NA		
Benzo(a)pyrene			NA	NA NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		
Chrysene	- 1		NA	NA		
Di-n-butylphthalate	1	1	NA	NA		
Dibenz(a,h)anthracene	1		NA	NA		
Dibenzofuran	- 1		NA NA	NA		
Fluoranthene	- 1		NA	NA		
Fluorene			NA	NA		
ndeno(1,2,3-cd)pyrene			NA NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene	1		NA NA	NA		
Pentachlorophenol			NA NA	NA		
Phenanthrene			12.00	NA NA		
Pyrene			NA NA	NA NA		
is(2-Chloroisopropyl) ether	1.32E-10		1.00E-03	NA NA	1 227 07	
is(2-Ethylhexyl)phthalate			NA	NA NA	1.32E-07	
PESTICIDES/PCB						
,4'-DDD			NA	NA		
,4'-DDE	1		NA	NA		
,4'-DDT		7.42E-13	NA	3.40E-01		2.52E-13
Aldrin	8.09E-13	2.89E-13	1.70E+01	1.72E+01	4.76E-14	4.95E-12
roclor-1260		3.5	NA	NA		00000000000000000000000000000000000000
Dieldrin		9.10E-13	NA	1.61E+01		1.47E-11
ndosulfan I			NA	NA	1	10,150,0000 (0.00)
ndosulfan sulfate			NA	NA		
ndrin			NA	NA		
ndrin ketone			NA	NA		
leptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
pha-Chlordane			NA	NA		
eta-BHC		3.21E-13	NA	1.86E+00		5.97E-13
elta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS				18.1M/		
Arsenic		1.18E-09	NA	1.51E+01		1.77E-08
Barium	7.45E-08	POR UNDERSTOOM OF	1.43E-04	NA NA	5.22E-04	2.76E-09
Cadmium	C THE	4.38E-10	NA	6.30E+00		2.76E-09
Copper			NA	NA NA		
Lead			NA 9 57E 05	NA NA	7.70E-07	
Mercury	6.60E-11		8.57E-05 NA	NA NA	7.70L-07	
Selenium			NA NA	NA NA		
Silver			NA NA	NA NA		
Thallium			NA	NA		
Zinc			110-05/00/			
HERBICIDES						
МСРА			NA	NA		
Total HQ & CR					5.22E-04	2.05E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Ti	aging me ays) Car
VOLATILE ORGANICS								INC	Car
¥6-216			0.480.40		250		=0	265	
Acetone			2.65E-10	20	250	1	70	365	25,550
Benzene		2.12E-13	7.60E-11	20	250	1	70	365	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20	250	1	70	365	25,550
Toluene	4.90E-11		2.50E-10	20	250	1	70	365	25,550
SEMIVOLATILE ORGANI	cs								
2,4-Dinitrotoluene			1.06E-08	20	250	1	70	365	25,550
2,6-Dinitrotoluene			0.00E+00	20	250	i	70	365	25,550
				20	250	i	70	17024077744	
2-Methylnaphthalene			4.94E-09		200000000000000000000000000000000000000			365	25,550
2-Methylphenol			0.00E+00	20	250	1	70	365	25,550
3,3'-Dichlorobenzidine			9.39E-09	20	250	1	70	365	25,550
3-Nitroaniline			2.27E-08	20	250	1	70	365	25,550
4-Nitroaniline			2.27E-08	20	250	1	70	365	25,550
Acenaphthene			1.25E-09	20	250	1	70	365	25,550
Acenaphthylene			3.65E-09	20	250	1	70	365	25,550
Anthracene			4.94E-09	20	250	1	70	365	25,550
Benzo(a)anthracene			1.31E-08	20	250	1	70	365	25,550
Benzo(a)pyrene			1.44E-08	20	250	i	70	365	25,550
	1		1.44E-08	20	250	1	70	365	
Benzo(b)fluoranthene			25 THOUSE AND A STATE OF THE PARTY OF THE PA	525.55	17375 S.S.	1.5		(5) (5,00)	25,550
Benzo(g,h,i)perylene			1.16E-08	20	250	1	70	365	25,550
Benzo(k)fluoranthene			1.12E-08	20	250	1	70	365	25,550
Butylbenzylphthalate			1.75E-09	20	250	1	70	365	25,550
Carbazole			9.72E-09	20	250	1	70	365	25,550
Chrysene			1.23E-08	20	250	1	70	365	25,550
Di-n-butylphthalate			1.12E-08	20	250	1	70	365	25,550
Dibenz(a,h)anthracene			1.08E-08	20	250	1	70	365	25,550
Dibenzofuran			1.37E-09	20	250	i	70	365	25,550
Fluoranthene			1.24E-08	20	250	i	70	365	
								19658330	25,550
Fluorene			1.44E-09	20	250	1	70	365	25,550
Indeno(1,2,3-cd)pyrene			1.25E-08	20	250	1	70	365	25,550
N-Nitrosodiphenylamine (1)			3.61E-09	20	250	1	70	365	25,550
Naphthalene			1.41E-09	20	250	1	70	365	25,550
Pentachlorophenol			2.51E-08	20	250	1	70	365	25,550
Phenanthrene			1.21E-08	20	250	1	70	365	25,550
Pyrene		1	1.14E-08	20	250	1	70	365	25,550
bis(2-Chloroisopropyl) ether	1.65E-09		8.41E-09	20	250	î	70	365	25,550
bis(2-Ethylhexyl)phthalate			1.25E-08	20	250	i	70	365	25,550
PESTICIDES/PCB									
4,4'-DDD			1.14E-10	20	250	1	70	365	25,550
4,4'-DDE			2.20E-10	20	250	1	70	365	25,550
4,4'-DDT		3.71E-13	1.33E-10	20	250	î	70	365	25,550
Aldrin	1.01E-11	1.44E-13	5.17E-11	20	250	1	70	365	25,550
	1.01E-11	1.446-13			2000000	1		100-2005-0	
Aroclor-1260		4.650.10	9.82E-10	20	250	1	70	365	25,550
Dieldrin		4.55E-13	1.63E-10	20	250	1	70	365	25,550
Endosulfan I			1.53E-10	20	250	1	70	365	25,550
Endosulfan sulfate			9.92E-11	20	250	1	70	365	25,550
Endrin			1.20E-10	20	250	1	70	365	25,550
Endrin ketone			1.31E-10	20	250	1	70	365	25,550
Heptachlor epoxide		0.00E+00	0.00E+00	20	250	1	70	365	25,550
alpha-Chlordane		.010020100	4.03E-11	20	250	î	70	365	25,550
		1.61E-13	5.74E-11	20	250	i	70	365	25,550
beta-BHC delta-BHC		1.01E-13	5.21E-11	20	250	i	70	365	25,550
				. /(1			/11	3073	. /2 22

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
	((,					Nc	Car
METALS							P. 10.		
Arsenic		5.89E-10	2.11E-07	20	250	1	70	365	25,550
Barium	9.31E-07	Lindon Annual III	4.76E-06	20	250	1	70	365	25,550
Cadmium	1,532,533,00	2.19E-10	7.83E-08	20	250	1	70	365	25,550
Copper			2.37E-06	20	250	1	70	365	25,550
Lead			2.35E-05	20	250	1	70	365	25,550
Mercury	8.25E-10		4.22E-09	20	250	1	70	365	25,550
Selenium			4.40E-08	20	250	1	70	365	25,550
Silver			2.85E-08	20	250	1	70	365	25,550
Γhallium			2.32E-08	20	250	1	70	365	25,550
Zinc			5.85E-06	20	250	1	70	365	25,550
HERBICIDES							-		
MCPA			2.14E-07	20	250	1	70	365	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day)

EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years) BW = Bodyweight (kg)

AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME

20 (all receptors)

250 (RME Construction Workers)

1 (Upper bound period of Construction Worker)

70 (Adult Male)

1 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			NA	NA		
Benzene		2.12E-13	NA	2.91E-02		6.18E-15
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	4.90E-11		1.14E-01	NA	4.29E-10	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA NA		
bis(2-Chloroisopropyl) ether	1.65E-09		1.00E-03	NA	1.65E-06	
ois(2-Ethylhexyl)phthalate			NA	NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE		a new comme	NA	NA		0.0000000000000000000000000000000000000
4,4'-DDT		3.71E-13	NA	3.40E-01		1.26E-13
Aldrin	1.01E-11	1.44E-13	1.70E+01	1.72E+01	5.95E-13	2.48E-12
Aroclor-1260			NA	NA		
Dieldrin		4.55E-13	NA	1.61E+01		7.33E-12
Endosulfan I			NA	NA		
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin ketone		0.222	NA	NA		
Heptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
alpha-Chlordane		Transportation and	NA	NA		202222000
beta-BHC		1.61E-13	NA	1.86E+00		2.99E-13
delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic		5.89E-10	NA	1.51E+01	6 50E 02	8.86E-09
Barium	9.31E-07	2 105 10	1.43E-04 NA	NA 6.30E+00	6.52E-03	1.38E-09
Cadmium		2.19E-10	NA NA	NA NA		1.502 0
Copper			NA	NA		
Lead Mercury	8.25E-10		8.57E-05	NA	9.63E-06	4
Selenium	1000000000		NA	NA		
Silver			NA	NA NA		
Thallium			NA NA	NA NA		
Zinc			NA.	NA		
HERBICIDES						9
МСРА			NA	NA		
Total HQ & CR					6.53E-03	1.02E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate	Exposure Frequency	Exposure Duration	Body Weight	T	aging
	(mg/kg-day)	(mg/kg-day)	(mg/m^3)	(m³/day)	(days/year)	(years)	(kg)		ays)
VOLATILE ODCANICE	M 40 MAX 1000	0 000 10 000					7.5.00	Nc	Car
VOLATILE ORGANICS									
Acetone			2.65E-10	20	250	25	70	9,125	25,55
Benzene		5.31E-12	7.60E-11	20	250	25	70	9,125	25,55
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20	250	25	70	9,125	25,55
Toluene	4.90E-11	100000000000000000000000000000000000000	2.50E-10	20	250	25	70	9,125	25,55
SEMIVOLATILE ORGANICS									
2,4-Dinitrotoluene			1.06E-08	20	250	25	70	9,125	25,55
2,6-Dinitrotoluene			0.00E+00	20	250	25	70	9,125	25,55
2-Methylnaphthalene			4.94E-09	20	250	25	70	9,125	25,55
2-Methylphenol			0.00E+00	20	250	25	70	9,125	25,55
3,3'-Dichlorobenzidine			9.39E-09	20	250	25	70	9,125	25,55
3-Nitroaniline			2.27E-08	20	250	25	70	9,125	25,55
4-Nitroaniline			2.27E-08 2.27E-08	20	250	25	70	9,125	
									25,55
Acenaphthene			1.25E-09	20	250	25	70	9,125	25,55
Acenaphthylene			3.65E-09	20	250	25	70	9,125	25,55
Anthracene			4.94E-09	20	250	25	70	9,125	25,55
Benzo(a)anthracene			1.31E-08	20	250	25	70	9,125	25,55
Benzo(a)pyrene			1.44E-08	20	250	25	70	9,125	25,55
Benzo(b)fluoranthene			1.41E-08	20	250	25	70	9,125	25,55
Benzo(g,h,i)perylene			1.16E-08	20	250	25	70	9,125	25,55
Benzo(k)fluoranthene		98	1.12E-08	20	250	25	70	9,125	25,55
Butylbenzylphthalate			1.75E-09	20	250	25	70	9,125	25,55
Carbazole			9.72E-09	20	250	25	70	9,125	25,55
Chrysene			1.23E-08	20	250	25	70	9,125	25,55
Di-n-butylphthalate			1.12E-08	20	250	25	70	9,125	25,55
Dibenz(a,h)anthracene			1.08E-08	20	250	25	70	9,125	25,55
Dibenzofuran			1.37E-09	20	250	25	70	9,125	25,55
Fluoranthene			1.24E-08	20	250	25	70	9,125	25,55
Fluorene			1.44E-09	20	250	25	70	9,125	25,55
Indeno(1,2,3-cd)pyrene			1.25E-08	20	250	25	70	9,125	25,55
N-Nitrosodiphenylamine (1)			3.61E-09	20	250	25	70	9,125	25,55
Naphthalene			1.41E-09	20	250	25	70	9,125	25,55
Pentachlorophenol			2.51E-08	20	250	25	70	9,125	25,55
Phenanthrene			1.21E-08	20	250	25	70	9,125	25,55
Pyrene			1.14E-08	20	250	25	70	9,125	25,55
bis(2-Chloroisopropyl) ether	1.65E-09		8.41E-09	20	250	25	70	9,125	25,55
bis(2-Ethylhexyl)phthalate	1.002.00		1.25E-08	20	250	25	70	9,125	25,55
PESTICIDES/PCB									
4,4'-DDD			1.14E-10	20	250	25	70	9,125	25,55
4,4'-DDE			2.20E-10	20	250	25	70	9,125	25,55
4,4'-DDT		9.28E-12	1.33E-10	20	250	25	70	9,125	25,55
Aldrin	1.01E-11	3.61E-12	5.17E-11	20	250	25	70	9,125	25,55
Aroclor-1260	1.015-11	5.015-12	9.82E-10	20	250	25	70	9,125	25,55
Dieldrin		1.14E-11	1.63E-10	20	250	25	70	9,125	25,55
Endosulfan I		1.14E-11	1.53E-10 1.53E-10	20	250	25	70	9,125	25,55
			9.92E-11	20	250	25	70		
Endosulfan sulfate					250		70	9,125	25,55
Endrin Gadain batana			1.20E-10	20		25		9,125	25,55
Endrin ketone		0.005.00	1.31E-10	20	250	25	70	9,125	25,55
Heptachlor epoxide		0.00E+00	0.00E+00	20	250	25	70	9,125	25,55
alpha-Chlordane			4.03E-11	20	250	25	70	9,125	25,55
beta-BHC		4.01E-12	5.74E-11	20	250	25	70	9,125	25,55
lelta-BHC			5.21E-11	20	250	25	70	9,125	25,55

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	(Car) Air Rate Frequency Duration Weig	A 100 CONTRACTOR OF THE PARTY O	Frequency		Body Weight (kg)	t Time (days)		
	(mg/kg-day)	(mg/kg-du)/	()	(, , , ,			Nc	Car
METALS		-111						E VIL IV	
Amouto		1.47E-08	2.11E-07	20	250	25	70	9,125	25,550
Arsenic	9.31E-07	1.472 00	4.76E-06	20	250	25	70	9,125	25,550
Barium	9.516-07	5.47E-09	7.83E-08	20	250	25	70	9,125	25,550
Cadmium		J.47L-07	2.37E-06	20	250	25	70	9,125	25,550
Copper			2.35E-05	20	250	25	70	9,125	25,550
Lead	8.25E-10		4.22E-09	20	250	25	70	9,125	25,550
Mercury	8.23E-10		4.40E-08	20	250	25	70	9,125	25,550
Selenium			2.85E-08	20	250	25	70	9,125	25,550
Silver		100	2.32E-08	20	250	25	70	9,125	25,550
Thallium Zinc		15	5.85E-06	20	250	25	70	9,125	25,550
HERBICIDES				9					
MCPA			2.14E-07	20	250	25	70	9,125	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m3/day) EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)

BW = Bodyweight (kg)

AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME 20 (all receptors)

250 (RME Industrial Workers)

70 (Adult Male)

5 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone	1 0		NA	NA		
Benzene		5.31E-12	NA	2.91E-02		1.55E-13
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	4.90E-11		1.14E-01	NA	4.29E-10	350000000000000000000000000000000000000
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene	1		NA	NA		
2-Methylphenol			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		1
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		1
Acenaphthene			NA	NA		1
Acenaphthylene			NA	NA		1
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		1
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		1
Dibenzofuran			NA	NA		1
Fluoranthene			NA	NA		
Fluorene			NA	NA		
ndeno(1,2,3-cd)pyrene			NA	NA		1
N-Nitrosodiphenylamine (1)			NA	NA		1
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		
ois(2-Chloroisopropyl) ether	1.65E-09		1.00E-03	NA	1.65E-06	1
pis(2-Ethylhexyl)phthalate			NA	NA		
PESTICIDES/PCB						
1,4'-DDD			NA	NA		
4,4'-DDE	1		NA	NA		
4,4'-DDT	1	9.28E-12	NA	3.40E-01		3.15E-12
Aldrin	1.01E-11	3.61E-12	1.70E+01	1.72E+01	5.95E-13	6.19E-11
Aroclor-1260		73077200	NA	NA		
Dieldrin		1.14E-11	NA	1.61E+01		1.83E-10
Endosulfan I	1	1	NA	NA		
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin ketone			NA	NA		
leptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
lpha-Chlordane	1	OF SHOWING	NA	NA		
peta-BHC	1 1	4.01E-12	NA	1.86E+00		7.47E-12
lelta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS				Tipe.	market in the	
Arsenic		1.47E-08	NA	1.51E+01	Author and Alexandr from a	2.21E-07
Barium	9.31E-07	HUE .	1.43E-04	NA	6.52E-03	
Cadmium	11000 2	5.47E-09	NA	6.30E+00	A A STATE	3.45E-08
Copper			NA	NA		
Lead	30000000		NA	NA	0.635.06	
Mercury	8.25E-10		8.57E-05	NA NA	9.63E-06	
Selenium			NA NA	NA NA		
Silver			NA NA	NA NA		
Thallium			NA NA	NA NA		
Zinc			INA	11/1		
HERBICIDES						10
МСРА			NA	NA		4
Total HQ & CR	7 14				6.53E-03	2.56E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

- X	

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TABLE 7-38

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading)
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE I
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte		Volatile Organics	Acetone	Semivolatile Organica	4-Dimethylphenol	2,4-Dinitrotoluene	Senzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Senzo(k)fluoranthene	hrysene	Tuorantnene	ndeno(1,2,3-cd.pyrene	yrene	ois(2-Ethylhexyl)phthalate	Pesticides	1,4'-DDD	4.4-DDE	Dieldrin	Endosulfan I Endosulfan II
Child Absorbed Dose (Nc) (mg/kg-day)																				
Child Absorbed Dose (Car) (mg/kg-day)																				
EPC Sediment (mg/kg)	1		1.44E-02 8.00E-03		3.20E-02	3.14E-01 2.50E-02	3.00E-02	4.30E-02	3.10E-02	3.30E-02	4.80E-02	2 40E-02	3.50E-02	4.70E-02	7.70E-02		6.46E-03	4.82E-02	3.26E-03	1.43E-03 3.05E-03
Conv. Factor (kg/mg)			1.0E-06 1.0E-06		1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.05-06	1.05-06	1.0E-06	1.0E-06	1.0E-06		1.0E-06	1.0E-06	1.0E-06	1.0E-06
Child Skin Surface Area Contact (cm ² /event)			2,170		2,170	2,170	2,170	2,170	2,170	2,170	2,170	0,1,0	2,170	2,170	2,170		2,170	2,170	2,170	2,170
Adherence Factor (mg sed/cm²)			0.1		1.0	0.0	1.0	1.0	0.1	0.0	0.0	9 5	0.1	1.0	1.0		1.0	0.0	0.1	0.1
Absorption Factor (unidess)																				
Exposure Frequency (events/year)			22 52		25	2 22	23 1	25	25	9 %	2 %	3 %	25	25	25		52	52 52	25.1	2 22
Child Exposure Duration (years)			s s		81	o v	۰ ۷۰	5	v, v	0.4	n v	۰ ۷	· v	2	5		5	n v1	8	n n
Child Body Weight (kg)			25		25	2 2	25	25	25	3 2	2 %	3,5	22 23	25	25		25	2 22	22	2 22
Averaging Time (days)	Child(Nc)		1,825		1,825	1,825	1,825	1,825	1,825	578.1	278,1	2281	1,825	1,825	1,825		1,825	1,825	1,825	1,825
ging s)	Car		25,550		25,550	25.550	25,550	25,550	25,550	00000	25,550	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading)

FUTURE TRESSPASSER (Child)

REASONABLE MAXIMUM EXPOSURE (RME)

CASE I

SEAD-17 Remedial Investigation

Seneca Army Depot Activity

Analyte	Absorbed Dose (Nc)	Absorbed Dose (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg sed/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(0.0.)))	1							Child(Nc)	Car
Metals												
			1 83F+04	1 0F-06	2 170	1.0		25	s	25	1,825	25,550
mnumn			\$ 50F+00	1 0E-06	2,170	10		25	\$	25	1,825	25,550
Antimony			6 10E+00	1.0E-06	2,170	1.0		25	s	25	1,825	25,550
Arsenic			1.32E+02	1.0E-06	2,170	1.0		25	8	25	1,825	25,550
Bandlin			7.64E-01	1.0E-06	2,170	1.0		25	\$	25	1,825	25,550
Cadmium	1.43E-07		2.40E+00	1.0E-06	2,170	1.0	0.01	25	S	25	1,825	25,550
Calcium			1.08E+04	1.0E-06	2,170	1.0	6000000	25	v	25	1,825	25,550
Chrominm			2.47E+01	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Cobalt			1.26E+01	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Conner			1.33E+02	1.0E-06	2,170	1.0		25	s	25	1,825	25,550
Iron			2.94E+04	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Lead			6.83E+02	1.0E-06	2,170	1.0		25	\$	25	1,825	25,550
Mamerium			5.54E+03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Managarata			\$ 32E+02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Agreem			8.11E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Michal			3 16E+01	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Potestiim			2.18E+03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Colonium			1 27E+00	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Sodium			4.27E+02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Southing The Hinne			8 24F-01	1 0E-06	2.170	1.0		25	2	25	1,825	25,550
Vanadim			2 97E+01	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Zinc			1.88E+02	1.0E-06	2,170	1.0		25	\$	25	1,825	25,550
NOLLY				-11								
EQUATION: Abso	Absorbed Dose (mg/kg-day)	- CSICEISAIAFIABSIEFIED BWIAT	BWIAT	FrED								
	Variables:				Assumptions:			Variables:			Assumptions:	
											The country	
	CS = Chemical CF = Conversio SA = Surface Aı AF = Sediment t ABS = Absorpti	CS = Chemical Concentration in Sediment (mg sediment/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Arra Contact (cm²) AF = Sediment to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitless)	Sediment (mg : g/mg)) e Factor (mg/cn	sediment/kg) n²)	EPC - Sediment Data - RME 10-6 2,170 (RME Child) 1.0 (RME all receptors) Compound Specific PCBs an	PPC - Sediment Data - RME 10-6 11.0 (RME Child) 1.0 (RME all receptors) Compound Specific PCBs and Cd. (EPA, 1992b)	i, (EPA, 1992b)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	requency (event buration (years) rt (kg) Time (days)	s/year)	25 (RME) 5 (RME) 25 kg (child) 5 x 365 (Nc), 70 x 365 (Car)	1 x 365 (Car)

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
Acetone			1.00E-01	NA		
Toluene			1.20E-01	NA		
Semivolatile Organics						
2,4-Dimethylphenol			2.00E-02	NA		
2,4-Dinitrotoluene			2.00E-03	NA		
Benzo(a)anthracene		1 1	NA	1.46E+00		
Benzo(a)pyrene		1 1	NA	1.46E+01		
Benzo(b)fluoranthene		1	NA	1.46E+00		
Benzo(g,h,i)perylene		i I	NA	NA		
Benzo(k)fluoranthene		1 1	NA	1.46E+00		
Chrysene		1	NA	1.46E-01		
Fluoranthene		1 i	4.00E-02	NA		
Indeno(1,2,3-cd)pyrene		1 1	NA	1.46E+00		
Phenanthrene		1 1	NA	NA		
Pyrene		1	3.00E-02	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
Pesticides						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE	1	1 1	NA	NA		
4,4'-DDT		t t	5.00E-04	3.40E-01		
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA.		
Endosulfan II			NA	NA		
Metals						
Aluminum			NA	NA		
Antimony			4.00E-04	NA		
Arsenic			2.94E-04	1.79E+00		
Barium			7.00E-03	NA	1	
Beryllium			5.00E-06	4.30E+03		
Cadmium	1.43E-07	1	3.00E-05	NA	4.76E-03	
Calcium			NA	NA		
Chromium			2.50E-04	NA		
Cobalt			NA	NA		
Copper			2.00E-02	NA		
ron			NA	NA		
ead .			NA	NA		
Magnesium	1		NA COPP. 02	NA		
Manganese			5.00E-03	NA		
Mercury Nickel			4.50E-05 1.00E-03	NA NA		
Potassium	l		NA	NA NA		
Selenium			3.00E-03	NA NA		
Sodium			NA	NA NA		
Thallium			7.00E-05	NA I		
Vanadium			7.00E-03	NA I		
Zinc			1.50E-01	NA NA		

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

TABLE 7-36

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Child Ingestion Rate (mg sed/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averagir Time (days)	50
										Nc	Car
Volatile Organics											
Acetone Toluene	7.88E-09 4.38E-09		1.44E-02 8.00E-03	200	1.0E-06 1.0E-06		22 23	νν	25	1,825	25,550
Semivolatile Organics											
2,4-Dimethylphenol	1.75E-08		3.20E-02	200	1.0E-06	-	25	S	25	1,825	25,550
2,4-Dinitrotoluene	1.72E-07	The second second	3.14E-01	200	1.0E-06	-	25	2	25	1,825	25,550
Benzo(a)anthracene		9.78E-10	2.50E-02	200	1.0E-06	1	25	2	25	1,825	25,550
Benzo(a)pyrene		1.17E-09	3.00E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Benzo(b)fluoranthene		1.68E-09	4.30E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Benzo(g,h,i)perylene			3.10E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Benzo(k)fluoranthene		1.29E-09	3.30E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Chrysene		1.88E-09	4.80E-02	200	1.0E-06	-	25	S	25	1,825	25,550
Fluoranthene	3.84E-08		7.00E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Indeno(1,2,3-cd)pyrene		9.39E-10	2.40E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Phenanthrene			3.50E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Pyrene	2.58E-08		4.70E-02	200	1.0E-06	-	25	5	25	1,825	25,550
bis(2-Ethylhexyl)phthalate	4.22E-08	3.01E-09	7.70E-02	200	1.0E-06	-	25	\$	25	1,825	25,550
Pesticides											
4,4'-DDD	3.54E-09	2.53E-10	6.46E-03	200	1.0E-06	-	25	5	25	1,825	25,550
4,4'-DDE			4.82E-02	200	1.0E-06	-	25	5	25	1,825	25,550
4,4'-DDT	2.68E-09	1.92E-10	4.90E-03	200	1.0E-06	-	25	2	25	1,825	25,550
Dieldrin	1.78E-09	1.27E-10	3.26E-03	200	1.0E-06	-	25	2	25	1,825	25,550
Endosulfan I	7.82E-10		1.43E-03	200	1.0E-06	-	25	s	25	1,825	25,550
Endosulfan II			3.05E-03	200	1.0E-06	-	25	5	25	1,825	25,550

TABLE 7-36

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) GASE 1 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Ani	Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Ingestion Rate (mg sed/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
			6 N N		100 NS		28	0.00000	ei G		Nc	Car
Metals												
Aluminum				1.83E+04	200	1.0E-06	H	25	5	25	1,825	25,550
Antimony		3.01E-06		5.50E+00	200	1.0E-06	-	25	S	25	1,825	25,550
Arsenic		3.34E-06	2.39E-07	6.10E+00	200	1.0E-06	_	25	5	25	1,825	25,550
Barium		7.21E-05		1.32E+02	200	1.0E-06	-	25	2	25	1,825	25,550
Beryllium		4.19E-07	2.99E-08	7.64E-01	200	1.0E-06	1	25	2	25	1,825	25,550
Cadmium		1.32E-06		2.40E+00	200	1.0E-06	-	25	8	25	1,825	25,550
Calcium		ON THE PROPERTY OF THE PARTY OF		1.08E+04	200	1.0E-06	_	25	\$	25	1,825	25,550
Chromium		1.35E-05		2.47E+01	200	1.0E-06	-	25	9	25	1,825	25,550
Cobalt				1.26E+01	200	1.0E-06	-	25	2	25	1,825	25,550
Copper		7.31E-05		1.33E+02	200	1.0E-06	-	25	\$	25	1,825	25,550
Iron				2.94E+04	200	1.0E-06	-	25	5	25	1,825	25,550
Lead				6.83E+02	200	1.0E-06	-	25	9	25	1,825	25,550
Magnesium				5.54E+03	200	1.0E-06	-	25	9	25	1,825	25,550
Manganese		2.92E-04		5.32E+02	200	1.0E-06	-	25	2	25	1,825	25,550
Mercury		4.44E-08		8.11E-02	200	1.0E-06	_	25	2	25	1,825	25,550
Nickel		1.73E-05		3.16E+01	200	1.0E-06	_	25	2	25	1,825	25,550
Potassium				2.18E+03	200	1.0E-06	-	25	2	25	1,825	25,550
Selenium		6.94E-07		1.27E+00	200	1.0E-06	_	25	2	25	1,825	25,550
Sodium				4.27E+02	200	1.0E-06	-	25	5	25	1,825	25,550
Thallium		4.51E-07		8.24E-01	200	1.0E-06	-	25	5	25	1,825	25,550
Vanadium		1.63E-05		2.97E+01	200	1.0E-06	-	25	2	25	1,825	25,550
Zinc		1.03E-04		1.88E+02	200	1.0E-06	-	25	2	25	1,825	25,550
EQUATION:	Intak	Intake (mg/kg-day) = CSxIRxCExFlxEFxED BWxAT	CSxIRxCFxI BWxAT	X ELX EE X E	a							
		Variables:						Assumptions:				
		CS = Chemics IR = Ingestion CF = Convers	CS = Chemical Concentration in Sedin IR = Ingestion Rate (mg sediment/day) CF = Conversion Factor (10-6 ke/me)	n in Sediment ment/day) 6 ko/mo)	CS = Chemical Concentration in Sediment (mg sediment/kg) IR = Ingestion Rate (mg sediment/day) CF = Conversion Eactor (10.6 ke/me)	(8)		EPC - Sediment I 200 (RME Child) 10-6	EPC - Sediment Data - RME 200 (RME Child) 10-6			
		FI = Fraction	FI = Fraction Ingested (unitless)	ess)				-				
		EF = Exposur	EF = Exposure Frequency (days/years)	days/years)				25 (RME)				
		BW = Bodyweight (kg)	e Duranon (ye sight (kg)	(c m				25 (Child)				
		AT = Averagi	AT = Averaging Time (days)					5 x 365 (Nc), 70 x 365 (C)	0 x 365 (C)			

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1 SEAD-17 Remedial Investigation Seneca Army Depot Activity

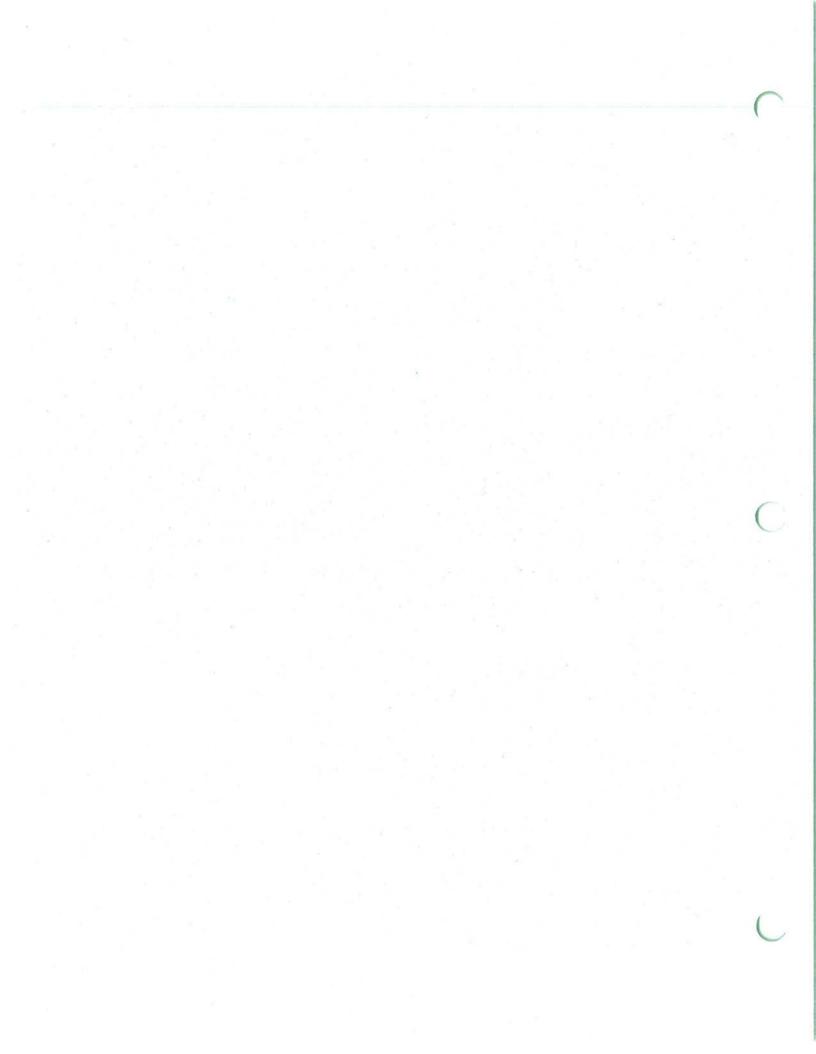
Analyte	Child CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
Acetone	7.88E-09		1.00E-01	NA	7.88E-08	1
Toluene	4.38E-09		2.00E-01	NA	2.19E-08	
Semivolatile Organics						
2,4-Dimethylphenol	1.75E-08		2.00E-02	NA	8.77E-07	
2.4-Dinitrotoluene	1.72E-07		2.00E-03	NA	8.61E-05	N707077780060
Benzo(a)anthracene		9.78E-10	NA	7.30E-01		7.14E-10
Benzo(a)pyrene		1.17E-09	NA	7.30E+00		8.57E-09
Benzo(b)fluoranthene		1.68E-09	NA	7.30E-01		1.23E-09
Benzo(g,h,i)perylene		United by the control of the control	NA	NA		0.425.10
Benzo(k)fluoranthene		1.29E-09	NA	7.30E-01		9.43E-10
Chrysene	505000000	1.88E-09	NA	7.30E-02	0.500.07	1.37E-10
Fluoranthene	3.84E-08	N 68 (20 (20 (20 (20 (20 (20 (20 (20 (20 (20	4.00E-02	NA TARE OF	9.59E-07	6.86E-10
Indeno(1,2,3-cd)pyrene		9.39E-10	NA	7.30E-01		0,80E-10
Phenanthrene	3/12/016/1902		NA	NA NA	8.58E-07	- T
Pyrene	2.58E-08	2 015 00	3.00E-02	NA 1.40E-02	2.11E-06	4.22E-11
ois(2-Ethylhexyl)phthalate	4.22E-08	3.01E-09	2.00E-02	1,40E-02	2.11E-00	4.226-11
Pesticides						
1,4'-DDD	3.54E-09	2.53E-10	5.00E-04	2.40E-01	7.08E-06	6,07E-11
4.4'-DDE	250 G-25 H2 C-25	A March - Country	NA	NA		100 Mary 200
4,4'-DDT	2.68E-09	1.92E-10	5.00E-04	3.40E-01	5.37E-06	6.52E-11
Dieldrin	1.78E-09	1.27E-10	5.00E-05	1.60E+01	3.57E-05	2.04E-09
Endosulfan I	7.82E-10		6.00E-03	NA	1.30E-07	
Endosulfan II	14.00	11/52/	NA	NA		
Metals						
Aluminum			NA	NA		
Antimony	3.01E-06		4.00E-04	NA	7.53E-03	V-0.000-00019
Arsenic	3.34E-06	2.39E-07	3.00E-04	1.75E+00	1.11E-02	4.17E-07
Barium	7.21E-05	069404	7.00E-02	NA	1.03E-03	my constant and
Beryllium	4.19E-07	2.99E-08	5.00E-03	4.30E+00	8.37E-05	1.29E-07
Cadmium	1.32E-06	. 1000000000000000000000000000000000000	5.00E-04	NA	2.63E-03	
Calcium	DOMESTIC OF		NA	NA NA		
Chromium	1.35E-05		5.00E-03	NA	2.70E-03	
Cobalt	100000000000000000000000000000000000000		NA	NA		
Copper	7.31E-05		4.00E-02	NA NA	1.83E-03	
ron	1		NA	NA NA		
Lead			NA	NA NA		13.7
Magnesium			NA COOP OR	NA NA	5.83E-02	10
Manganese	2.92E-04		5.00E-03 3.00E-04	NA NA	1.48E-04	
Mercury	4.44E-08		3.00E-04 2.00E-02	NA NA	8.66E-04	
Nickel	1.73E-05		2.00E-02 NA	NA NA	0.001-04	
Potassium	6.94E-07		5.00E-03	NA NA	1.39E-04	
Selenium	0.94E-07		NA	NA NA	1.022.01	
Sodium	4.51E-07		7.00E-05	NA NA	6.45E-03	
Thallium	1.63E-05		7.00E-03	NA NA	2.33E-03	
Vanadium Zinc	1.03E-04		3.00E-01	NA NA	3.44E-04	
						5.61E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

* 12.1



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TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Child Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Aver TJ	Averaging Time (days)
		-								Nc	Car
VOLATILE ORGANICS											
Acetone	7.64E-09		6.98E-03	200	1.0E-06	-	50	٠	25	1,825	25
Benzene Methylene Chloride		1.57E-10	2.00E-03	200	1.0E-06		20	vo v	25	1,825	25,550
Toluene	7.22E-09		6.59E-03	200	1.0E-06		20	o 40	25	1,825	25
SEMIVOLATILE ORGANICS											
2,4-Dinitrotoluene	3.06E-07		2.79E-01	200	1.0E-06	-	20	5	25	1,825	25
2,6-Dinitrotoluene				200	1.0E-06	-	50	5	25	1,825	25,550
2-Methylnaphthalene			1.30E-01	200	1.0E-06	-	20	5	25	1,825	25,550
2-Methylphenol				200	1.0E-06	1	50	5	25	1,825	25,550
3,3'-Dichlorobenzidine		1.93E-08	2.47E-01	200	1.0E-06	1	50	5	25	1,825	25,550
3-Nitroaniline			5.98E-01	200	1.0E-06	-	50	5	25	1,825	71
4-Nitroaniline			5.98E-01	200	1.0E-06	-	20	5	25	1,825	-
Acenaphthene	3.62E-08		3.30E-02	200	1.0E-06		20	5	25	1,825	***
Acenaphthylene			9.60E-02	200	1.0E-06	1	20	5	25	1,825	
Anthracene	1.42E-07		1.30E-01	200	1.0E-06	-	20	5	25	1,825	7
Benzo(a)anthracene		2.69E-08	3.44E-01	200	1.0E-06	-	20	5	25	1,825	7
Benzo(a)pyrene		2.98E-08	3.80E-01	200	1.0E-06	_	20	5	25	1,825	7
Benzo(b)fluoranthene		2.91E-08	3.72E-01	200	1.0E-06		20	5	25	1,825	77
Benzo(g,h,i)perylene			3.06E-01	200	1.0E-06	-	20	5	25	1,825	25,550
Benzo(k)fluoranthene	77776777777777	2.31E-08	2.95E-01	200	1.0E-06	-	20	5	25	1,825	71
Butylbenzylphthalate	5.04E-08		4.60E-02	200	1.0E-06	1	20	5	25	1,825	71
Carbazole		2.00E-08	2.56E-01	200	1.0E-06	1	50	5	25	1,825	7
Chrysene		2.54E-08	3.25E-01	200	1.0E-06	1	50	5	25	1,825	7
Di-n-butylphthalate	3.23E-07		2.94E-01	200	1.0E-06	-	50	5	25	1,825	7
Dibenz(a,h)anthracene		2.23E-08	2.84E-01	200	1.0E-06	1	50	5	25	1,825	74
Dibenzofuran			3.60E-02	200	1.0E-06	-	50	5	25	1,825	7
Fluoranthene	3.57E-07		3.25E-01	200	1.0E-06	1	20	5	25	1,825	7
Fluorene	4.16E-08		3.80E-02	200	1.0E-06	-	20	5	25	1,825	7
Indeno(1,2,3-cd)pyrene	_	2.57E-08	3.29E-01	200	1.0E-06		20	2	25	1.825	25 550

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation

	Child	Child		Child				Child	Child			
	Intake	Intake	EPC	Ingestion	Conv.	Fraction	Exposure	Exposure	Body	Aver	Averaging	_
Analyte	(Nc)	(Car)	Soil (mo/ko)	(mo soil/day)	(kg/mg)	(unitless)	(davs/vear)	(vears)	(kg)	ep)	(days)	
	(IIIB/NB-day)		(9u A)	(france 9)	(G G)			,	i,	Nc	Car	
1 Nitrogadinhomalomine (1)		7 44F-09	9 50F-02	200	1.0E-06	1	50	5	25	1,825	25,550	
Nonthholene			3.70E-02	200	1.0E-06	1	50	5	25	1,825	25,550	
Napilulaicile	7 23E-07	5 17E-08	6 60E-01	200	1.0E-06	-	50	5	25	1,825	25,550	
Pharanthrana	10 707:1		3.19E-01	200	1.0E-06	-	20	S	25	1,825	25,550	
Prizate	3 30E-07		3.01E-01	200	1.0E-06	-	50	2	25	1,825	25,550	
his O-Chloroisonronyl) ether	2.43E-07		2.21E-01	200	1.0E-06	-	50	5	25	1,825	25,550	
bis(2-Ethylhexyl)phthalate	3.59E-07	2.57E-08	3.28E-01	200	1.0E-06	-	20	2	25	1,825	25,550	
PESTICIDES/PCB							n.					
4 4'-DDD	3.29E-09	2.35E-10	3.00E-03	200	1.0E-06	-	50	5	25	1,825	25,550	
4.4-DDE			5.78E-03	200	1.0E-06	-	20	5	25	1,825	25,550	
4 4'-DDT	3.83E-09	2.74E-10	3.49E-03	200	1.0E-06	-	20	5	25	1,825	25,550	
Aldrin	1.49E-09	1.06E-10	1.36E-03	200	1.0E-06	1	90	5	25	1,825	25,550	
Aroclor-1260		2.02E-09	2.58E-02	200	1.0E-06	1	20	S	25	1,825	25,550	
Dieldrin	4.69E-09	3.35E-10	4.28E-03	200	1.0E-06	-	20	S	25	1,825	25,550	
Endosulfan I	4.41E-09		4.02E-03	200	1.0E-06	-	20	2	25	1,825	25,550	
Endosulfan sulfate	2.86E-09		2.61E-03	200	1.0E-06	-	20	5	25	1,825	25,550	
Endrin	3.46F-09		3.16E-03	200	1.0E-06	-	20	5	25	1,825	25,550	
Endrin ketone			3.45E-03	200	1.0E-06	-	50	5	25	1,825	25,550	
Hentachlor enoxide				200	1.0E-06	-	20	5	25	1,825	25,550	
alnha-Chlordane	1.16E-09	8.30E-11	1.06E-03	200	1.0E-06	-	90	2	25	1,825	25,550	
heta-BHC		1.18E-10	1.51E-03	200	1.0E-06	1	20	S	25	1,825	25,550	
delta-BHC			1.37E-03	200	1.0E-06	-	20	S	25	1,825	25,550	
						The second second						

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Chi	Analyte (ng/kg-d (mg/kg-d	SATECINA	MEIALS		Barium 1.37E-04	Cadmium 2.26E-06	Copper 6.84E-05		Mercilia 1 22E-07					Stationality	HERBICIDES	MCPA 6.17E-06	EQUATION: Intake $(mg/kg-day) = CSxIRxCExFIxEFxED$ pxy > AT		Variables:	CS = CI IR = Ing CF = Cc	FI = Fr: EF = E. ED = E. BW = B	
Child	e lay)			E-06	E-04	E-06	E-05		5.07	200	200	E-07	E-04			90-B	day) = C		les:	hemical igestion l	FI = Fraction Ingested EF = Exposure Freque ED = Exposure Duration BW = Bodyweight (kg)	
Child	Intake (Car) (mg/kg-day)			4.34E-07													SXIRXCEXE	DWA		CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg)	FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweioht (kg)	(9u) man (no)
	EPC Soil (mg/kg)			5.54E+00	1.25E+02	2.06E+00	6.24E+01	6 19F+07	1115 01	1165-01	7.50E 01	6 10E-01	1.54E+02			5.63E+00	FIXEEX			n in Soil (m; 'day) 6 kg/mg)	ess) days/years) ars)	
Child	Ingestion Rate (mg soil/day)			200	200	200	200	200	2007	200	200	200	200			200	Œ			g soil/kg)		
	Conv. Factor (kg/mg)			1.0E-06	1.0E-06	1 0F-06	1.0E-06	1 OE-06	1.05-00	1.0E-06	1.05-00	1.05-06	1.0E-06			1.0E-06						
	Fraction Ingested (unitless)			1	-						٠.	٠,-		8					Assumptions:	EPC Soil Data - RME 200 (RME Child) 10-6	1 50 (RME) 5 (RME) 25 (Child)	(CIIIIU)
	Exposure Frequency (days/year)			50	50	20	20.5	200	30	20	20	20	20			20				a - RME iild)		to (Cillia)
Child	Exposure Duration (years)	8		5	· v	, v	יי ר	. 4	n '	0 '	0 1	yo u	o v			5						
Child	Body Weight (kg)	0.0000		25	25	30	25	50	57	25	57	25	3 %	3		25						
	Aver Ti (dz	Nc		1 825	1 825	1 975	1,023	1,025	1,825	1,825	1,825	1,825	1,825	Caroli		1,825						
	Averaging Time (days)	Car		25 550	25,550	25,550	25,550	25,550	75,550	25,550	25,550	25,550	25,550	00000		25,550						

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
n ong : 1100						
VOLATILE ORGANICS	11 3794-71			***	7.645.00	
Acetone	7.64E-09	10 manuscrape	1.00E-01	NA a corr co	7.64E-08	4.54E-12
Benzene	1.00	1.57E-10	NA COST OF	2.90E-02 7.50E-03		4.34E-12
Methylene Chloride	2000000000000000		6.00E-02	7.50E-03 NA	3.61E-08	
Toluene	7.22E-09		2.00E-01	NA.	3.01L-00	
SEMIVOLATILE ORGANICS		1				
	2.000.07		2.00E-03	NA	1.53E-04	
2,4-Dinitrotoluene	3.06E-07		1.00E-03	NA NA		
2,6-Dinitrotoluene			NA NA	NA		
2-Methylnaphthalene			5.00E-02	NA		
2-Methylphenol		1.93E-08	NA	4.50E-01		8.71E-09
3,3'-Dichlorobenzidine 3-Nitroaniline		1.550	NA	NA		
4-Nitroaniline			NA	NA	Newsymbol Sept.	
Acenaphthene	3.62E-08		6.00E-02	NA	6.03E-07	
Acenaphthylene	11/11/2/2017		NA	NA		
Anthracene	1.42E-07	0.50000000000	3.00E-01	NA	4.75E-07	1.000.00
Benzo(a)anthracene	C400AC	2.69E-08	NA	7.30E-01		1.96E-08 2.17E-07
Benzo(a)pyrene		2.98E-08	NA	7.30E+00		2.17E-07 2.13E-08
Benzo(b)fluoranthene		2.91E-08	NA	7.30E-01	19	2.13E-08
Benzo(g,h,i)perylene			NA NA	NA 730E 01		1.68E-08
Benzo(k)fluoranthene	200000	2.31E-08	NA 2 00E+00	7.30E-01	2.52E-08	1.002-08
Butylbenzylphthalate	5.04E-08	2 005 00	2.00E+00	NA 2.00E-02	2,325-00	4.00E-10
Carbazole		2.00E-08	NA NA	7.30E-02		1.85E-09
Chrysene		2.54E-08	NA 1.00E-01	7.30E-02 NA	3.23E-06	1,002-09
Di-n-butylphthalate	3.23E-07	2 225 00	NA	7.30E+00	3.232-00	1.62E-07
Dibenz(a,h)anthracene		2.23E-08	NA NA	NA NA		1,020.0
Dibenzofuran	2 677 07		4.00E-02	NA NA	8.92E-06	
Fluoranthene	3.57E-07 4.16E-08	-	4.00E-02	NA	1.04E-06	
Fluorene	4.10E-08	2.57E-08	NA	7.30E-01	2	1.88E-08
Indeno(1,2,3-cd)pyrene		7.44E-09	NA	4.90E-03		3.64E-11
N-Nitrosodiphenylamine (1)		7.442-05	NA	NA		
Naphthalene Pentachlorophenol	7.23E-07	5.17E-08	3.00E-02	1.20E-01	2.41E-05	6.20E-09
	7.252 07		NA	NA	20000000000000000000000000000000000000	
Phenanthrene	3.30E-07		3.00E-02	NA	1.10E-05	
Pyrene bis(2-Chloroisopropyl) ether	2.43E-07		1.00E-03	NA	2.43E-04	
bis(2-Ethylhexyl)phthalate	3.59E-07	2,57E-08	2.00E-02	1.40E-02	1.80E-05	3,59E-10
PESTICIDES/PCB					TRI	
	2 205 00	2.35E-10	5.00E-04	2.40E-01	6.59E-06	5.64E-11
4,4'-DDD	3.29E-09	2.33E-10	NA	NA		ALEXAL COLOR
4,4'-DDE	3.83E-09	2.74E-10	5.00E-04	3.40E-01	7.66E-06	9.30E-11
4,4'-DDT	1.49E-09	1.06E-10	3.00E-05	1.70E+01	4.97E-05	1.81E-09
Aldrin Aroclor-1260	1.452-05	2.02E-09	NA	7.70E+00	50000000	1.56E-08
Dieldrin	4.69E-09	3.35E-10	5.00E-05	1.60E+01	9.39E-05	5.37E-09
Endosulfan I	4.41E-09	CICHELLE	6.00E-03	NA ·	7.35E-07	
Endosulfan sulfate	2.86E-09	1	5.00E-05	NA	5.72E-05	
Endosultan surface	3.46E-09		3.00E-04	NA	1.15E-05	10.71
Endrin ketone			NA	NA		
Heptachlor epoxide	100		1.30E-05	9.10E+00	1045.05	1.08E-10
alpha-Chlordane	1.16E-09	8.30E-11	6.00E-05	1.30E+00	1.94E-05	2.13E-10
beta-BHC		1.18E-10	NA	1.80E+00		2.13E-10
delta-BHC			NA	NA		
METALS		1			1	
Arsenic	6.07E-06	4.34E-07	3.00E-04	1.75E+00	2.02E-02	7.59E-07
Barium	1.37E-04	1	7.00E-02	NA	1.96E-03	
Cadmium	2.26E-06		5.00E-04	NA	4.52E-03	
Copper	6.84E-05		4.00E-02	NA	1.71E-03	
Lead	208427		NA 2 cor oa	NA NA	4.050-04	
Mercury	1.22E-07		3.00E-04	NA NA	4.05E-04 2.54E-04	
Selenium	1.27E-06	1	5.00E-03	NA NA	1.64E-04	
Silver	8.22E-07		5.00E-03	NA NA	9.55E-03	
Thallium Zinc	6.68E-07 1.69E-04		7.00E-05 3.00E-01	NA NA	5.62E-04	
	V.5156670.67031					
HERBICIDES				1,206		
МСРА	6.17E-06		5.00E-04	NA	1.23E-02	
					5.24E-02	1.26E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-30

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

	Child	Child	Cas	(Child	TAR STORY OF THE STORY	200000000000000000000000000000000000000		Child	Child	200	
Analyte	Absorbed Dose (Nc)	Absorbed Dose (Car)	Soil	Factor	Area Contact	Adherence	Absorption Factor	Exposure	Exposure	Weight	Averaging	ging
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm²/event)	(mg soil/cm²)	(unitless)	(events/year)	(years)	(kg)	(days)	S) Car
VOLATILE ORGANICS												
Acetone			6.98E-03	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Benzene			2.00E-03	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Methylene Unionae Toluene			6.59E-03	1.00E-06	2,300	0.1		20 90	n v1	0 X	1,825	25,550
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene			2.79E-01	1.00E-06	2,300	1.0		50	8	25	1,825	25,550
2,6-Dinitrotoluene				1.00E-06	2,300	1.0		50	5	25	1,825	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
2-Methylphenol				1.00E-06	2,300	1.0		20	5	25	1,825	25,550
3,3'-Dichlorobenzidine			2.47E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
3-Nitroaniline			5.98E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
4-Nitroaniline			5.98E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Acenaphthene			3.30E-02	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Acenaphthylene			9.60E-02	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Anthracene			1.30E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Benzo(a)anthracene			3.44E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Benzo(a)pyrene			3.80E-01	1.00E-06	2,300	1.0		20	\$	25	1,825	25,550
Benzo(b)fluoranthene			3.72E-01	1.00E-06	2,300	1.0		20	\$	25	1,825	25,550
Benzo(g,h,i)perylene			3.06E-01	1.00E-06	2,300	1.0		20	\$	25	1,825	25,550
Benzo(k)fluoranthene			2.95E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Butylbenzylphthalate			4.60E-02	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Carbazole			2.56E-01	1.00E-06	2,300	1.0		50	2	25	1,825	25,550
Chrysene			3.25E-01	1.00E-06	2,300	1.0		50	2	25	1,825	25,550
Di-n-butylphthalate			2.94E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Dibenz(a,h)anthracene			2.84E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Dibenzofuran			3.60E-02	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Fluoranthene			3.25E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Fluorene			3.80E-02	1.00E-06	2,300	1.0		50	5	25	1,825	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child Absorbed Dose (Nc)	Child Absorbed Dose (Car)	EPC	Conv. Factor	Child Skin Surface Area Contact	Adherence Factor	Absorption Factor	Exposure Frequency	Child Exposure Duration	Child Body Weight	Averaging Time	ging
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm²/event)	(mg soil/cm²)	(unitless)	(events/year)	(years)	(kg)	(da	(S)
		STATE OF THE STATE		2000 2000							Nc	Car
Indone(123-ed)mirans			3.29E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Hacho(1,2,5-cu)pyrene			9.50E-02	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Vietnessouphensylamine (1)			3 70F-02	1 00E-06	2,300	1.0		20	2	25	1,825	25,550
Naphunaiene Dartinehlozoahenol			6.60E-01	1.00E-06	2,300	1.0		50	2	22	1,825	25,550
Dhananthrana			3.19E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Directo			3.01E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
ryteiic his/2 (Thloroisonronyl) ether			2.21E-01	1.00E-06	2,300	1.0		50	2	25	1,825	25,550
bis(2-Ethylhexyl)phthalate			3.28E-01	1.00E-06	2,300	1.0		90		25	1,825	25,550
PESTICIDES/PCB			T. I									
			3 00F-03	1 00F-06	2300	1.0		50	5	25	1,825	25,550
4,4-000				1 00F-06	2 300	1.0		50	\$	25	1,825	25,550
4.4-005			3 49F-03	1.00F-06	2,300	1.0		20	9	25	1,825	25,550
100-4,4			1.36F-03	1.00F-06	2 300	1.0		50	8	25	1,825	25,550
Aldrin		1 395F-09	2 58F-02	1 00F-06	2 300	1.0	90.0	50	2	25	1,825	25,550
Arocior-1200		10.7000	4 78F-03	1 00F-06	2 300	1.0		90	5	25	1,825	25,550
Dielarin Endocifer I			4 02E-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Endosuman 1			2.61E-03	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Endosulian suitate			3 16F-03	1 00E-06	2.300	1.0		20	5	25	1,825	25,550
Endim			3.45F-03	1 00F-06	2 300	1.0		20	2	25	1,825	25,550
Endrin ketone				1 00E-06	2.300	1.0		20	5	25	1,825	25,550
neptachior epoxine			1 06F-03	1 00E-06	2,300	1.0		20	5	25	1,825	25,550
appra-Ciriordane			1 51E-03	1 00E-06	2,300	1.0		20	S	25	1,825	25,550
ocia-pino			1 37F-03	1 OOF OK	2 300	1.0		20	2	25	1,825	25,550

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TABLE 7-30

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc) (mg/kg-day)	Child Absorbed Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Child Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averaging Time (days)		
METALS											Nc	Car	-
A			5 54E+00	1 00 E-06	2 300	01		05	v	35	1 825	25.550	
Arsenic			1.25E+02	1.00E-06	2,300	1.0		8 8	. 50	25	1,825	25,550	_
Cadmium	2.60E-07		2.06E+00	1.00E-06	2,300	1.0	0.01	50	2	25	1,825	25,550	_
Copper			6.24E+01	1.00E-06	2,300	1.0		90	2	25	1,825	25,550	_
Lead			6.19E+02	1.00E-06	2,300	1.0		50	50.1	25	1,825	25,550	
Mercury			1.11E-01	1.00E-06	2,300	1.0		50	vo 1	52	1,825	25,550	_
Selenium			1.16E+00	1.00E-06	2,300	1.0		20	0	2 2	1,825	25,550	
Silver			7.50E-01	1.00E-06	2,300	1.0 1.0		000	o 4	5 5	1,825	25,550	_
Thallium			6.10E-01	1.00E-06	2,300	0.1		2 2	0 1	9 %	1,625	25,530	_
Zinc			1.54E+02	1.00E-06	2,300	1.0		20	S	25	1,825	75,550	
HERBICIDES													
MCPA			5.63E+00	1.00E-06	2,300	1.0		20	S.	25	1,825	25,550	
EQUATION:													
Absorbed	Absorbed Dose (mg/kg-day) = CSx CFx SAx AFx ABS x EF x ED BW x AT	- CSxCFxSAx	AF x ABS x E BW x AT	EXED									
	Variables:			1	Assumptions:			Variables:			Assumptions:		
	CS = Chemical Concentration in Soil (mg soil/kg)	ncentration in Soi	1 (mg soil/kg)		EPC Soil Data - RME	31		EF = Exposure Frequency (events/year)	requency (events/y	(ear)	50 (RME)		
	CF = Conversion Factor (10-6 kg/mg)	actor (10-6 kg/mg	2		10-6			ED = Exposure Duration (years)	rration (years)		5 (RME)		
	SA = Surface Area Contact (cm²)	Contact (cm2)		.,	2,300 (RME Child)			BW = Bodyweight (kg)	(kg)		25 kg (child)		
	AF =Soil to Skin Adherence Factor (mg/cm2)	dherence Factor ((mg/cm ²)		1.0 (RME all receptors)	ors)		AT = Averaging Time (days)	ime (days)		5 x 365 (Nc), 70 x 365 (Car)	x 365 (Car)	
	ABS = Absorption Factor (unitless)	Factor (unitless)			Compound Specific PCBs and Cd (EPA, 1992b)	PCBs and Cd (E	PA, 1992b)						
					(Default Assumption 0% = 0.0)	n 0% = 0.0)							_

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Γoluene		1 1 1	1.20E-01	NA		
SEMIVOLATILE ORGANICS						
2.4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene			NA	NA NA		
2-Methylphenol			5.00E-02	NA 4 50F 01		
3,3'-Dichlorobenzidine	1		NA	4.50E-01 NA		
3-Nitroaniline			NA NA	NA NA		100
4-Nitroaniline			6.00E-02	NA NA		
Acenaphthene			NA	NA NA		
Acenaphthylene			3.00E-01	NA NA		
Anthracene			NA NA	1.46E+00		
Benzo(a)anthracene			NA NA	1.46E+01		
Benzo(a)pyrene			NA	1.46E+00		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	1.46E+00		
Benzo(k)fluoranthene			2.00E+00	NA		100
Butylbenzylphthalate Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA 1 20F 01		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA 2 00F 02	NA NA		
Pyrene			3.00E-02	NA NA		
bis(2-Chloroisopropyl) ether			1.00E-03	1.40E-02		
bis(2-Ethylhexyl)phthalate	100		2.00E-02	1.40E-02	1.50	
PESTICIDES/PCB						2
4,4'-DDD			5.00E-04	2.40E-01	1 1 4 2	
4,4'-DDE			NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin		1	3.00E-05	1.70E+01		1.13E-0
Aroclor-1260	0.	1.40E-09	NA	8.11E+00		1.13E-0
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA NA		
Endosulfan sulfate			5.00E-05	NA NA		
Endrin			3.00E-04	NA NA		
Endrin ketone			NA 1 20E 05	NA 0.10E+00		
Heptachlor epoxide			1.30E-05	9.10E+00 1.30E+00		
alpha-Chlordane			6.00E-05	1.80E+00		
beta-BHC			NA NA	NA		
delta-BHC			NA	IVA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
METALS						
NO.			2.94E-04	1.79E+00		
Arsenic			7.00E-03	NA NA		
Barium Cadmium	2.60E-07		3.00E-05	NA I	8.65E-03	
Copper	2.00L-07		2.00E-02	NA	11 PERSON TANDES	
Lead		1 2	NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA		
HERBICIDES						
МСРА			5.00E-04	NA		
Totals - HQ & CR					8.65E-03	1.13E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc)	Intake (Car)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/dav)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averagio Time (days)	Averaging Time (days)
	(((6-6-6-1)								Nc	Car
VOLATILE ORGANICS											
Acetone	5.46E-10		6.98E-03	100	1.00E-06		50	25	07	9,125	25,550
Benzene Mathylana Chlorida	0 00F+00	5.59E-11 0.00E+00	2.00E-03 0.00E+00	001	1.00E-06		2 20	25	2 2	9,125	25,550
Toluene	5.16E-10		6.59E-03	100	1.00E-06	-	20	25	70	9,125	25,550
SEMIVOLATILE ORGANICS											
2 4-Dinitrotoluene	2.18E-08		2.79E-01	100	1.00E-06	1	20	25	70	9,125	25,550
2.6-Dinitrotoluene	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	100	1.00E-06	-	20	25	70	9,125	25,550
2-Methylphenol	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
3,3'-Dichlorobenzidine		6.91E-09	2.47E-01	100	1.00E-06	-	20	25	70	9,125	25,550
3-Nitroaniline			5.98E-01	100	1.00E-06		20	25	20	9,125	25,550
4-Nitroaniline			5.98E-01	100	1.00E-06	-	20	25	20	9,125	25,550
Acenaphthene	2.58E-09		3.30E-02	100	1.00E-06		20	2.5	2 2	9,125	25,550
Acenaphthylene	73		9.60E-02	100	1.00E-06		20	25	2 2	9,125	25,550
Anthracene	1.02E-08		1.30E-01	001	1.00E-06		200	0 %	2 6	9,123	25,530
Benzo(a)anthracene		1.06E-09	3.44E-01	901	1.00E-08		20 20	25 25	02	9,125	25,550
Benzo(h)fluoranthene		1.04E-08	3.72E-01	100	1.00E-06		20	25	70	9,125	25,550
Benzo(a h i)nervlene			3.06E-01	100	1.00E-06		20	25	70	9,125	25,550
Benzo(k)fluoranthene		8.24E-09	2.95E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Butylbenzylphthalate	3.60E-09		4.60E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Carbazole		7.15E-09	2.56E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Chrysene		9.07E-09	3.25E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Di-n-butylphthalate	2.30E-08		2.94E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenz(a,h)anthracene		7.95E-09	2.84E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenzofuran			3.60E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Fluoranthene	2.55E-08		3.25E-01	100	1.00E-06	-	20	25	20	9,125	25,550
Fluorene	2 97F-09		3 80F-02	100	1.00E-06		20	25	70	9.125	25,550

TABLE 7-16

CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Averaging Time (days)	25,550 25,550 25,550	25,550 25,550 25,550 25,550 25,550	033.30	25,550	25,550 25,550 25,550	25,550 25,550 25,550	25,550	25,550 25,550 25,550 25,550
	9,125 9,125 9,125	9,125 9,125 9,125 9,125	361.0	9,125	9,125 9,125 9,125	9,125 9,125 9,125	9,125	9,125 9,125 9,125 9,125
Body Weight (kg)	07 07 07	22222	ć	2 02	2 2 2	0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2	2 0 0	70 70 70 70
Exposure Duration (years)	8 8 8	22 22 22 22 22 22 22 22 22 22 22 22 22	V	2 22	2 2 2	25	25 25	25 25 25 25
Exposure Frequency (days/year)	20 20	20 20 20 20 20 20 20 20 20 20 20 20 20 2	ć	20	2 2 2	20 00	2 2 2	20 20 20 20
Fraction Ingested (unitless)			ۥ					
Conv. Factor (kg/mg)	1.00E-06 1.00E-06	1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06	700	1.00E-06	1.00E-06 1.00E-06 1.00E-06	1.00E-06 1.00E-06	1.00E-06	1.00E-06 1.00E-06 1.00E-06 1.00E-06
Ingestion Rate (mg soil/day)	100	000000000000000000000000000000000000000		00 00	00 1 100	1000	100	00 1 100 100 00 100 00
EPC Soil (mg/kg)	3.29E-01 9.50E-02 3.70E-02	6.60E-01 3.19E-01 3.01E-01 2.21E-01 3.28E-01		3.00E-03 5.78E-03	3.49E-03 1.36E-03 2.58E-02	4.28E-03 4.02E-03	3.16E-03 3.45E-03	0.00E+00 1.06E-03 1.51E-03 1.37E-03
Intake (Car) (mg/kg-day)	9.19E-09 2.66E-09	1.84E-08 9.16E-09		8.40E-11	9.77E-11 3.80E-11 7.22E-10	1.20E-10		0.00E+00 2.96E-11 4.23E-11
Intake (Nc) (mg/kg-day)		5.17E-08 2.36E-08 1.73E-08 2.57E-08		2.35E-10	2.74E-10 1.06E-10	3.35E-10 3.15E-10	2.47E-10	0.00E+00 8.30E-11
Analyte	Indeno(1,2,3-cd)pyrene N-Nitrosodiphenylamine (1)	Pentachlorophenol Phenanthrene Pyrene bis(2-Chloroisopropyl) ether bis(2-Ethylhexyl)phthalate	PESTICIDES/PCB	4,4'-DDE	4,4'-DDT Aldrin Arcelor-1260	Dieldrin Endosulfan I Endosulfan onless	Endrin Endrin Endrin ketone	Heptachlor epoxide alpha-Chlordane beta-BHC delta-BHC

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-dav)	Intake (Car) (mg/kg-dav)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
										Nc	Car
METALS										THE REST	
Arsenic	4.34E-07	1.55E-07	5.54E+00	100	1.00E-06	-	20	25	20	9,125	25,550
Barium	9.80E-06	1	1.25E+02	100	1.00E-06	-	20	25	70	9,125	25,550
Cadmium	1.61E-07		2.06E+00	100	1.00E-06		20	25	70	9,125	25,550
Copper	4.88E-06		6.24E+01	100	1.00E-06	-	20	25	20	9,125	25,550
Lead			6.19E+02	100	1.00E-06	_	20	25	70	9,125	25,550
Mercury	8.69E-09		1.11E-01	100	1.00E-06		20	25	70	9,125	25,550
Selenium	9.06E-08		1.16E+00	100	1.00E-06		20	25	92	9,125	25,550
Silver	5.87E-08		7.50E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Thallium	4.77E-08		6.10E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Zinc	1.20E-05		1.54E+02	100	1.00E-06	-	20	25	70	9,125	25,550
HERBICIDES											
MCPA	4.40E-07		5.63E+00	100	1.00E-06	-	20	25	20	9,125	25,550
FOII ATION:		Intske (molke-dav) = CS x IR x CF x FI x EF x ED	CSYIRYCF	x FI x EF x ED							
PCOTTON:		(fun 9u/9un) aumunt	BWxAT	AT							
	Variables:					Assumptions:					
	CS = Chemical Co	CS = Chemical Concentration in Soil (mg soil/kg)	mg soil/kg)			EPC Soil Data - RME	- RME				
	IR = Ingestion Rate (mg soil/day)	te (mg soil/day)	6			100 (RME Site Worker)	Worker)				
	CF = Conversion Factor (10-6 kg FI = Fraction Ingested (unitless)	CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless)				1 (All Receptors)	13)				
	EF = Exposure F	EF = Exposure Frequency (days/years)	8)			20 (RME Site Worker)	Worker)				
	ED = Exposure Duration (years) BW = Bodyweight (kg)	uration (years) t (kg)				25 (KME Site Worker) 70 (Adult male)	Worker)				
	AT = Averaging Time (days)	Time (days)				25 x 365 (Nc)	25 x 365 (Nc) 70 x 365 (Car)				

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone	5.46E-10		1.00E-01	NA	5.46E-09	
Benzene	1,000,000,000,000,000,000,000,000,000,0	5.59E-11	NA	2.90E-02	AND RESPONSE SERVICES	1.62E-12
Methylene Chloride	0.00E+00	0.00E+00	6.00E-02	7.50E-03	0.00E+00	0.00E+0
Toluene	5.16E-10		2.00E-01	NA	2.58E-09	=44
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene	2.18E-08		2.00E-03	NA	1.09E-05	
2,6-Dinitrotoluene	0.00E+00		1.00E-03	NA	0.00E+00	
2-Methylnaphthalene	130000000000000000000000000000000000000		NA	NA		
2-Methylphenol	0.00E+00		5.00E-02	NA	0.00E+00	D4.00 L
3,3'-Dichlorobenzidine		6.91E-09	NA	4.50E-01		3.11E-09
3-Nitroaniline			NA	NA	I .	
4-Nitroaniline	7/20/20/20/20/20/20/20/20/20/20/20/20/20/		NA	NA	20,000,000,000,000,000	
Acenaphthene	2.58E-09		6.00E-02	NA	4.31E-08	
Acenaphthylene			NA	NA		
Anthracene	1.02E-08	174600900-A100AC	3.00E-01	NA	3.39E-08	A159524841+204041
Benzo(a)anthracene		9.61E-09	NA	7.30E-01		7.02E-09
Benzo(a)pyrene		1.06E-08	NA	7.30E+00		7.76E-08
Benzo(b)fluoranthene		1.04E-08	NA	7.30E-01		7.59E-09
Benzo(g,h,i)perylene		BATTLE COST	NA	NA		1650/100/166
Benzo(k)fluoranthene	107302535	8.24E-09	NA	7.30E-01		6.01E-09
Butylbenzylphthalate	3.60E-09		2.00E+00	NA	1.80E-09	
Carbazole		7.15E-09	NA	2.00E-02		1.43E-10
Chrysene	(2002200	9.07E-09	NA	7.30E-02		6.62E-10
Di-n-butylphthalate	2.30E-08		1.00E-01	NA -	2.30E-07	500000000000000000000000000000000000000
Dibenz(a,h)anthracene		7.95E-09	NA	7.30E+00		5.80E-08
Dibenzofuran	V2-1522100		NA	NA		
Fluoranthene	2.55E-08		4.00E-02	NA	6.37E-07	
Fluorene	2.97E-09		4.00E-02	NA	7.44E-08	200000000000000000000000000000000000000
ndeno(1,2,3-cd)pyrene		9.19E-09	NA	7.30E-01		6.71E-09
N-Nitrosodiphenylamine (1)	1	2.66E-09	NA	4.90E-03		1.30E-11
Naphthalene	5 177 00	1 045 00	NA NA	NA		
Pentachlorophenol	5.17E-08	1.84E-08	3.00E-02	1.20E-01	1.72E-06	2.21E-09
Phenanthrene	2.36E-08		NA 2 00E 02	NA	7.075.05	
Pyrene pis(2-Chloroisopropyl) ether			3.00E-02	NA	7.86E-07	
ois(2-Chioroisopropyi) ether ois(2-Ethylhexyl)phthalate	1.73E-08 2.57E-08	9.16E-09	1.00E-03 2.00E-02	NA 1.40E-02	1.73E-05 1.28E-06	1.28E-10
3 - 3 - 3 - 3	2.57E-08	9.10E-09	2.00E-02	1.40E-02	1,28E-00	1.20E-10
PESTICIDES/PCB	100000000					
4,4'-DDD	2.35E-10	8.40E-11	5.00E-04	2.40E-01	4.70E-07	2.02E-11
1,4'-DDE	VIDANCE AND ALLES	10Anarrayanan	NA	NA	200,00000000000000000000000000000000000	0.000.000.000
,4'-DDT	2.74E-10	9.77E-11	5.00E-04	3.40E-01	5.47E-07	3.32E-11
Aldrin	1.06E-10	3.80E-11	3.00E-05	1.70E+01	3.55E-06	6.46E-10
Aroclor-1260		7.22E-10	NA	7.70E+00	managaranana	5.56E-09
Dieldrin	3.35E-10	1.20E-10	5.00E-05	1.60E+01	6.71E-06	1.92E-09
Endosulfan I	3.15E-10		6.00E-03	NA	5.25E-08	
Endosulfan sulfate	2.04E-10	ė.	5.00E-05	NA	4.09E-06	
Endrin	2.47E-10		3.00E-04	NA	8.24E-07	
Endrin ketone	0.007:00	0.005.00	NA 1 20E of	NA	0.005.00	0.000
Heptachlor epoxide	0,00E+00	0.00E+00	1.30E-05	9.10E+00	0.00E+00	0.00E+00
alpha-Chlordane	8.30E-11	2.96E-11	6.00E-05	1.30E+00	1.38E-06	3.85E-11
peta-BHC		4.23E-11	NA	1.80E+00		7.61E-11
lelta-BHC			NA	NA		i i

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						and.
	4.34E-07	1.55E-07	3.00E-04	1.75E+00	1.45E-03	2.71E-07
Arsenic	9.80E-06	1,5515-07	7.00E-02	NA	1.40E-04	
Barium	1.61E-07	1 14	5.00E-04	NA	3.23E-04	
Cadmium	4.88E-06		4.00E-02	NA	1.22E-04	
Copper	4.60L-00		NA	NA		100
Lead	8.69E-09		3.00E-04	NA	2.90E-05	
Mercury Selenium	9.06E-08		5.00E-03	NA	1.81E-05	
Silver	5.87E-08		5.00E-03	NA	1.17E-05	
Thallium	4.77E-08		7.00E-05	NA	6.82E-04	0.45
Zinc	1.20E-05		3.00E-01	NA	4.01E-05	11-15
HERBICIDES						7.0
MCPA	4.40E-07		5.00E-04	NA	8.81E-04	44
Totals - HQ & CR					3.74E-03	4.49E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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TABLE 7-24

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc)	Dose (Car)	EPC	Conv.	Skin Surface	Adherence	Absorption	Exposure	Exposure	Body	Aver	Averaging
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm²/event)	(mg soil/cm²)	(unitless)	(events/year)	(years)	weight (kg)		- 1
											Nc	Car
VOLATILE ORGANICS												
Acetone			6.98E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzene Methylene Chloride			2.00E-03	1.00E-06	5,800	0.1		20	25	0 2	9,125	25,550
Toluene			6.59E-03	1.00E-06	5,800	1.0		20 20	22 22	0.02	9,125	25,550
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene			2.79E-01	1.00E-06	5,800	1.0		20	25	70	9 125	25 550
2,6-Dinitrotoluene				1.00E-06	5,800	1.0		20	25	70	9.125	25.550
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2-Methylphenol			700 NO. 000 NO.	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
3,3'-Dichlorobenzidine			2.47E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
3-Nitroaniline			5.98E-01	1.00E-06	2,800	1.0		20	25	70	9,125	25,550
4-Nitroaniline			5.98E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Acchaptuyiene			9.60E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(a)anthracene			3.44E-01	1.00E-06	5,800	0.0		30	25	70	9,125	25,550
Benzo(a)pyrene			3.80E-01	1.00E-06	5.800	1.0		20 02	25	0,0	9,123	25,550
Benzo(b)fluoranthene			3.72E-01	1.00E-06	5,800	1.0		20	25	70	9.125	25,550
Benzo(g,h,i)perylene			3.06E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(k)fluoranthene			2.95E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Butylbenzylphthalate			4.60E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Carbazole			2.56E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Chrysene			3.25E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Di-n-butylphthalate			2.94E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Dibenz(a,h)anthracene			2.84E-01	1.00E-06	2,800	1.0		20	25	70	9,125	25,550
Dibenzoturan			3.60E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Fluoranthene			3.25E-01	1.00E-06	2,800	1.0		20	25	70	9,125	25,550
Fluorene			3.80E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

PESTICIDES/PCB	_			1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06	5,800 5,800 5,800 5,800 5,800 5,800 5,800 5,800	Factor (mg soil/cm²) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Factor (unitless)	Frequency (events/year) 20 20 20 20 20 20 20 20 20 20 20 20 20	Duration (years) 25 25 25 25 25 25 25 25 25 25 25 25		Weight (kg) (kg) 70 70 70 70 70 70 70 70 70 70 70 70 70	Weight (kg) Time (days) 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125 70 9,125
								F		50		5
4,4'-DDD 44'-DDE			3.00E-03 5.78E-03	1.00E-06 1.00E-06	5,800	1.0		20 20		2 2	25 25 26 26 26 26 26 26 26 26 26 26 26 26 26	
4.4-DDT			3.49E-03	1.00E-06	5,800	1.0		20		25		70
Aldrin	2.0		1.36E-03	1.00E-06	5,800	0.1	30.0	20		25		0, 2,
Aroclor-1260	7	2.51E-09	2.58E-02 4.28E-03	1.00E-06	5,800	1.0	00.00	20 20		25		02
Endosulfan I			4.02E-03	1.00E-06	5,800	1.0		20	2	5		20
Endosulfan sulfate			2.61E-03	1.00E-06	5,800	1.0		20	25			02
Endrin			3.16E-03	1.00E-06	5,800	1.0		20	25	12		70
Endrin ketone			3.45E-03	1.00E-06	5,800	1.0		20	25			70
Heptachlor epoxide				1.00E-06	5,800	1.0		20	25			70
alpha-Chlordane			1.06E-03	1.00E-06	5,800	1.0		20	25			70
beta-BHC			1.51E-03	1.00E-06	5,800	1.0		20	2			70
delta-BHC			1.37E-03	1.00E-06	5,800	1.0		20		25		70

TABLE 7-24

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
METALS											Nc	Car
Arsenic			5.54E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Barum Cadmium	9.35F-08		1.25E+02 2.06F+00	1.00E-06	5,800	1.0	100	20	25	20 62	9,125	25,550
Copper		2	6.24E+01	1.00E-06	5,800	201	10.0	202	22	2 2	9,125	25,550
Lead			6.19E+02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Mercury			1.11E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Selenium		18)	1.16E+00	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Thallim			6 10E-01	1.005-06	2,800	0. 0		20 50	52	70	9,125	25,550
Zinc			1.54E+02	1.00E-06	5,800	1.0		20 20	2 22	2 2	9,125	25,550
HERBICIDES								Access	Action	TR. 400		*** The Part of th
MCPA			5.63E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
EQUATION:	Absorbed dose (mg/kg-day) =	(mg/kg-day) =		CSxCExSA	CSxCFxSAxAFxABSxEFxED BWxAT	ExED					3:	
Variables:			Assumptions:			Variables:				Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitless)	ng soil/kg) g/cm²)		EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd FPA 1993, (Dyfault Assummátion 10% = 0.0)	RME Site Worker) ceptors) cific for PCBs a	nd Cd	EF = Exposure Frequency ((ED = Exposure Duration (ye. BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	ents/year) s)	0.000.000.000	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	Vorker) Vorker) 0 x 365 Adult (0	Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS			and all	HRAFT		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Foluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
			2.00E-03	NA		
2,4-Dinitrotoluene			1.00E-03	NA		
2,6-Dinitrotoluene			NA NA	NA		
2-Methylnaphthalene			5.00E-02	NA		
2-Methylphenol			NA	4.50E-01		
3,3'-Dichlorobenzidine			NA NA	NA NA		10.0
3-Nitroaniline			NA NA	NA NA		
4-Nitroaniline			6.00E-02	NA NA		1.0
Acenaphthene			NA	NA NA		1.0
Acenaphthylene			3.00E-01	NA NA		
Anthracene			NA	1.46E+00		-
Benzo(a)anthracene			NA NA	1.46E+01		7 2
Benzo(a)pyrene	100		3/29/27/29	1.46E+00		130
Benzo(b)fluoranthene	4.0		NA	NA NA		
Benzo(g,h,i)perylene			NA	1.46E+00		
Benzo(k)fluoranthene			NA 2 00F 100	NA NA		
Butylbenzylphthalate			2.00E+00	2.00E-02		10 90
Carbazole			NA	1.46E-01		
Chrysene			NA 0.50F.02	NA		
Di-n-butylphthalate			8.50E-02 NA	1.46E+01		2.0
Dibenz(a,h)anthracene			0.0000000000000000000000000000000000000	NA NA		1
Dibenzofuran			NA 1 00F 02	7507,000		
Fluoranthene	1 5		4.00E-02	NA NA		
Fluorene			4.00E-02	1.46E+00		
Indeno(1,2,3-cd)pyrene			NA	4.90E-03		
N-Nitrosodiphenylamine (1)			NA	110000000000000000000000000000000000000		
Naphthalene			NA 2 COF CO	NA 1.20E-01		
Pentachlorophenol			3.00E-02	NA		
Phenanthrene			NA 2 OOF O2	NA NA		
Pyrene			3.00E-02	NA NA		
bis(2-Chloroisopropyl) ether			1.00E-03	1.40E-02		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB				200 W.		
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE		-	NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		0.040.00
Aroclor-1260		2.51E-09	NA	8.11E+00		2.04E-08
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic Barium Cadmium Copper Lead Mercury Selenium	9.35E-08		2.94E-04 7.00E-03 3.00E-05 2.00E-02 NA 4.50E-05 3.00E-03 5.00E-03	1.79E+00 NA NA NA NA NA NA	3.12E-03	
Silver Thallium Zinc			7.00E-05 2.00E-02	NA NA		
HERBICIDES						
МСРА			5.00E-04	NA		
Totals - HQ & CR					3.12E-03	2.04E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

			SEAD-17 I Seneca	SEAD-17 Remedial Investigation Seneca Army Depot Activity	tigation tivity						
Analyte	Intake (Nc)	Intake (Car)	EPC Total Soils	Ingestion Rate	Conv. Factor	Fraction Ingested	Exposure Frequency	Exposure Duration (vears)	Body Weight	Averagi Time	Averaging Time (davs)
	(fin Su Sui)	(mn Sv Sun)	(Sw.Sun)	(include 9)	(96w)	(ccanim)	(mat of fam)	(cma)	(Gu)	Nc	Car
VOLATILE ORGANICS				T.							
Acetone	2.18E-09	8	6.98E-03	100	1.00E-06	_	80	25	70	9,125	25,550
Benzene Methylene Chloride	0 0011	2.24E-10	2.00E-03	001	1.00E-06	- 1	08	25	07	9,125	25,550
Toluene	2.06E-09	00.700.0	6.59E-03	100	1.00E-06		80	25	70	9,125	25,550
SEMIVOLATILE ORGANICS											
2,4-Dinitrotoluene	8.73E-08		2.79E-01	100	1.00E-06	-	80	25	70	9,125	25,550
2,6-Dinitrotoluene	0.00E+00		0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	100	1.00E-06		80	25	20	9,125	25,550
2-Methylphenol	0.00E+00	3777	0.00E+00	100	1.00E-06		080	25	70	9,125	25,550
3,3 -Dicinologenzianie		4.70E-00	5 98F-01	100	1.00E-00	-	08	25	202	9,125	25,550
4-Nitroaniline			5.98E-01	100	1.00E-06		80	25	202	9,125	25,550
Acenaphthene	1.03E-08		3.30E-02	100	1.00E-06	_	80	25	70	9,125	25,550
Acenaphthylene			9.60E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Anthracene	4.07E-08	20 170 0	1.30E-01	100	1.00E-06	 .	80	25	202	9,125	25,550
Benzo(a)anthracene		3.84E-08	3.44E-01	001	1.00E-06		80	57	5 6	0 175	25,550
Benzo(b)fluoranthene		4.16E-08	3.72E-01	100	1.00E-06		80	25	70	9,125	25.550
Benzo(g,h,i)perylene			3.06E-01	100	1.00E-06		80	25	70	9,125	25,550
Benzo(k)fluoranthene		3.29E-08	2.95E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Butylbenzylphthalate	1.44E-08		4.60E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Carbazole		2.86E-08	2.56E-01	100	1.00E-06	_	80	25	70	9,125	25,550
Chrysene		3.63E-08	3.25E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Di-n-butylphthalate	9.21E-08		2.94E-01	100	1.00E-06	_	80	25	70	9,125	25,550
Dibenz(a,h)anthracene		3.18E-08	2.84E-01	100	1.00E-06		80	25	70	9,125	25,550
Dibenzofuran			3.60E-02	100	1.00E-06		08	25	0.5	9,125	25,550
Fluoranthene	1.02E-07		3.25E-01	001	1.00E-06		80	25	70	9,125	25,550
Fluorene	1.19E-08		3.80E-02	100	1.00E-06	1	80	67	0/	671,6	75,550

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

			_		_		_																	
eraging Time (days)	Car	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550
Averaging Time (days)	Nc	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125		9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125
Body Weight (kg)		70	70	70	70	70	70	70	70		70	70	70	70	70	70	70	70	70	70	70	70	70	70
Exposure Duration (years)		25	25	25	25	25	25	25	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25
Exposure Frequency (days/year)		80	80	80	80	80	80	80	80		80	80	80	80	80	80	80	80	80	80	80	80	80	80
Fraction Ingested (unitless)		-		-	-	-		-	-		-	-	-	1		-	1	-	1	1	-	1	-	_
Conv. Factor (kg/mg)		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Ingestion Rate (mg soil/day)		100	100	100	100	100	100	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
EPC Total Soils (mg/kg)		3.29E-01	9.50E-02	3.70E-02	6.60E-01	3.19E-01	3.01E-01	2.21E-01	3.28E-01		3.00E-03	5.78E-03	3.49E-03	1.36E-03	2.58E-02	4.28E-03	4.02E-03	2.61E-03	3.16E-03	3.45E-03	0.00E+00	1.06E-03	1.51E-03	1.37E-03
Intake (Car) (mg/kg-day)		3.68E-08	1.06E-08		7.38E-08				3.67E-08		3.36E-10		3.91E-10	1.52E-10	2.89E-09	4.79E-10			31701		0.00E+00	1.19E-10	1.69E-10	
Intake (Nc) (mg/kg-day)	0.000 00 0.000				2.07E-07	,	9.43E-08	6.93E-08	1.03E-07		9.41E-10		1.09E-09	4.26E-10	200	1.34E-09	1.26E-09	8.18E-10	9.89E-10	100	0.00E+00	3.32E-10		
Analyte		Indeno(1,2,3-cd)pyrene	N-Nitrosodiphenylamine (1)	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	bis(2-Chloroisopropyl) ether	bis(2-Ethylhexyl)phthalate	PESTICIDES/PCB	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Aroclor-1260	Dieldrin	Endosulfan I	Endosulfan sulfate	Endrin	Endrin ketone	Heptachlor epoxide	alpha-Chlordane	beta-BHC	delta-BHC

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-dav)	Intake (Car) (mg/kg-dav)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/dav)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	eraging Time (days)
			10.0					,	ì	Nc	Car
METALS					1						
Arsenic	1.73E-06	6.20E-07	5.54E+00	100	1.00E-06		80	25	70	9,125	25,550
Barium	3.92E-05		1.25E+02	100	1.00E-06	-	80	25	70	9,125	25,550
Cadmium	6.45E-07		2.06E+00	100	1.00E-06	-	80	25	0 1	9,125	25,550
Copper	1.95E-05		6.24E+01	100	1.00E-06		80	25	70	9,125	25,550
Lead	20 107		6.19E+02	001	1.00E-06		80	25	70	9,125	25,550
Mercury	3.48E-08		1.11E-01	901	1.00E-06	-	080	5 5	0 / 6	9,125	25,550
Silver	2.35E-07		7 50F-01	100	1.00E-06		80	25	70	9.125	25.550
Thallium	1.91E-07		6.10E-01	100	1.00E-06		80	25	70	9,125	25,550
Zinc	4.82E-05		1.54E+02	100	1.00E-06		80	25	70	9,125	25,550
HERBICIDES	-						1				À
MCPA	1.76E-06		5.63E+00	100	1.00E-06	-	80	25	70	9,125	25,550
EQUATION:	Intake (mg/kg-day) =	= (ki	CSxIRxCFxFlxEFxED BWxAT	ELX EE X ED T	N.		-	ITAG			
	Variables:					Assumptions:	3:				
	CS = Chemical Concentration in IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg) FI = Fraction Ingested (unitless)	CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless)	il (mg soil/kg) g)			EPC - Soil Data (100 (RME Adult 10-6 1 (All Receptors)	EPC - Soil Data (RME) 100 (RME Adult Worker) 10-6 1 (All Receptors)				
	EF = Exposure Frequency (ED = Exposure Duration (yes BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure brequency (daysycars) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averacing Time (days)	ars)			80 (KME Aduit 25 (Upper boun 70 (Adult male) 25 x 365 (Nc) 7	80 (KML Adult Industrial Worker) 25 (Upper bound limit) 70 (Adult male) 25 x 365 (Car)	Worker)			

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone	2.18E-09		1.00E-01	NA	2.18E-08	
Benzene	2455555	2.24E-10	NA	2.90E-02		6.49E-12
Methylene Chloride	0.00E+00	0.00E+00	6.00E-02	7.50E-03	0.00E+00	0.00E+0
Γoluene	2.06E-09		2.00E-01	NA	1.03E-08	
SEMIVOLATILE ORGANICS			- 1			
2,4-Dinitrotoluene	8.73E-08		2.00E-03	NA	4.37E-05	
2,6-Dinitrotoluene	0.00E+00		1.00E-03	NA	0.00E+00	
2-Methylnaphthalene			NA	NA		
2-Methylphenol	0.00E+00		5.00E-02	NA	0.00E+00	
3,3'-Dichlorobenzidine	71.000000000000000000000000000000000000	2.76E-08	NA	4.50E-01		1.24E-0
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene	1.03E-08		6.00E-02	NA	1.72E-07	
Acenaphthylene	SERVICE STREET, SERVICE		NA	NA	(Aprel 19 (200) (B)	
Anthracene	4.07E-08		3.00E-01	NA	1.36E-07	
Benzo(a)anthracene	3555 (1874) A	3.84E-08	NA	7.30E-01		2.81E-0
Benzo(a)pyrene		4.25E-08	NA	7.30E+00		3.10E-0
Benzo(b)fluoranthene		4.16E-08	NA	7.30E-01		3.04E-08
Benzo(g,h,i)perylene		30.00	NA	NA		
Benzo(k)fluoranthene		3.29E-08	NA	7.30E-01		2.40E-08
Butylbenzylphthalate	1.44E-08		2.00E+00	NA	7.20E-09	
Carbazole	50.00	2.86E-08	NA	2.00E-02		5.72E-10
Chrysene		3.63E-08	NA	7.30E-02		2.65E-0
Di-n-butylphthalate	9.21E-08	5.052 00	1.00E-01	NA	9.21E-07	2.002
Dibenz(a,h)anthracene	7.212 00	3.18E-08	NA NA	7.30E+00	J.212 07	2.32E-0
Dibenzofuran		5.102 00	NA	NA		L.DLL O
Fluoranthene	1.02E-07		4.00E-02	NA	2.55E-06	
Fluorene	1.19E-08		4.00E-02	NA	2.97E-07	
Indeno(1,2,3-cd)pyrene	1.1.2.40	3.68E-08	NA	7.30E-01		2.68E-08
N-Nitrosodiphenylamine (1)		1.06E-08	NA	4.90E-03		5.21E-1
Naphthalene			NA	NA		
Pentachlorophenol	2.07E-07	7.38E-08	3.00E-02	1.20E-01	6.89E-06	8.86E-09
Phenanthrene	2.072 01	1.502 00	NA NA	NA NA	0.072 00	0.002 0
Pyrene	9.43E-08		3.00E-02	NA	3.14E-06	
bis(2-Chloroisopropyl) ether	6.93E-08		1.00E-03	NA	6.93E-05	
bis(2-Ethylhexyl)phthalate	1.03E-07	3.67E-08	2.00E-02	1.40E-02	5.13E-06	5.13E-10
PESTICIDES/PCB						
4,4'-DDD	9.41E-10	3.36E-10	5.00E-04	2.40E-01	1.88E-06	8.06E-1
4,4'-DDE			NA	NA		
4,4'-DDT	1.09E-09	3.91E-10	5.00E-04	3,40E-01	2.19E-06	1.33E-10
Aldrin	4.26E-10	1.52E-10	3.00E-05	1.70E+01	1.42E-05	2.58E-09
Aroclor-1260		2.89E-09	NA	7.70E+00		2.22E-08
Dieldrin	1.34E-09	4.79E-10	5.00E-05	1.60E+01	2.68E-05	7.66E-09
Endosulfan I	1.26E-09		6.00E-03	NA	2.10E-07	
Endosulfan sulfate	8.18E-10		5.00E-05	NA	1.64E-05	
Endrin	9.89E-10		3.00E-04	NA	3.30E-06	
Endrin ketone	100000000000000000000000000000000000000		NA	NA		0.500 19.000 0000 0000
Heptachlor epoxide	0.00E+00	0.00E+00	1.30E-05	9.10E+00	0.00E+00	0.00E+0
alpha-Chlordane	3.32E-10	1.19E-10	6.00E-05	1.30E+00	5.53E-06	1.54E-10
beta-BHC		1.69E-10	NA	1.80E+00		3.04E-10
delta-BHC	+		NA	NA		1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-l	Hazard Quotient	Cancer Risk
METALS						
Arsenic	1.73E-06	6.20E-07	3.00E-04	1.75E+00	5.78E-03	1.08E-06
Barium	3.92E-05		7.00E-02	NA	5.60E-04	
Cadmium	6.45E-07		5.00E-04	NA	1.29E-03	
Copper	1.95E-05	1 100	4.00E-02	NA	4.88E-04	
Lead	400		NA	NA		
Mercury	3.48E-08		3.00E-04	NA	1.16E-04	
Selenium	3.63E-07		5.00E-03	NA	7.25E-05	101
Silver	2.35E-07		5.00E-03	NA	4.70E-05	
Thallium	1.91E-07		7.00E-05	NA	2.73E-03	
Zinc	4.82E-05		3.00E-01	NA	1.61E-04	10
HERBICIDES					100	
МСРА	1.76E-06		5.00E-04	NA	3.52E-03	
Totals - HQ & CR		7			1.50E-02	1.79E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-26

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils	Conv.	Skin Surface Area Contact	Adherence Factor	Absorption Factor	Exposure Frequency	Exposure Duration	Body	Aver	Averaging Time
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm²)	(mg soil/cm²)	(unitless)	(days/year)	(years)	(kg)	Nc (da	(days)
VOLATILE ORGANICS												
Acetone			6.98E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzene Merhydene Chloride			2.00E-03	1.00E-06	5,800	0.1		80	25 %	2 5	9,125	25,550
Toluene			6.59E-03	1.00E-06	5,800	1.0		80	3 %	2 2	9,125	25,550
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene			2.79E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
2,6-Dinitrotoluene				1.00E-06	5,800	1.0		80	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
2-Methylphenol				1.00E-06	5,800	1.0		80	25	70	9,125	25,550
3,3'-Dichlorobenzidine			2.47E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
3-Nitroaniline			5.98E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
4-Nitroaniline			5.98E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Acenaphthylene			9.60E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Anthracene			1.30E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzo(a)anthracene			3.44E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzo(a)pyrene			3.80E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzo(b)fluoranthene			3.72E-01	1.00E-06	2,800	1.0		80	25	70	9,125	25,550
Benzo(g,h,i)perylene			3.06E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzo(k)fluoranthene			2.95E-01	1.00E-06	5,800	1.0		80	22	70	9,125	25,550
Butylbenzylphthalate			4.60E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Carbazole			2.56E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Chrysene			3.25E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Di-n-butylphthalate			2.94E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Dibenz(a,h)anthracene			2.84E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Dibenzofuran			3.60E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Fluoranthene			3.25E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Fluorene		-11	3 80E-02	1.00E-06	5 800	10		80	25	70	9010	25 550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils	Conv. Factor	Skin Surface Area Contact	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Averaging Time (days)	aging ne (/S)
	(mg/kg-day)	(mg/kg-day)	(ing/kg)	(Rim Ry)	()	(4)	ì		,	i	Nc	Car
J. (122 J. D. 1997)			3 29F-01	1 00E-06	5.800	1.0		80	25	70	9,125	25,550
indeno(1,2,3-cd)pyrene			0 50E-02	1 00E-06	5 800	1.0		80	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			3 70E-02	1.00E-06	5 800	10		80	25	70	9,125	25,550
Naphthalene			6 60F-01	1 00E-06	5.800	1.0		80	25	70	9,125	25,550
Pentacniorophenoi			3 19F-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
rnenanunene			3 01F-01	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
Fyrene			2.21E-01	1 00E-06	5.800	1.0		80	25	70	9,125	25,550
bis(z-Cmorotsopropyt) euter bis(z-Ethylhexyl)phthalate			3.28E-01	1.00E-06	5,800	1.0		80	25	20	9,125	25,550
PESTICIDES/PCB					70.00						ī	
			3 00E-03	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
4,4-DDD			5.78E-03	1 00E-06	5 800	1.0		80	25	20	9,125	25,550
4,4-DDE			3.40E-03	1 00F-06	5 800	1.0		80	25	70	9,125	25,550
4,4-DD1			1.36E-03	1.00E-06	5 800	1.0		80	25	02	9,125	25,550
Aldrin		1 015 08	2 58E-02	1 00F-06	5 800	1.0	90:0	80	25	70	9,125	25,550
Aroclor-1260		1.012-00	4.78F-03	1 00F-06	5 800	1.0		80	25	70	9,125	25,550
Dieldrin			4 02F-03	1.00E-06	5.800	1.0		80	25	70	9,125	25,550
Endosuman I			2 61F-03	1 00E-06	5,800	1.0		80	25	70	9,125	25,550
indosuman suman			3 16F-03	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
Endrin			3.45E-03	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
Endrin Ketone			20.701.0	1 00F-06	5 800	1.0		80	25	70	9,125	25,550
Heptachior epoxide			1.06F-03	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
aipna-Chlordane			1 51F-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Deta-DITC				2000.	6 800	-		80	25	70	9 125	25,550

TABLE 7-26

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

\$5.54F+00	Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	ging ne ns
Same		(5, 6, 6,)	(5-0-0-)	(6. 6.	(6.6.)							Nc	Car
March Marc	METALS												
1,00E-06 3,500 10 0 0 0 0 0 0 0 0	Arsenic			5.54E+00	1.00E-06	5,800	1.0		80	25	20	9,125	25,550
Marie Mari	Barium			1.25E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
CIDES Content (cm) Content (cm	Cadmium	3.741E-07		2.06E+00	1.00E-06	5,800	1.0	0.01	80	25	70	9,125	25,550
CIDES 1.10E-06 5.800 1.0 80 25 70 9.125	Copper			6.24E+01	1.00E-06	5,800	1.0		08	25	70	9,125	25,550
Tile 1.00E-06 5.800 1.0 80 25 70 9,125 Tile 1.00E-06 1.00E-06 5.800 1.0 80 80 80 80 Tile 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.00E-06 1.0 Tile 1.00E-06 1	Lead			6.19E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
1.16E+00 1.00E+06 5.800 1.0 80 25 70 9,125 1.24E+02 1.00E+06 2.800 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 26	Mercury			1.11E-01	1.00E-06	2,800	1.0		80	25	70	9,125	25,550
Topic	Selenium			1.16E+00	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
CIDES 1.06E-06	Silver			7.50E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
1.54E+02 1.00E-06 5.800 1.0 80 25 70 9,125	Thallium			6.10E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
CIDES 5.63E+00 1.00E-06 5.800 1.0 80 25 70 9.125	Zinc			1,54E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Signature Sign	HERBICIDES									1			
TION: Absorbed Dose (mg/kg-day) = CSxCFxSAxAFxABSxEFxED BW x AT						,					i	30.0	000 30
sorbed Dose (mg/kg-day) = CSxCExSAxAExABSxEExED BW x AT Assumptions: Assumptions: EFC - Soil Data (RME) 5,800 (RME Adult Worker) 1.0 (RME - All Receptors) Applicable for PCBs and Cadmium (EPA, 1992b) Applicable for PCBs and Cadmium (EPA, 1992b)	MCPA			5.63E+00	1.00E-06	2,800	0.T		08	3	2	2,1,2	055,52
forbed Dose (mg/kg-day) = CSxCExSAxAExABSxEExED BWxAT Assumptions: Assumptions: EPC - Soil Data (RME) 10-6 5,800 (RME Adult Worker) 1.0 (RME - All Receptors) Applicable for PCBs and Cadmium (EPA, 192b) Sorting days)													
orbed Dose (mg/kg-day) = CSxCExSAxAExABSxEExED BW x AT Assumptions: Assumptions: EPC - Soil Data (RME) 5,800 (RME Adult Worker) 1.0 (RME - All Receptors) Applicable for PCBs and Cadmium (EPA, 192b) Solve (mg/kg-days) Applicable for PCBs and Cadmium (EPA, 192b)											4		
Assumptions: EPC - Soil Data (RME) 10-6 5,800 (RME Adult Worker) 1.0 (RME - All Receptors) Applicable for PCBs and Cadmium (EPA, 192b) Variables: EF = Exposure Frequency (days/year) ED = Exposure Frequency (days/year) ED = Exposure Frequency (days/year) EM = Exposure Frequency (days/year) Applicable for PCBs and Cadmium (EPA, 192b)	EQUATION:	Absorbed Do	se (mg/kg-day) =	CS x CF x SA x AF 3	ABS x EF x ED BW x A T								
1/kg) EPC - Soil Data (RME) 10-6 5,800 (RME Adult Worker) 1.0 (RME - All Receptors) Applicable for PCBs and Cadmium (EPA, 1992b)	Variables:			Assumptions:			Variables:			Assumptions:			
	CS = Chemical Concentration in So CF = Conversion Factor (10-6 kg/m SA = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor ABS = Absorption Factor (unitless)	il (mg soil/kg) g) (mg/cm²)		EPC - Soil Data (RM 10-6 5,800 (RME Adult W 1.0 (RME - All Recel Applicable for PCBs	IE) /orker) ptors) and Cadmium (EPA, i	(992b)	EF = Exposure F ED = Exposure D BW = Bodyweigh AT = Averaging	requency (days/ uration (years) t (kg) Time (days)	year)	80 (RME Ind 25 (RME Ind 70 (Adult Ma 25 x 365 (Nc)	ustrial Work tustrial Work ale)	er) er) ar)	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-l	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS					4 3 3	
Acetone			1.00E-01	NA	150	
Benzene			NA	2.90E-02	1	
Methylene Chloride			6.00E-02	6.00E-02		
Γoluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS					1 13	
2.4-Dinitrotoluene		-	2.00E-03	NA		
			1.00E-03	NA	1 2 30	
2,6-Dinitrotoluene			NA NA	NA	100	
2-Methylnaphthalene			5.00E-02	NA		
2-Methylphenol			NA NA	4.50E-01		
3,3'-Dichlorobenzidine			NA NA	NA NA		
3-Nitroaniline			NA NA	NA		
4-Nitroaniline			6.00E-02	NA		
Acenaphthene			NA NA	NA	1 7 7 1	
Acenaphthylene			3.00E-01	NA		1
Anthracene			NA NA	1.46E+00	1 2 1 1	
Benzo(a)anthracene			NA NA	1.46E+01	11 22	
Benzo(a)pyrene			50,000	1.46E+00		
Benzo(b)fluoranthene			NA NA	NA		
Benzo(g,h,i)perylene		_	NA NA	1.46E+00		
Benzo(k)fluoranthene			NA NA			
Butylbenzylphthalate		1 1 5 3	2.00E+00	NA 2 00F 02	F C G V V	
Carbazole	3.0		NA	2.00E-02	113111	
Chrysene	1000		NA NA	1.46E-01	1 10 10 10	
Di-n-butylphthalate	7.5		8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA 1 (C) (O)		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00	1 14 -	
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene	a- 6		NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA NA	NA	1. 1.2	
Pyrene			3.00E-02	NA	4.4	
bis(2-Chloroisopropyl) ether			1.00E-03	NA L 40E 02	V 601	
bis(2-Ethylhexyl)phthalate	1-10-3		2.00E-02	1.40E-02		
PESTICIDES/PCB					1.13	
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		
Aroclor-1260		1.01E-08	NA	8.11E+00		8.15E-08
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide	1.0		1.30E-05	9.10E+00		
alpha-Chlordane	1 6	1	6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS			110-7-11722-1100			
Arsenic			2.94E-04	1.79E+00		
Barium			7.00E-03	NA		
Cadmium	3.74E-07		3.00E-05	NA	1.25E-02	
Соррег			2.00E-02	NA	1034.042.0424.044	
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA		
HERBICIDES						
МСРА			5.00E-04	NA		
Totals - HQ & CR					1.25E-02	8.15E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-20

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (d	Averaging Time (days)
									10 m	Nc	Car
VOLATILE ORGANICS			į								
Acetone	3.28E-08		6.98E-03	480	1.00E-06	-	250	ಾನ	70	365	25.550
Benzene		1.34E-10	2.00E-03	480	1.00E-06		250	-	70	365	25,550
Methylene Chloride		0.00E+00	0.00E+00	480	1.00E-06	-	250	-	70	365	25,550
Toluene	3.10E-08	4.42E-10	6.59E-03	480	1.00E-06	-	250	-	70	365	25,550
SEMIVOLATILE ORGANICS											
2,4-Dinitrotoluene	1.31E-06		2.79E-01	480	1.00E-06	1	250	-	70	365	25.550
2,6-Dinitrotoluene	0.00E+00		0.00E+00	480	1.00E-06	-	250	-	70	365	25,550
2-Methylnaphthalene			1.30E-01	480	1.00E-06		250	1	70	365	25,550
2-Methylphenol	0.00E+00		0.00E+00	480	1.00E-06	_	250	П	70	365	25,550
3,3'-Dichlorobenzidine		1.66E-08	2.47E-01	480	1.00E-06	ı	250	-	70	365	25,550
3-Nitroaniline			5.98E-01	480	1.00E-06	-	250	-	70	365	25,550
4-Nitroaniline			5.98E-01	480	1.00E-06		250	-	70	365	25,550
Acenaphthene	1.55E-07		3.30E-02	480	1.00E-06	-	250	-	70	365	25,550
Acenaphthylene			9.60E-02	480	1.00E-06		250	-	70	365	25,550
Anthracene	6.11E-07		1.30E-01	480	1.00E-06	1	250	-	70	365	25,550
Benzo(a)anthracene		2.31E-08	3.44E-01	480	1.00E-06	-	250		70	365	25,550
Benzo(a)pyrene		2.55E-08	3.80E-01	480	1.00E-06	-	250	1	70	365	25,550
Benzo(b)fluoranthene		2.50E-08	3.72E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(g,h,i)perylene			3.06E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(k)fluoranthene		1.98E-08	2.95E-01	480	1.00E-06		250	-	70	365	25,550
Butylbenzylphthalate	2.16E-07		4.60E-02	480	1.00E-06	-	250	_	70	365	25,550
Carbazole		1.72E-08	2.56E-01	480	1.00E-06	-	250	-	70	365	25,550
Chrysene		2.18E-08	3.25E-01	480	1.00E-06	1	250	_	70	365	25,550
Di-n-butylphthalate	1.38E-06		2.94E-01	480	1.00E-06	-	250		70	365	25 550

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc)	Intake (Car)	EPC Total Soils	Ingestion Rate	Conv. Factor	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (dz	Averaging Time (days)
	(IIIB/NE-Uay)	(IIII)	(9. A)	(fan mor sm)	(06)			,		Nc	Car
-/- Libertheone		1 01E-08	2 84F-01	480	1.00E-06	-	250	-	70	365	25,550
Dibenz(a,n)anun acene		00-717:1	3.60E-02	480	1.00E-06	1	250	-	70	365	25,550
Orbenzoluran	1 525 06		3.25E-01	480	1 00F-06	-	250	-	70	365	25,550
Fluoranmene	1.335-00		3 80E-02	480	1 00F-06	-	250		70	365	25,550
·luorene	1./8E-0/	2715 00	3.00E-02	480	1 00E-06		250	-	70	365	25,550
Indeno(1,2,3-cd)pyrene		2.21E-06	0.50E-01	480	1.00E-06		250	c 	70	365	25.550
N-Nitrosodiphenylamine (1)		0.3/E-09	7.30E-02	400	1.005.06		250	-	20	365	25.550
Naphthalene		00 110,	3.70E-02	190	1.005-06		250	•	20	365	25.550
Pentachlorophenol	3.10E-06	4.43E-08	0.60E-01	100	1.005-06	• •	250	•	70	365	25 550
Phenanthrene			3.19E-01	460	1.00E-00		050		20	365	25 550
Pyrene	1.41E-06		3.01E-01	480	1.00E-06	٠,	027		2 6	376	25.550
bis(2-Chloroisopropyl) ether	1.04E-06		2.21E-01	480	1.00E-06	-	250	-	0/	202	25,530
bis(2-Ethylhexyl)phthalate	1.54E-06	2.20E-08	3.28E-01	480	1.00E-06	1	250	-	70	365	066,62
PESTICIDES/PCB	8								3		
44' DDD	1 41F-08	2 02F-10	3 00E-03	480	1.00E-06	-	250	-	70	365	25,550
4-DDD	200		5 78F-03	480	1.00E-06	-	250	-	70	365	25,550
4,4-DDE	1 645 00	2 24E 10	3 400 03	480	1 00E-06		250		70	365	25,550
4,4-DDI	1.04E-08	2.34E-10	1.26E 03	480	1.00E-06	•	250	-	70	365	25,550
Aldrin	0.38E-09	9.125-11	0.000	400	1 00E 06		250	-	70	365	25.550
Aroclor-1254	0.00E+00	1 775 00	2.00E+00	180	1.005-06		250		70	365	25,550
Aroclor-1260	00 110	7 021 10	4.30E-02	480	1.00E-06		250		20	365	25,550
Dieldrin	2.01E-08	7.8/E-10	4.205-03	100	1.00E-06		250		20	365	25,550
Endosultan I	1.89E-08		4.02E-03	400	1.00E-06		250	-	70	365	25,550
Endosulfan sulfate	1.23E-08		2.01E-03	460	1.00E-06		250		20	365	25 550
Endrin	1.48E-08		3.10E-03	480	1.00E-00		250		10	365	25,550
Endrin ketone			3.45E-03	480	1.00E-06	-	007		2 6	200	00000
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	480	1.00E-06	-	250	-	0/	202	25,550
alpha-Chlordane	4.98E-09	7.11E-11	1.06E-03	480	1.00E-06	-	250	_	70	365	25,550
heta-BHC		1.01E-10	1.51E-03	480	1.00E-06	-	250	-	70	365	25,550
0.14		Consistence and a construction of the construc	1 375-03	480	1 00E-06		250	_	70	365	25.550

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (dz	Averaging Time (days)
METALS										Nc	Car
A 4.5	2 675 05		7 001	400	1 001 00		050		ŗ	276	
Anumony	2.60E-05	3 72F-07	7.82E+00 5.54F+00	480	1.00E-06		250		0/2	365	055,55
Barium	5.88E-04		1.25E+02	480	1.00E-06		250		70	365	25,550
Cadmium	9.67E-06		2.06E+00	480	1.00E-06		250		70	365	25,550
Copper	2.93E-04		6.24E+01	480	1.00E-06		250		70	365	25,550
Lead	5 20E-07		6.19E+02	480	1.00E-06		250		70	365	25,550
Selenium	5.44E-06		1.16E+00	480	1.00E-06		250		70	365	25,550
Silver	3.52E-06		7.50E-01	480	1.00E-06		250		70	365	25,550
Zinc	7.22E-04		1.54E+02	480	1.00E-06	-	250	-	70	365	25,550
HERBICIDES											
MCPA	2.64E-05		5.63E+00	480	1.00E-06	1	250	-	70	365	25,550
	7										
EQUATION:	Intake (mg/kg-day) =		CS x IR x CF x I BW x A T	CS x IR x CF x FI x EF x ED BW x AT							
	Variables:					Assumptions:					
	CS = Chemical Concen IR = Ingestion Rate (m; CF = Conversion Facto FI = Fraction Ingested EF = Exposure Freque ED = Exposure Duratic BW = Bodyweight (kg)	CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) BW = Bodyweight (kg)	day) 6 kg/mg) ess) days/years) ars)	soil/kg)		EPC - Soil Data (RME) 480 (RME Construction Wolfolds 1 (All Receptors) 250 (RME Construction Wolfolds 1 (Upper bound limit for C) 70 (Adult male)	EPC - Soil Data (RME) 480 (RME Construction Worker) 10-6 11 (All Receptors) 250 (RME Construction Worker) 11 (Upper bound limit for Construction Worker)	EPC - Soil Data (RME) 480 (RME Construction Worker) 10-6 1 (All Receptors) 250 (RME Construction Worker) 1 (Upper bound limit for Construction Worker)	rker)		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone	3.28E-08	1.45	1.00E-01	NA	3.28E-07	
Benzene		1.34E-10	NA	2.90E-02		3.89E-12
Methylene Chloride		0.00E+00	NA	2.90E-02		0.00E+00
Toluene	3.10E-08	4.42E-10	6.00E-02	7.50E-03	5.16E-07	3.32E-12
SEMIVOLATILE ORGANICS				1		
2,4-Dinitrotoluene	1.31E-06		2.00E-03	NA	6.55E-04	
2,6-Dinitrotoluene	0.00E+00	77.88	1.00E-03	NA	0.00E+00	
2-Methylnaphthalene			NA	NA		
2-Methylphenol	0.00E+00	12.5	5.00E-02	NA	0.00E+00	15.500 4.000
3,3'-Dichlorobenzidine	9/23/25/25/2020	1.66E-08	NA	4.50E-01		7.46E-09
3-Nitroaniline			NA	NA		
4-Nitroaniline		5 8 2 5	NA	NA		
Acenaphthene	1.55E-07	1 7 7 1	6.00E-02	NA	2.58E-06	
Acenaphthylene	1997 PERSONAL STATE OF STATE O		NA	NA		
Anthracene	6.11E-07		3.00E-01	NA	2.04E-06	
Benzo(a)anthracene		2.31E-08	NA	7.30E-01		1.68E-08
Benzo(a)pyrene		2.55E-08	NA	7.30E+00		1.86E-07
Benzo(b)fluoranthene		2.50E-08	NA	7.30E-01		1.82E-08
Benzo(g,h,i)perylene	H		NA	NA		The Administration
Benzo(k)fluoranthene		1.98E-08	NA	7.30E-01		1.44E-08
Butylbenzylphthalate	2.16E-07		2.00E+00	NA	1.08E-07	
Carbazole		1.72E-08	NA	2.00E-02		3.43E-10
Chrysene		2.18E-08	NA	7.30E-02		1.59E-09
Di-n-butylphthalate	1.38E-06		1.00E-01	NA	1.38E-05	IALL CONGRESSION NOTICE
Dibenz(a,h)anthracene	1	1.91E-08	NA	7.30E+00		1.39E-07
Dibenzofuran	+	0.73	NA	NA		
Fluoranthene	1.53E-06	4,500	4.00E-02	NA	3.82E-05	
Fluorene	1.78E-07		4.00E-02	NA	4.46E-06	ng apromitera
Indeno(1,2,3-cd)pyrene		2.21E-08	NA	7.30E-01		1.61E-08
N-Nitrosodiphenylamine (1)		6.37E-09	NA	4.90E-03		3.12E-11
Naphthalene			NA	NA	572	
Pentachlorophenol	3.10E-06	4.43E-08	3.00E-02	1.20E-01	1.03E-04	5.31E-09
Phenanthrene			NA	NA		
Pyrene	1.41E-06		3.00E-02	NA	4.72E-05	
bis(2-Chloroisopropyl) ether	1.04E-06		1.00E-03	NA	1.04E-03	
bis(2-Ethylhexyl)phthalate	1.54E-06	2.20E-08	2.00E-02	1.40E-02	7.70E-05	3.08E-10

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
PESTICIDES/PCB						
4,4'-DDD	1.41E-08	2.02E-10	5.00E-04	2.40E-01	2.82E-05	4.84E-11
4,4'-DDE			NA	NA		
4,4'-DDT	1.64E-08	2.34E-10	5.00E-04	3.40E-01	3.28E-05	7.97E-11
Aldrin	6.38E-09	9.12E-11	3.00E-05	1.70E+01	2.13E-04	1.55E-09
Aroclor-1254	0.00E+00	0.00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+00
Aroclor-1260		1.73E-09	NA	7.70E+00		1.33E-08
Dieldrin	2.01E-08	2.87E-10	5.00E-05	1.60E+01	4.02E-04	4.60E-09
Endosulfan I	1.89E-08) 145097555550 3755)	6.00E-03	NA	3.15E-06	
Endosulfan sulfate	1.23E-08		5.00E-05	NA	2.45E-04	
Endrin	1.48E-08		3.00E-04	NA	4.95E-05	
Endrin ketone	0.300,000,000		NA	NA		
Heptachlor epoxide	0.00E+00	0.00E+00	1.30E-05	9.10E+00	0.00E+00	0.00E+00
alpha-Chlordane	4.98E-09	7.11E-11	6.00E-05	1.30E+00	8.30E-05	9.25E-11
beta-BHC		1.01E-10	NA	1.80E+00	0.502 05	1.83E-10
delta-BHC			NA	NA		1.052 10
METALS	110000					
Antimony	3.67E-05	100	4.00E-04	NA	9.18E-02	
Arsenic	2.60E-05	3.72E-07	3.00E-04	1.75E+00	8.67E-02	6.51E-07
Barium	5.88E-04		7.00E-02	NA	8.40E-03	* 3500MAC 5000 Co.M. CO.M.
Cadmium	9.67E-06		5.00E-04	NA	1.93E-02	
Copper	2.93E-04		4.00E-02	NA	7.33E-03	
Lead			NA	NA		
Mercury	5.20E-07		3.00E-04	NA	1.73E-03	
Selenium	5.44E-06		5.00E-03	NA	1.09E-03	
Silver	3.52E-06		5.00E-03	NA	7.04E-04	
Zinc	7.22E-04		3.00E-01	NA	2.41E-03	_
HERBICIDES						
МСРА	2.64E-05		5.00E-04	NA	5.29E-02	
Гotals - HQ & CR					2.75E-01	1.08E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils (mg/kg)	Conv. Factor	Skin Surface Area Contact (cm²)	Adherence Factor	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Ave. T	Averaging Time (davs)
	(1-0-0-)		(00)	10 0						6	Nc	Car
VOLATILE ORGANICS	ART											
Acetone			6.98E-03	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzene			2.00E-03	1.00E-06	5,800	1.0		250	-	70	365	25,550
Methylene Chloride Toluene			6.59E-03	1.00E-06 1.00E-06	5,800	01		250		70	365	25,550 25,550
SEMIVOLATILE ORGANICS					ý				10.0		i je	
2.4-Dinitrotoluene			2.79E-01	1.00E-06	5.800	1.0		250	-	70	365	25,550
2.6-Dinitrotoluene				1.00E-06	5,800	1.0		250	-	70	365	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
2-Methylphenol				1.00E-06	5,800	1.0		250	-	70	365	25,550
3,3'-Dichlorobenzidine			2.47E-01	1.00E-06	5,800	1.0		250	_	70	365	25,550
3-Nitroaniline			5.98E-01	1.00E-06	2,800	1.0		250		70	365	25,550
4-Nitroaniline			5.98E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		250	_	70	365	25,55(
Acenaphthylene			9.60E-02	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Anthracene			1.30E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Benzo(a)anthracene			3.44E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Benzo(a)pyrene	4	i i	3.80E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55
Benzo(b)fluoranthene			3.72E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Benzo(g,h,i)perylene			3.06E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55
Benzo(k)fluoranthene	4		2.95E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Butylbenzylphthalate			4.60E-02	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Carbazole			2.56E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Chrysene			3.25E-01	1.00E-06	5,800	1.0		250	-	70	365	25,55(
Di-n-hutvlnhthalate			2 04E 01	1 000 06	2 800	0.		250		20	392	25 550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

Dose (Nc) Dose (Car) Total Soils Factor (mg/kg-day) (mg/kg-day) (kg/mg)				3.25E-01 1.00E-06			9.50E-02 1.00E-06	3.70E-02 1.00E-06		-	_	_	3.28E-01 1.00E-06	_	5.78E-03 1.00E-06	3.49E-03 1.00E-06					_		3.16E-03 1.00E-06	_	_	_	1.51E-03 1.00E-06	1.37E-03 1.00E-06
v. Skin Surface or Area Contact 1g) (cm²)														90-									-06 5,800				2000	-06 5,800
Adherence Abso Factor Fa (mg soil/cm²) (uni		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0		27-07	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Absorption Exposure Factor Frequency (unitless) (days/year)		250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	_	0.06 250	250	250	250	250	250	250	250	250	250
Exposure Duration (years)		-	_	-	-	-	-	-	-	-	-	-	-	_	-	-		_	-	-	-	_	-	-	_	-	-	
Body Weight (kg)		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	20	70	70	70	70	70	70	70	70	70
Averaging Time (days)		365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
aging ne ys)	Car	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
											Nc	Car
METALS												
Antimony			7.82E+00	1.00E-06	5.800	1.0		250	_	70	365	25.550
Arsenic			5.54E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
Barium			1.25E+02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Cadmium			2.06E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
Copper			6.24E+01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Lead			6.19E+02	1.00E-06	5,800	1.0		250	_	70	365	25,550
Mercury			1.11E-01	1.00E-06	5,800	1.0		250		70	365	25,550
Selenium			1.16E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
Silver			7.50E-01	1.00E-06	5,800	1.0	J	250	-	70	365	25,550
Zinc			1.54E+02	1.00E-06	5,800	1.0		250	-	70	365	25,550
HERBICIDES												
MCBA			\$ 63E+00	1 000-06	2 800	-		750		70	392	75 550
			2000	00-700-1	00010	0.1		200		2	200	00000
EQUATION:												
	Absorbed Dose	Absorbed Dose (mg/kg-day) = CSxCFxSAxAFxABSxEFxED	CSXCFXSAX	AFX ABS X E	EXED							
				TWY HO								
Variables:			Assumptions:				Variables:			Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg)	(mg soil/kg)		EPC - Soil Data (RME)	(RME)			EF = Exposure	EF = Exposure Frequency (days/year)	vs/vear)	250 (RMF Construction Worker)	ruction Work	τ
CF = Conversion Factor (10-6 kg/mg)			10-6				ED = Exposure	ED = Exposure Duration (years)	(8	1 (Upper bound limit for CW)	limit for CW)	
SA = Surface Area Contact (cm²)			5,800 (RME Adult Worker)	ult Worker)			BW = Bodyweight (kg)	ght (kg)		70 (Adult Male)		
AF =Soil to Skin Adherence Factor (mg/cm2)	ng/cm²)		1.0 (RME - All Receptors)	Receptors)			AT = Averaging Time (days)	g Time (davs)		1 x 365 (Nc) 70 x 365 (Car)	x 365 (Car)	
	CONTRACTOR CONTRACTOR											

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene	h he		NA	NA		
2-Methylphenol			5.00E-02	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene		-	NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene	1		NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
PESTICIDES/PCB						
4,4'-DDD 4,4'-DDE 4,4'-DDT Aldrin Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan I Endosulfan sulfate Endrin Endrin ketone Heptachlor epoxide alpha-Chlordane beta-BHC delta-BHC	8.80E-08	1.26E-09	5.00E-04 NA 5.00E-04 3.00E-05 1.90E-05 NA 5.00E-05 6.00E-03 5.00E-05 3.00E-04 NA 1.30E-05 6.00E-05 NA	2.40E-01 NA 3.40E-01 1.70E+01 2.11E+00 8.11E+00 1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00 NA		1.02E-08
METALS		-				
Antimony Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Zinc HERBICIDES			4.00E-04 2.94E-04 7.00E-03 3.00E-05 2.00E-02 NA 4.50E-05 3.00E-03 5.00E-03 1.50E-01	NA 1.79E+00 NA NA NA NA NA NA NA NA		
МСРА	766 766 767		5.00E-04	NA		
Totals - HQ & CR	NUT TO SERVICE STATE OF THE PARTY OF THE PAR					1.02E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SURFACE WATER FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
pis(2-Ethylhexyl)phthalate	2.74E-07	1.96E-08	2.00E-02	1.40E-02	1.37E-05	2.74E-10
METALS						
Antimony	3.03E-06		4.00E-04	NA	7.57E-03	
Arsenic	5.84E-07	4.17E-08	3.00E-04	1.75E+00	1.95E-03	7.30E-08
Barium	9.89E-06	- 40.300.203.203.203	7.00E-02	NA	1.41E-04	
Cadmium	1.07E-07		5.00E-04	NA	2.14E-04	
Calcium	Established book		NA	NA		
Chromium	8.64E-08		5.00E-03	NA	1.73E-05	
Copper	2.64E-06		4.00E-02	NA	6.59E-05	
Iron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	1.64E-06		5.00E-03	NA	3.28E-04	
Nickel	1.42E-07		2.00E-02	NA	7.08E-06	
Potassium	nesswaters said		NA	NA		
Selenium	4.42E-07		5.00E-03	NA	8.84E-05	
Sodium			NA	NA		la La
Vanadium	1.23E-07		7.00E-03	NA	1.76E-05	5
Zinc	4.97E-06		3.00E-01	NA	1.66E-05	
Totals - HQ & CR					1.04E-02	7.33E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE WATER (while Wading)
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE I
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc)	Child Absorbed Dose (Car)	Absorbed Dose/Event	EPC Surface W.	Child Skin Surface Area Contact	Kp Permeability Coefficient	Exposure Time	Exposure Frequency	Child Exposure Duration	Volumetric Conv. Factor	B (unitless)	Tau	Child Body Weight (kg)	Averaging Time (days)	ging ie s)
	(mg/kg-day)	(ing/kg-day)	(mg-cm-cvem)	(mg/c)	(min)	(mmm)	(increase)	(mai scinn)	(cma)				ò	Child (Nc)	Car
SEMIVOLATILE ORGANICS				10	A.										
bis(2-Ethylhexyl)phthalate	1.64E-07	1.17E-08	8.36E-04	2.00E-03	2,170	3.3E-02	-	25	٧.	1.0E-03	1.30E+01	2.10E+01	25	1,825	25,550
METALS															
Antimony	1.31E-10		2.21E-05	2.21E-02	2,170	1.0E-03	-	25	5	1.0E-03	NA	NA	25	1,825	25,550
Arsenic	2.54E-11	1.81E-12	4.26E-06	4.26E-03	2,170	1.0E-03	1	25	S	1.0E-03	NA	NA	25	1,825	25,550
Barium	4.29E-10		7.22E-05	7.22E-02	2,170	1.0E-03	-	25	2	1.0E-03	NA.	Y.	52	1,825	25,550
Cadmium	4.65E-12		7.82E-07	7.82E-04	2,170	1.0E-03		25 %	v, v	1.0E-03	A Z	A Z	3,5	1,825	25,550
Calcium	1 505 11		0.32E-02	6.32E+01	2,170	2 OF-03		25	· v	1.0E-03	N. A.	Y.Y	25	1,825	25.550
Chromium	1.30E-11		00-707-1	1.93E-02	2,170	NA		25	'n	1.0E-03	NA	NA	25	1,825	25,550
Coppet			1.93E-04	1.93E-01	2,170	1.0E-03	-	25	2	1.0E-03	NA	NA	25	1,825	25,550
Lead			1.48E-07	3.71E-02	2,170	4.0E-06	-	25	2	1.0E-03	NA	NA	25	1,825	25,550
Magnesium			8.90E-03	8.90E+00	2,170	1.0E-03	-	25	8	1.0E-03	NA	NA	25	1,825	25,550
Manganese	7.12E-11		1.20E-05	1.20E-02	2,170	1.0E-03	-	25	2	1.0E-03	NA	NA	25	1,825	25,550
Nickel	6.14E-14		1.03E-07	1.03E-03	2,170	1.0E-04	-	25	S	1.0E-03	NA	NA	52	1,825	25,550
Potassium			3.52E-03	3.52E+00	2,170	1.0E-03	-	25	S	1.0E-03	NA	NA.	25	1,825	25,550
Selenium	1.92E-11		3.23E-06	3.23E-03	2,170	1.0E-03	-	25	2	1.0E-03	NA	NA	25	1,825	25,550
Sodium			7.03E-03	7.03E+00	2,170	1.0E-03	-	25	2	1.0E-03	NA	NA	25	1,825	25,550
Vanadium	5.35E-12		9.00E-07	9.00E-04	2,170	1.0E-03	-	25	2	1.0E-03	Y'A	NA	52	1,825	25,550
Zinc	7.76E-11	9	2.18E-05	3.63E-02	2,170	6.0E-04	-	25	5	1.0E-03	NA	NA	25	1,825	25,550
FOII A TION:				31											
	Absorbed D	Absorbed Dose (mg/kg-day) = DAxSAxKpxETxEFxEDxCF BWxAT	DAXSAXKpx	ETX EFX ED BW x AT	X CE										
	Variables:				Assumptions:			Variables:				Assumptions:	ns:		
	DA = Absorbed SA = Surface A: Kp = Permeabil ET = Exposure	DA = Absorbed Dose per Event (mg-cm²/event) SA = Surface Area Contact (cm²) Kp = Permeability Coefficient (cm/hour) ET = Exposure Time (hours/day)	mg-cm²/event) n/hour)		Calculated from EPA, 1992 2,170 (RME Child) Compound Specific, EPA, 1 1 (RME)	Calculated from EPA, 1992 2,170 (RME Child) Compound Specific, EPA, 1992 I (RME)	26	EF = Exposure Frequence ED = Exposure Duration CF = Vol. Conv. Factor BW = Bodyweight (kg)	EF = Exposure Frequency (days/ ED = Exposure Duration (years) CF = Vol. Conv. Factor (1 L/100 BW = Bodyweight (kg)	EF = Exposure Frequency (days/year) ED = Exposure Duration (years) CF = Vol. Conv. Factor (1 L/1000 cm²) BW = Bodyweight (Eg)		25 5 (RME) 0.001 25 (Child)	25 5 (RME) 0.001 25 (Child)	5001	
Tao = Lag time (hours)	Tao = Lag time (hours)	(hours)			Compound of	Compound Specific, EPA, 1992	76	B = Bunge	B = Bunge Model Value	200		Compound	1 Specific, E.	FA, 177#	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg)	Child CDI (Car) (mg/kg)	Dermal RfD (mg/kg/day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	1.64E-07	1.17E-08	2.00E-02	1.40E-02	8.20E-06	2.30E-09
METALS						
Antimony	1.31E-10		4.00E-04	NA	3.28E-07	
Arsenic	2.54E-11	1.81E-12	2.94E-04	1.79E+00	8.62E-08	4.54E-11
Barium	4.29E-10		7.00E-03	NA	6.13E-08	1764-121760-700-
Cadmium	4.65E-12		3.00E-05	NA	1.55E-07	
Calcium			NA	NA		
Chromium	1.50E-11	1	2.50E-04	NA	6.00E-08	
Copper			2.00E-02	NA		
Iron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	7.12E-11		5.00E-03	NA	1.42E-08	
Nickel	6.14E-14		1.00E-03	NA	6.14E-11	
Potassium			NA	NA		
Selenium	1.92E-11		3.00E-03	NA	6.40E-09	
Sodium			NA	NA		
Vanadium	5.35E-12		7.00E-03	NA	7.64E-10	
Zinc	7.76E-11		1.50E-01	NA	5.17E-10	
Totals - HQ & CR					8.91E-06	2.34E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SURFACE WATER (while Wading)
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)

CASE 1
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

SEMIVOLATILE ORGANICS 2.74E-07 1.96E-08 2.00E-03 bis(2-Ethylhexyl)phthalate 2.74E-07 1.96E-08 2.00E-03 Antimony 3.03E-06 2.21E-02 2.21E-02 Arsenic 5.84E-07 4.17E-08 4.26E-03 Cadmium 5.89E-06 7.82E-04 7.22E-02 Calcium 8.64E-08 6.31E-04 6.31E-04 Chromium 8.64E-08 1.93E-01 1.93E-01 Lead Manganese 1.42E-07 1.03E-03 Manganese 1.42E-07 3.52E+00 Solenium 4.42E-07 3.53E-03 Sodium 1.23E-07 9.00E-04 A vanadium 4.97E-07 3.63E-03 A vanadium 4.9	0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05		2 2222222222222222222222222222222222222	w	22 22 23 23 23 23 23 23 23 23 23 23 23 2	Child(Ne) 1,825 1,825 1,825 1,825 1,825 1,825 1,825 1,825	25,550 25
3.03E-06 5.84E-07 9.89E-06 1.07E-07 8.64E-08 2.64E-06 1.42E-07 4.42E-07 4.42E-07 4.97E-06			2 22222222222	<i>ო თოოოოო</i>	2 2222222222222222222222222222222222222	1,825 1,825 1,825 1,825 1,825 1,825 1,825 1,825	25,550 25
3.03E-06 5.84E-07 9.89E-06 1.07E-07 8.64E-08 2.64E-06 1.42E-07 4.42E-07 4.97E-06			2 2222222222	<i>w</i>	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1,825 1,825 1,825 1,825 1,825 1,825 1,825 1,825	25,550 25
3.03E-06 5.84E-07 9.89E-06 1.07E-07 8.64E-08 2.64E-06 1.42E-07 4.42E-07 4.42E-07 1.123E-07			22222222222	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1,825 1,825 1,825 1,825 1,825 1,825 1,825	25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550
3.03E-06 5.84E-07 9.89E-06 1.07E-07 1.07E-07 1.04E-06 1.42E-07 1.123E-07 1.123E-07 4.97E-06			222222222222		22222222	1,825 1,825 1,825 1,825 1,825 1,825	25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550
5.84E-07 9.89E-06 1.07E-07 8.64E-08 2.64E-06 1.64E-06 1.42E-07 1.23E-07 1.23E-07 4.97E-06			22222222222	י אי	22 22 22 22 22 22 22 22 22 22 22 22 22	1,825 1,825 1,825 1,825 1,825	25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550
ium 8.64E-06 2.64E-06 2.64E-06 1.42E-07 1.42E-07 1.23E-07 1.23E-07 4.97E-06 4.97E-07 4.97E-07 1.23E-07 4.97E-07 1.23E-07 1.25E-07			2222222222		22 22 22 22 22 22 22 22 22 22 22 22 22	1,825 1,825 1,825 1,825	25,550 25,550 25,550 25,550 25,550 25,550 25,550 25,550
n 8.64E-08 2.64E-06 1.42E-07 3 4.42E-07 4.42E-07 1.1.23E-07 4.97E-06			ងងងងងងង ង		25 25 25 25 25 25 25 25 25 25 25 25 25 2	1,825 1,825 1,825	25,550 25,550 25,550 25,550 25,550 25,550 25,550
n 8.64E-08 2.64E-06 se 1.64E-06 1.42E-07 4.42E-07 1 1.23E-07 4 97E-06			22222222	יאי אי אי אי אי	25 25 25 25 25	1,825	25,550 25,550 25,550 25,550 25,550 25,550
um 8.64E-08 2.64E-06 1.42E-07 1.23E-07 4.97E-07			222222	יאימימימי	25 25 25	1,825	25,550 25,550 25,550 25,550 25,550
um 1.64E-06 1.42E-07 1.35E-07 1.23E-07 1.35E-07			22 22 23 23	vo vo vo	25		25,550 25,550 25,550 25,550
um 1.64E-06 1.42E-07 1.00 4.42E-07 1.23E-07 1.23E-07 1.23E-07 4.97E-06			ន្តន	v vo	35	1,825	25,550
1.64E-06 1.42E-07 4.42E-07 1.23E-07 4.97E-06			22 22	vo '	1 '	1,825	25,550
1.64E-06 1.42E-07 4.42E-07 1.23E-07 4.97E-06			22 23		52 %	1,825	42,330
1.64E-06 1.42E-07 4.42E-07 1.23E-07 4.97E-06			57	0.4	0 %	1,822	25 550
un 4.42E-07 n 4.42E-07 mm 1.23E-07 4.97E-06			36	n 4	2 %	1,825	25,550
4.42E-07 1.23E-07 4.97E-06	_		5 5	n 4	3 %	1,825	25.550
1. 1. 1. 23E-07 4. 4. 97E-06	_		2 5		36	1 875	25 550
m 1.23E-07 4 97E-06	0.00		3,5	n v	3 2	1,825	25.550
lium 1.25E-0/			36	, 4	25	1.825	25,550
4.9706			3 6	. •	25	1 825	25.550
	2 0.05		3		3	27011	
EQUATION: Intake (mg/kg-day) = CS	CSxCRxETxEFxED	LXEFXED					
Variables			Assumptions:				
CS = Chemical Concentration in Surface Water (mg/L) CR = Contact Rate (Liters/hour) ET = Exposure Time (hours/day) EF = Exposure Frequency (days/year) FD = Exposure Duration (vents)	ce Water (mg/L)		EPC - Surface Water Da 0.05 (all recreators) 1 (RME - all recreators) 25 5 (RME)	EPC - Surface Water Data - RME 0.05 (all recreators) 1 (RME - all recreators) 25 (RME)	- RME		
BW = Bodyweight (kg) AT = Averaging Time (days)			25 (Child) 5 x 365 (Nc),	25 (Child) 5 x 365 (Nc), 70 x 365 (Car)			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

Page 1 of 1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SURFACE WATER FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 1

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	2.74E-07	1.96E-08	2.00E-02	1.40E-02	1.37E-05	2.74E-10
METALS						
Antimony	3.03E-06		4.00E-04	NA	7.57E-03	
Arsenic	5.84E-07	4.17E-08	3.00E-04	1.75E+00	1.95E-03	7.30E-08
Barium	9.89E-06		7.00E-02	NA	1.41E-04	
Cadmium	1.07E-07	1	5.00E-04	NA	2.14E-04	
Calcium			NA	NA		
Chromium	8.64E-08		5.00E-03	NA	1.73E-05	
Copper	2.64E-06	8	4.00E-02	NA	6.59E-05	
ron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	1.64E-06		5.00E-03	NA	3.28E-04	
Nickel	1.42E-07		2.00E-02	NA	7.08E-06	
Potassium	01 40-01 45-0100		NA	NA		
Selenium	4.42E-07)	5.00E-03	NA	8.84E-05	
Sodium			NA	NA		
Vanadium	1.23E-07		7.00E-03	NA	1.76E-05	
Zinc	4.97E-06		3.00E-01	NA	1.66E-05	
Totals - HQ & CR					1.04E-02	7.33E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte (mg/k VOLATILE ORGANICS Acetone Benzene Methylene Chloride Toluene Toluene 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-Methylmaphhalene 2-Methylmaphhalene 2-Methylmaphhalene 2-Methylmaphhalene	(Nc) (mg/kg-day)	Intake		1	,		5	•			
		(Car) (mg/kg-day)	Soil (mg/kg)	Rate (mg soil/dav)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight	Aver Til	Averaging Time (davs)
			5		ò			(ama)	(Gw)	Nc	Car
	7.64E-09		6.98E-03	200	1.0E-06	-	50	ଂଧ	25	1,825	25,550
		1.57E-10	2.00E-03	200	1.0E-06		50	\$ 4	25	1,825	25,550
3/01	7.22E-09		6.59E-03	200	1.0E-06		20	n vo	25	1,825	25,550
							1				
2,6-Dinitrotoluene 2-Methylnaphthalene 2-Methylnhanol	3.06E-07		2.79E-01	200	1.0E-06	-	20		25	1 825	25 550
2-Methylnaphthalene 2-Methylnhenol				200	1.0E-06	-	50	8	25	1,825	25,550
2-Methylphenol			1.30E-01	200	1.0E-06	П	50	5	25	1,825	25,550
- mondification		0.0000000000000000000000000000000000000		200	1.0E-06		20	S	25	1,825	25,550
3,3'-Dichlorobenzidine		1.93E-08	2.47E-01	200	1.0E-06	-	20	5	25	1,825	25,550
3-Nitroaniline			5.98E-01	200	1.0E-06	-	20	5	25	1,825	25,550
			5.98E-01	200	1.0E-06	-	20	2	25	1,825	25,550
	3.62E-08		3.30E-02	200	1.0E-06	-	20	5	25	1,825	25,550
lene			9.60E-02	200	1.0E-06		20	5	25	1,825	25,550
	1.42E-07		1.30E-01	200	1.0E-06	-	20	'n	25	1,825	25,550
Benzo(a)anthracene		2.69E-08	3.44E-01	200	1.0E-06	-	20	S	25	1,825	25,550
Benzo(a)pyrene		2.98E-08	3.80E-01	200	1.0E-06	-	20	5	25	1,825	25,550
Benzo(b)Huoranthene		2.91E-08	3.72E-01	200	1.0E-06	 .	50	y I	25	1,825	25,550
Benzo(k)fluoranthene		2 31E-08	2.00E-01	200	1.0E-06		000	n 4	2 2	1,825	25,550
	5 04F-08	200	4 60F-02	200	1.0E-06	-	20	o 4	2 5	1,623	25,550
		2 00F-08	2 56F-01	200	1 0E-06		20) V	2,5	1,025	25,530
Chrysene		2.54E-08	3.25E-01	200	1.0E-06	-	50	י ני	25	1,825	25,530
Iphthalate	3.23E-07		2.94E-01	200	1.0E-06		20) V	3,5	1,825	25,530
Dibenz(a,h)anthracene		2.23E-08	2.84E-01	200	1.0E-06	-	50	'n	25	1,825	25,550
Dibenzofuran			3.60E-02	200	1.0E-06	-	50	S	25	1.825	25.550
iene	3.57E-07		3.25E-01	200	1.0E-06	-	50	S	25	1,825	25,550
	4.16E-08		3.80E-02	200	1.0E-06	124	50	5	25	1,825	25,550
Indeno(1,2,3-cd)pyrene		2.57E-08	3.29E-01	200	1.0E-06	1	50	5	25	1,825	25,550

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TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

	Child	Child		Child				Child	Child		
	Intake	Intake	EPC	Ingestion	Conv.	Fraction	Exposure	Exposure	Body	Avei	Averaging
Analyte	(Nc)		Soil	Rate	Factor	Ingested	Frequency	Duration (vegre)	Weight	T	Time (dave)
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg son/day)	(RE/IIIE)	(minucess)	(days/ycar)	(Sems)	(Sy)	Nc	Car
(1) Silver dishardamina (1)		7.44E_00	0 50E-02	200	1 OF-06	-	50	8	25	1.825	25.5
N-initrosouphenyianine (1)		10-71-1	3 70E-02	200	1 OF-06		20	٧.	25	1.825	25.5
Dentrohloronhanol	7.23E-07	5 17E-08	6 60F-01	200	1.0E-06	-	50	5	25	1,825	25,
Tellacillolophenol		200	3 19F-01	200	1.0E-06	-	50	5	25	1,825	25,
Directo	3 30F-07		3.01E-01	200	1.0E-06	1	50	S	25	1,825	25,5
Lysic Chloroisonronyl) ether	2 43F-07		2.21E-01	200	1.0E-06		50	5	25	1,825	25,5
bis(2-Ethylhexyl)phthalate	3.59E-07	2.57E-08	3.28E-01	200	1.0E-06	-	20	5	25	1,825	25,550
PESTICIDES/PCB											
4 4'-DDD	3.29E-09	2.35E-10	3.00E-03	200	1.0E-06	-	50	5	25	1,825	25
44'-DDF			5.78E-03	200	1.0E-06	-	20	5	25	1,825	25
44'-DDT	3 83F-09	2.74E-10	3.49E-03	200	1.0E-06	-	50	S	25	1,825	25
Aldrin	1.49E-09	1.06E-10	1.36E-03	200	1.0E-06		20	S	25	1,825	25
Aroclor-1260		2.02E-09	2.58E-02	200	1.0E-06	-	50	9	25	1,825	25
Dieldrin	4.69E-09	3.35E-10	4.28E-03	200	1.0E-06	-	50	\$	25	1,825	25
Endosulfan I	4.41E-09		4.02E-03	200	1.0E-06	-	50	2	25	1,825	25
Endosulfan sulfate	2.86E-09		2.61E-03	200	1.0E-06	-	50	5	25	1,825	25,550
Endrin	3.46E-09		3.16E-03	200	1.0E-06		20	5	25	1,825	25
Endrin ketone			3.45E-03	200	1.0E-06	-	20	2	25	1,825	25
Hentachlor enoxide				200	1.0E-06	-	50	5	25	1,825	25
alpha-Chlordane	1.16E-09	8.30E-11	1.06E-03	200	1.0E-06	-	50	5	25	1,825	25
hera-BHC		1.18E-10	1.51E-03	200	1.0E-06	-	50	5	25	1,825	25
0110			1 275 02	000	1 OF-06	-	20	·	25	1 825	C

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TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte METALS		Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Child Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Aver Ti (dz	Averaging Time (days) Car
Arsenic Barium Cadmium		6.07E-06 1.37E-04 2.26E-06	4.34E-07	5.54E+00 1.25E+02 2.06E+00	200	1.0E-06 1.0E-06		50	יט יט יע	25	1,825	25,550
Copper Lead Mercury		6.84E-05		6.24E+01 6.19E+02 1.11E-01	700 700 700 700	1.0E-06 1.0E-06 1.0E-06		20 20 20 20	ט אט אט אט	52 52 52 52 53	1,825 1,825 1,825 1.825	25,550 25,550 25,550 25,550
Selenium Silver Thallium Zinc		1.27E-06 8.22E-07 6.68E-07 1.69E-04		1.16E+00 7.50E-01 6.10E-01 1.54E+02	200 200 200 200	1.0E-06 1.0E-06 1.0E-06 1.0E-06		20 20 20 20 20	ממממ	22 22 23 23 23 23 23 23 23 23 23 23 23 2	1,825 1,825 1,825 1,825	25,550 25,550 25,550 25,550
HERBICIDES					2			7	3			
MCPA		6.17E-06		5.63E+00	200	1.0E-06	1	50	8	25	1,825	25,550
EQUATION:	Intake	Intake (mg/kg-day) = $CS \times IR \times CF \times FI \times EF \times ED$ $BW \times AT$	CS x IR x CF x F BW x AT	KETXEEXE AT	Q							
		Variables:					Assumptions:					
		CS = Chemical Concer IR = Ingestion Rate (m CF = Conversion Fact FI = Fraction Ingested EF = Exposure Frequ ED = Exposure Durati BW = Bodyweight (kg) AT = Averaging Time	CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	on in Soil (mg day) 6 kg/mg) ess) days/years) ars)	soil/kg)		EPC Soil Data - RME 200 (RME Child) 10-6 50 (RME) 5 (RME) 55 (RME) 55 (Child) 5 x 365 (Nc), 70 x 365	EPC Soil Data - RME 200 (RME Child) 10-6 50 (RME) 50 (RME) 55 (RME) 55 (RME) 55 (Child) 57 365 (Nc), 70 x 365 (Car)				

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
OLATILE ORGANICS						
astons	7.64E-09		1.00E-01	NA	7.64E-08	
Acetone Benzene	11012	1.57E-10	NA	2.90E-02	AP-20-111-	4.54E-12
Methylene Chloride			6.00E-02	7.50E-03		
'oluene	7.22E-09	1	2.00E-01	NA	3.61E-08	
- Condition	- Commission				700	
EMIVOLATILE ORGANICS					11.0	
	CONTRACTOR NAMED V		0.000.03	NA	1.53E-04	
4-Dinitrotoluene	3.06E-07		2.00E-03 1.00E-03	NA NA	1,552-04	
2,6-Dinitrotoluene			NA	NA NA		
2-Methylnaphthalene			5.00E-02	NA NA	1000	
2-Methylphenol		1.93E-08	NA	4.50E-01		8.71E-09
3,3'-Dichlorobenzidine		1.931-00	NA	NA		
3-Nitroaniline			NA	NA		
I-Nitroaniline	3.62E-08		6.00E-02	NA	6.03E-07	
Acenaphthene	3,021-00		NA	NA		
Acenaphthylene	1.42E-07		3.00E-01	NA	4.75E-07	- resignative mu
Anthracene Benzo(a)anthracene		2.69E-08	NA	7.30E-01		1.96E-08
Benzo(a)anthracene Benzo(a)pyrene		2.98E-08	NA	7.30E+00		2.17E-07
Benzo(b)fluoranthene		2.91E-08	NA	7.30E-01		2.13E-08
Benzo(g,h,i)perylene		TO SHARE WITH	NA	NA		1 (00 00
Benzo(k)fluoranthene		2.31E-08	NA	7.30E-01	0 500 00	1.68E-08
Butylbenzylphthalate	5.04E-08		2.00E+00	NA	2.52E-08	4 00E 10
Carbazole		2.00E-08	NA	2.00E-02		4.00E-10 1.85E-09
Chrysene	Jene	2.54E-08	NA	7.30E-02	3.23E-06	1.63E-09
Di-n-butylphthalate	3.23E-07		1.00E-01	NA	3.23E-00	1.62E-07
Dibenz(a,h)anthracene		2.23E-08	NA	7.30E+00		1.02E-07
Dibenzofuran	T DIVERSAL CO		NA	NA NA	8.92E-06	
Fluoranthene	3.57E-07		4.00E-02	NA NA	1.04E-06	
Fluorene	4.16E-08	3022020	4.00E-02	7.30E-01	1,042-00	1.88E-08
Indeno(1,2,3-cd)pyrene		2.57E-08	NA	4.90E-03		3.64E-11
N-Nitrosodiphenylamine (1)		7.44E-09	NA NA	NA		5.0 1.5 11
Naphthalene	7 00F 07	£ 17E 00	3.00E-02	1.20E-01	2.41E-05	6.20E-09
Pentachlorophenol	7.23E-07	5.17E-08	NA	NA NA	2.772	
Phenanthrene			3.00E-02	NA NA	1.10E-05	
Pyrene	3.30E-07		1.00E-03	NA NA	2.43E-04	
bis(2-Chloroisopropyl) ether	2.43E-07 3.59E-07	2.57E-08	2.00E-02	1.40E-02	1.80E-05	3.59E-10
bis(2-Ethylhexyl)phthalate	3.59E-07	2.37E-00	2.002-02	1.102.02	1813/3/2002	
PESTICIDES/PCB					- 1	
4,4'-DDD	3.29E-09	2.35E-10	5.00E-04	2.40E-01	6.59E-06	5.64E-11
4,4'-DDE	Service III		NA	NA	200200	0.000.11
4,4'-DDT	3.83E-09	2.74E-10	5.00E-04	3.40E-01	7.66E-06	9.30E-11
Aldrin	1.49E-09	1.06E-10	3.00E-05	1.70E+01	4.97E-05	1.81E-09 1.56E-08
Aroclor-1260		2.02E-09	NA	7.70E+00	0.205.06	5.37E-09
Dieldrin	4.69E-09	3.35E-10	5.00E-05	1.60E+01	9.39E-05 7.35E-07	3,37E-09
Endosulfan I	4.41E-09		6.00E-03	NA NA	5.72E-05	
Endosulfan sulfate	2.86E-09		5.00E-05	NA NA	1.15E-05	
Endrin	3.46E-09		3.00E-04 NA	NA NA	1,150-05	
Endrin ketone			1.30E-05	9.10E+00		
Heptachlor epoxide	1.16E-09	8.30E-11	6.00E-05	1.30E+00	1.94E-05	1.08E-10
alpha-Chlordane	1.16E-09	1.18E-10	NA	1.80E+00	0,000,000,000	2.13E-10
beta-BHC		1,1015-10	NA	NA		
delta-BHC						
METALS	7,000,000		CONTRACTOR OF THE PARTY OF THE		0.000.00	7 500 07
Arsenic	6.07E-06	4.34E-07	3.00E-04	1.75E+00	2.02E-02	7.59E-07
Barium	1.37E-04		7.00E-02	NA	1.96E-03 4.52E-03	
Cadmium	2.26E-06		5.00E-04	NA NA	1.71E-03	
Copper	6.84E-05	1	4.00E-02	NA NA	1.71E-03	
Lead	1000000		NA 2.00E.04	NA NA	4.05E-04	
Mercury	1.22E-07		3.00E-04	NA NA	2.54E-04	
Selenium	1.27E-06		5.00E-03 5.00E-03	NA.	1.64E-04	
Silver	8.22E-07		7.00E-05	NA NA	9.55E-03	
Thallium	6.68E-07		3.00E-01	NA.	5.62E-04	
Zinc	1.69E-04		3,002-01	l la	-	
HERBICIDES			#0100 foxtages	y. 2001		
мсра	6.17E-06		5.00E-04	NA	1.23E-02	
		7			5.24E-02	1.26E-0
Totals - HQ & CR						

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-30

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)

	Child	Child			Child				Child	Child		
	Absorbed	Absorbed	EPC	Conv.	Skin Surface	Adherence	Absorption	Exposure	Exposure	Body	Averaging	ging
Analyte	Dose (Nc)	Dose (Car)	Soil	Factor	Area Contact	Factor	Factor	Frequency	Duration	Weight	Time	. at
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm*/event)	(mg soil/cm²)	(unitless)	(events/year)	(years)	(kg)	(days)	rs) Car
VOLATILE ORGANICS												
Acetone			6.98E-03	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Benzene Markelone Chlorida			2.00E-03	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Toluene Chionae			6.59E-03	1.00E-06	2,300	0.1		50	v v	22 23	1,825	25,550 25,550
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene			2.79E-01	1.00E-06	2,300	1.0		20	\$	25	1,825	25,550
2,6-Dinitrotoluene				1.00E-06	2,300	1.0		20	8	25	1,825	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	2,300	1.0		50	2	25	1,825	25,550
2-Methylphenol				1.00E-06	2,300	1.0		20	2	25	1,825	25,550
3,3'-Dichlorobenzidine			2.47E-01	1.00E-06	2,300	0.1		20	5	25	1,825	25,550
3-Nitroaniline			5.98E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
4-Nitroaniline			5.98E-01	1.00E-06	2,300	1.0		90	S	25	1,825	25,550
Acenaphthene			3.30E-02	1.00E-06	2,300	1.0		20	ς,	25	1,825	25,550
Acenaphthylene			9.60E-02	1.00E-06	2,300	1.0		20	8	25	1,825	25,550
Anthracene			1.30E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Benzo(a)anthracene			3.44E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Benzo(a)pyrene			3.80E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Benzo(b)thoranthene			3.72E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Benzo(g,h,1)perylene			3.06E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Benzo(k)finoranthene			2.95E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Butylbenzylphthalate			4.60E-02	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Carbazole			2.56E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Chrysene			3.25E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Di-n-butylphthalate			2.94E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Dibenz(a,h)anthracene			2.84E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
Dibenzofuran			3.60E-02	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Fluoranthene			3.25E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Fluorene			3.80E-02	1.00E-06	2,300	1.0		50	5	25	1,825	25,550

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TABLE 7-30

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc)	Child Absorbed Dose (Car)	EPC	Conv. Factor	Child Skin Surface Area Contact	Adherence	Absorption Factor	Exposure Frequency	Exposure Duration	Child Body Weight	Averaging Time (davs)	iging ne vs)
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm-/event)	(mg sourcm-)	(miness)	(evenies/year)	(cms)	(94)	Ne	Car
										000	200.	35 56
Jane (1 2 2 d) manage			3.29E-01	1.00E-06	2,300	1.0		20	0	3	1,825	55,53
indeno(1,2,5-ca)pyrene			9 50F-07	1 00F-06	2300	1.0		20	2	25	1,825	25,55
N-Nitrosodiphenylamine (1)			200000	1 000 06	2 300	10		50	2	25	1,825	25,55
Naphthalene			3.705-02	1.005-00	2000	0.1		20	5	25	1.825	25,55
Pentachlorophenol			0.60E-01	1.00E-00	2,300	2 .		200		25	1 825	25.55
Phenanthrene			3.19E-01	1.00E-06	7,300	0.1		3 8	. 4	2 %	1 875	25.56
Pyrepe			3.01E-01	1.00E-06	2,300	1.0		00	0.1	3 :	200.	200
List Chloroiconromy other			2.21E-01	1.00E-06	2,300	1.0		20	8	25	1,825	6,62
bis(2-Ethylhexyl)phthalate			3.28E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,5
PESTICIDES/PCB												
			3 00E-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,5
4,4-000			5 78F-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,5
4,4-DDE			3.40E-03	1 00F-06	2 300	1.0		20	2	25	1,825	25,5
4,4'-DD1			1.25E 03	1 00 0 0	2300	10		50	\$	25	1,825	25,5
Aldrin		. 2057	1.30E-03	1 000 06	2300		90 0	20	5	25	1,825	25,5
Aroclor-1260		1.393E-09	4 705 02	1.00E-06	2,300	2 -		50	2	25	1,825	25,5
Dieldrin			4.28E-03	1.00E-06	2,300	1.0		50	2	25	1,825	25,
Endosulfan I			7.61E 03	1 OOE OF	2300	10		20	5	25	1,825	25,
Endosulfan sulfate			2.01E-03	1.00E-06	2,200	2		20	2	25	1,825	25,
Endrin			3.10E-03	1 000 00	2,300	0.1		50	2	25	1,825	25,
Endrin ketone			3.43E-03	1.005-00	2,300	0.1		20	2	25	1.825	25.5
Heptachlor epoxide			. 0000	1.00E-00	2,300	0.0		20	2	25	1,825	25.
alpha-Chlordane			1.005-03	1.00E-06	2 300	0.1		20	5	25	1,825	25,550
beta-BHC			COLLEGE	1.002-00	0000			9	*	35	1 825	25

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TABLE 7-30

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc) (mg/kg-day)	Child Absorbed Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Child Body Weight (kg)	Averaging Time (days)	
METALS									2		ž	Car
Arsenic			5.54E+00	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Barium	7 60F-07		1.25E+02	1.00E-06	2,300	1.0	100	50	ν,	25	1,825	25,550
Copper	10 7000		6.24E+01	1.00E-06	2,300	1.0	0.01	20 20	n vn	2 2	1,825	25,550
Lead			6.19E+02	1.00E-06	2,300	1.0		50	8	25	1,825	25,550
Mercury			1.11E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Silver			7.50E-01	1.00E-06	2,300	0.01		20	v, v	25	1,825	25,550
Thallium			6.10E-01	1.00E-06	2,300	1.0		20 05	אי	2 22	1,825	25,550
Zinc			1.54E+02	1.00E-06	2,300	1.0		90	\$	25	1,825	25,550
HERBICIDES												
MCPA			5.63E+00	1.00E-06	2,300	1.0		90	8	25	1,825	25,550
EQUATION: Absorbed	Absorbed Dose (mg/kg-day) = CSxCFxSAxAFxABSxEFxED BW x AT	CSxCExSAx	AF x ABS x E BW x AT	ExED								
	Variables:				Assumptions:			Variables:			Assumptions:	
	CS = Chemical Concentration in Soil (mg soil/kg)	centration in Soil	(mg soil/kg)		EPC Soil Data - RME	(±)		EF = Exnosure Frequency (events/year)	equency (events/ve		SO (RME)	
	CF = Conversion Factor (10-6 kg/mg)	actor (10-6 kg/mg		275	10-6			ED = Exposure Duration (years)	ration (years)		5 (RME)	
	SA = Surface Area Contact (cm²)	Contact (cm²)			2,300 (RME Child)			BW = Bodyweight (kg)	(kg)	•	25 kg (child)	
	AF =Soil to Skin Adherence Factor (mg/cm2)	herence Factor (mg/cm2)	E.	1.0 (RME all receptors)	irs)		AT = Averaging Time (days)	me (days)		5 x 365 (Nc), 70 x 365 (Car)	t 365 (Car)
	ABS = Absorption Factor (unitless)	factor (unitless)			Compound Specific PCBs and Cd (EPA, 1992b)	PCBs and Cd (EP	A, 1992b)					

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
OLATILE ORGANICS						
			1.00E-01	NA		
Acetone Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
			2.00E-03	NA		
2,4-Dinitrotoluene			1.00E-03	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			5.00E-02	NA		
2-Methylphenol			NA	4.50E-01		
3,3'-Dichlorobenzidine			NA	NA		
3-Nitroaniline			NA	NA		
4-Nitroaniline			6,00E-02	NA		
Acenaphthene			NA NA	NA		
Acenaphthylene			3.00E-01	NA		- 1
Anthracene			NA	1.46E+00		
Benzo(a)anthracene			NA	1.46E+01		1 2 3 3
Benzo(a)pyrene			NA	1.46E+00		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	1.46E+00		
Benzo(k)fluoranthene			2.00E+00	NA		100
Butylbenzylphthalate			NA	2.00E-02		
Carbazole			NA	1.46E-01		
Chrysene			8.50E-02	NA		
Di-n-butylphthalate		1	NA	1.46E+01		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			4.00E-02	NA		
Fluoranthene			4.00E-02	NA		
Fluorene Indeno(1,2,3-cd)pyrene		1 1	NA	1.46E+00		
N-Nitrosodiphenylamine (1)	-		NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01	- 51	
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB			-		2.34	
			5 00E 04	2.40E-01		
4,4'-DDD			5.00E-04			
4,4'-DDE			NA FOOF OA	3.40E-01		-
4,4'-DDT			5.00E-04	1.70E+01		
Aldrin		1 400 00	3.00E-05	8.11E+00		1.13E-08
Aroclor-1260		1.40E-09	NA 5.00E-05	1.60E+01		
Dieldrin			6.00E-03	NA NA		
Endosulfan I			5.00E-05	NA		
Endosulfan sulfate			3.00E-03	NA NA		
Endrin			NA	NA NA		
Endrin ketone			1.30E-05	9.10E+00		
Heptachlor epoxide			6.00E-05	1.30E+00		
alpha-Chlordane			NA	1.80E+00		
beta-BHC			NA NA	NA NA		
delta-BHC						

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
METALS						
Arsenic Barium	1	HEE	2.94E-04 7.00E-03	1.79E+00 NA		
Cadmium	2.60E-07		3.00E-05	NA NA	8.65E-03	
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury		-	4.50E-05	NA		
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA		
HERBICIDES						
МСРА			5.00E-04	NA		8
Totals - HQ & CR					8.65E-03	1.13E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-16

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	Soil	Ingestion Rate	Conv. Factor	Fraction Ingested	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg som day)	(9Au)	(comm)				Nc	Car
VOLATILE ORGANICS											
Acetone	5.46E-10	6 505 11	6.98E-03	100	1.00E-06		20	25	07 02	9,125 9,125	25,550
Benzene Methylene Chloride Toluene	0.00E+00 5.16E-10	0.00E+00	0.00E+00 6.59E-03	100	1.00E-06 1.00E-06		20	25	70 70	9,125	25,550
SEMIVOLATILE ORGANICS											
2.4 Dinitrotoliione	2.18E-08		2.79E-01	100	1.00E-06	1	20	25	70	9,125	25,550
2.6-Dinitrotoluene	0.00E+00		0.00E+00	100	1.00E-06	_	20	25	9.9	9,125	25,550
2-Methylnaphthalene			1.30E-01	100	1.00E-06		20 70	5 5	2 2	9,125	25,550
2-Methylphenol	0.00E+00		0.00E+00	100	1.00E-06		30,00	3 %	0,02	9,125	25,550
3,3'-Dichlorobenzidine		6.91E-09	5.98F-01	001	1.00E-06		20 20	25	70	9,125	25,550
3-Nitroaniline			5.98E-01	100	1.00E-06	1	20	25	70	9,125	25,550
4-Nitroaniine	2 58F-09		3.30E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Acenaphthylene			9.60E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Anthracene	1.02E-08		1.30E-01	100	1.00E-06	-	50	25	70	9,125	25,550
Benzo(a)anthracene		9.61E-09	3.44E-01	100	1.00E-06		3, 20	25	70	9,125	25,550
Benzo(a)pyrene		1.06E-08	3.80E-01	100	1.00E-06		200	25	202	9.125	25,550
Benzo(b)fluoranthene		1.04E-08	3.72E-01	001	1.00E-06		20	25	70	9,125	25,550
Benzo(g,n,1)perylene		8 24F-09	2.95E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(k)nuorannene	3 60F-09		4.60E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Dutyibelizyipiiniaiate		7.15E-09	2.56E-01	100	1.00E-06	-	20	25	02	9,125	25,550
Chargene		9.07E-09	3.25E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Oil ysciic Di-n-butylphthalate	2.30E-08		2.94E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenz(a h)anthracene		7.95E-09	2.84E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenzofiran			3.60E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Fluoranthene	2.55E-08		3.25E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Fluorene	2.97E-09		3.80E-02	100	1.00E-06	-	70	57	10	2,173	000,02

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TABLE 7-16

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Anolyte	Intake (Nc)	Intoke (Car)	EPC	Ingestion	Conv.	Fraction	Exposure	Exposure	Body	Aver	Averaging
Allalyte	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg soil/day)	(kg/mg)	(unitless)	(days/year)	(years)	(kg)	(da	(days)
)						6 6 6			Nc	Car
Indeno(1,2,3-cd)pyrene		9.19E-09	3.29E-01	100	1.00E-06	1	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)		2.66E-09	9.50E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Naphthalene			3.70E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Pentachlorophenol	5.17E-08	1.84E-08	6.60E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Phenanthrene			3.19E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Pyrene	2.36E-08		3.01E-01	100	1.00E-06	-	20	25	70	9,125	25,550
bis(2-Chloroisopropyl) ether	1.73E-08		2.21E-01	100	1.00E-06	-	20	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate	2.57E-08	9.16E-09	3.28E-01	100	1.00E-06	-	20	25	70	9,125	25,550
PESTICIDES/PCB											
4,4'-DDD	2.35E-10	8.40E-11	3.00E-03	100	1.00E-06	_	20	25	70	9,125	25,550
4,4'-DDE			5.78E-03	100	1.00E-06	-	20	25	70	9,125	25,550
4.4'-DDT	2.74E-10	9.77E-11	3.49E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Aldrin	1.06E-10	3.80E-11	1.36E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Aroclor-1260	The state of the s	7.22E-10	2.58E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Dieldrin	3.35E-10	1.20E-10	4.28E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endosulfan I	3.15E-10		4.02E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endosulfan sulfate	2.04E-10		2.61E-03	100	1.00E-06		20	25	70	9,125	25,550
Endrin	2.47E-10		3.16E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endrin ketone			3.45E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06		20	25	70	9,125	25,550
alpha-Chlordane	8.30E-11	2.96E-11	1.06E-03	100	1.00E-06	-	20	25	70	9,125	25,550
beta-BHC		4.23E-11	1.51E-03	100	1.00E-06	-	20	25	70	9,125	25,550
delta-BHC			1.37E-03	100	1.00E-06	-	20	25	70	9,125	25,550
				Control of the Contro							

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-dav)	Intake (Car)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averagn Time (days)	Averaging Time (days)
	(2)									Nc	Car
METALS											
Arsenic	4.34E-07	1.55E-07	5.54E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Barium	9.80E-06		1.25E+02	100	1.00E-06	_	20	25	70	9,125	25,550
Cadmium	1.61E-07		2.06E+00	100	1.00E-06	-	20	25	70	9,125	25,550
Copper	4.88E-06		6.24E+01	100	1.00E-06	-	20	25	20	9,125	25,550
Lead			6.19E+02	100	1.00E-06	-	20	25	20	9,125	25,550
Mercury	8.69E-09		1.11E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Selenium	9.06E-08		1.16E+00	100	1.00E-06	-	50	25	20	9,125	25,550
Silver	5.87E-08		7.50E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Thallium	4.77E-08		6.10E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Zinc	1.20E-05		1.54E+02	100	1.00E-06	-	20	25	70	9,125	25,550
HERBICIDES				2						į	
MCPA	4.40E-07		5.63E+00	100	1.00E-06	-	20	25	20	9,125	25,550
EQUATION:		Intake (mg/kg-day) = CS x IR x CF x FI x EF x ED BW x AT	CSxIRxCFxI	X EL X EF X ED							
	Variables:					Assumptions:					
	CS = Chemical Concentration in IR = Ingestion Rate (mg soil/day	oncentration in Soil (Soil (mg soil/kg)			EPC Soil Data - RME 100 (RME Site Worker)	- RME Worker)				
	CF = Conversion	CF = Conversion Factor (10-6 kg/mg)				10-6	1				
	F1 = Fraction Ingested (unitiess) EF = Exposure Frequency (days	FI = Fraction Ingested (unitiess) EF = Exposure Frequency (days/years)	()			20 (RME Site Worker)	rs) Worker)				
	ED = Exposure Duration (years)	uration (years)				25 (RME Site Worker)	Worker)				
	AT = Averaging Time (days)	(ing)				25 x 365 (Nc) 70 x 365 (Car)	70 x 365 (Car)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						l e i
Acetone	5.46E-10		1.00E-01	NA	5.46E-09	
Benzene	111111-1111	5.59E-11	NA	2.90E-02		1.62E-12
Methylene Chloride	0.00E+00	0.00E+00	6.00E-02	7.50E-03	0.00E+00	0.00E+00
Toluene	5.16E-10		2.00E-01	NA	2.58E-09	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene	2.18E-08		2.00E-03	NA	1.09E-05	
2,6-Dinitrotoluene	0.00E+00		1.00E-03	NA	0.00E+00	
2-Methylnaphthalene			NA	NA	0.002	
2-Methylphenol	0.00E+00		5.00E-02	NA	0.00E+00	
3,3'-Dichlorobenzidine		6.91E-09	NA	4.50E-01	100 mm (100 mm)	3.11E-09
3-Nitroaniline	-	***************************************	NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene	2.58E-09		6.00E-02	NA	4.31E-08	
Acenaphthylene	Commence and District White a		NA	NA		
Anthracene	1.02E-08		3.00E-01	NA	3.39E-08	
Benzo(a)anthracene	PERSONAL PROPERTY.	9.61E-09	NA	7.30E-01	SIGNAR ATTACKS O	7.02E-09
Benzo(a)pyrene		1.06E-08	NA	7.30E+00		7.76E-08
Benzo(b)fluoranthene		1.04E-08	NA	7.30E-01		7.59E-09
Benzo(g,h,i)perylene		(EMERICOSTAL)	NA	NA		3575250004032504
Benzo(k)fluoranthene		8.24E-09	NA	7.30E-01		6.01E-09
Butylbenzylphthalate	3.60E-09		2.00E+00	NA	1.80E-09	
Carbazole		7.15E-09	NA	2.00E-02	Conservation	1.43E-10
Chrysene		9.07E-09	NA	7.30E-02		6.62E-10
Di-n-butylphthalate	2.30E-08	1.00040000040	1.00E-01	NA	2.30E-07	
Dibenz(a,h)anthracene		7.95E-09	NA	7.30E+00	TOMPACK STREET	5.80E-08
Dibenzofuran			NA	NA		
Fluoranthene	2.55E-08		4.00E-02	NA	6.37E-07	
Fluorene	2.97E-09		4.00E-02	NA	7.44E-08	
ndeno(1,2,3-cd)pyrene		9.19E-09	NA	7.30E-01		6.71E-09
N-Nitrosodiphenylamine (1)		2.66E-09	NA	4.90E-03		1.30E-11
Naphthalene	l		NA	NA		
Pentachlorophenol	5.17E-08	1.84E-08	3.00E-02	1.20E-01	1.72E-06	2.21E-09
Phenanthrene	9252293537970		NA	NA	10000000000000000	
Pyrene	2.36E-08		3.00E-02	NA	7.86E-07	
ois(2-Chloroisopropyl) ether	1.73E-08		1.00E-03	NA	1.73E-05	g(250043400F0 ARM
ois(2-Ethylhexyl)phthalate	2.57E-08	9.16E-09	2.00E-02	1.40E-02	1.28E-06	1.28E-10
PESTICIDES/PCB						
1,4'-DDD	2.35E-10	8.40E-11	5.00E-04	2.40E-01	4.70E-07	2.02E-11
4,4'-DDE			NA	NA		
1,4'-DDT	2.74E-10	9.77E-11	5.00E-04	3.40E-01	5.47E-07	3.32E-11
Aldrin	1.06E-10	3.80E-11	3.00E-05	1.70E+01	3.55E-06	6.46E-10
Aroclor-1260		7.22E-10	NA	7.70E+00		5.56E-09
Dieldrin	3.35E-10	1.20E-10	5.00E-05	1.60E+01	6.71E-06	1.92E-09
Endosulfan I	3.15E-10		6.00E-03	NA	5.25E-08	
Endosulfan sulfate	2.04E-10		5.00E-05	NA	4.09E-06	
Endrin	2.47E-10		3.00E-04	NA	8.24E-07	
Endrin ketone	0.005.00	0.005.00	NA 1 30F os	NA 0.10F.100	0.005.00	0.000
Ieptachlor epoxide	0.00E+00	0.00E+00	1.30E-05	9.10E+00	0.00E+00	0.00E+00
alpha-Chlordane	8.30E-11	2.96E-11	6.00E-05	1.30E+00	1.38E-06	3.85E-11
peta-BHC		4.23E-11	NA NA	1.80E+00)	7.61E-11
elta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Thallium Zinc	4.34E-07 9.80E-06 1.61E-07 4.88E-06 8.69E-09 9.06E-08 5.87E-08 4.77E-08 1.20E-05	1.55E-07	3.00E-04 7.00E-02 5.00E-04 4.00E-02 NA 3.00E-04 5.00E-03 7.00E-03 7.00E-05 3.00E-01	1.75E+00 NA NA NA NA NA NA NA NA	1.45E-03 1.40E-04 3.23E-04 1.22E-04 2.90E-05 1.81E-05 1.17E-05 6.82E-04 4.01E-05	2.71E-07
HERBICIDES MCPA Totals - HQ & CR	4.40E-07		5.00E-04	NA	8.81E-04 3.74E-03	4.49E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

TABLE 7-24

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

	9		EPC	Conv.	Skin Surface	Adherence	Absorption	Exposure	Exposure	Body	Aver	Averaging
Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	Soil (mg/kg)	Factor (kg/mg)	Area Contact (cm²/event)	Factor (mg soil/cm²)	Factor (unitless)	Frequency (events/year)	Duration (years)	Weight (kg)	Ti (da	Time (days)
											Nc	Car
VOLATILE ORGANICS												
Acetone			6.98E-03	1.00E-06	5,800	1.0		20	25	20	9,125	25,550
Benzene			2.00E-03	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Toluene			6.59E-03	1.00E-06	5,800	1.0		20	2 22	70	9,125	25,550
SEMIVOLATILE ORGANICS						V						
2,4-Dinitrotoluene			2.79E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2,6-Dinitrotoluene			- 10 Sept 10 Sept.	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2-Methylphenol				1.00E-06	5,800	1.0		20	25	70	9,125	25,550
3,3'-Dichlorobenzidine			2.47E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
3-Nitroaniline			5.98E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
4-Nitroaniline			5.98E-01	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Acenaphthene			3.30E-02	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Acenaphthylene			9.60E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Anthracene			1.30E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(a)anthracene			3.44E-01	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Benzo(a)pyrene			3.80E-01	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Benzo(a h i) nearly and			3.72E-01	1.00E-06	5,800	0.0		07 02	5 5	9 79	9,125	25,550
Benzo(k)fluoranthene			2.00E-01	1.00E-06	5,800	0.0		0,00	25	70	9,123	25,530
Butylbenzylphthalate			4.60E-02	1.00E-06	5,800	1.0		20	25	20	9.125	25,550
Carbazole			2.56E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Chrysene			3.25E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Di-n-butylphthalate			2.94E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Dibenz(a,h)anthracene			2.84E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Dibenzofuran			3.60E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Fluoranthene			3.25E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Fluorene			3.80E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc)	Dose (Car)	EPC Soil	Conv. Factor	Skin Surface Area Contact (cm ² /event)	Adherence Factor	Absorption Factor	Exposure Frequency (events/vear)	Exposure Duration (vears)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
	(mg/kg-uay)	(IIIE/NE-Uay)	(Sugar)	(vg/m2)	(mm) (com)	(9)	(000000)	()		6		
Indone(1.2.2 Adhirmana			3 29E-01	1.00E-06	5.800	1.0		20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			9.50E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
Nanhthalene			3.70E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
Pentachloronhenol			6.60E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
Dhenanthrene			3.19E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
Person			3.01E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
his/2-Chloroisopropyl) ether			2.21E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
bis(2-Ethylhexyl)phthalate			3.28E-01	1.00E-06	5,800	1.0		20	25	20	9,125	25,55
PESTICIDES/PCB												
4 4: PDD			3 00F-03	1.00E-06	5.800	1.0		20	25	70	9,125	25,55
4,4 -DDE			5 78E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
4.4. DDC			3 49E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
4,4-001			1 36F-03	1 00E-06	5.800	1.0		20	25	70	9,125	25,5
Aradar-1760		2 51E-09	2 58E-02	1.00E-06	5.800	1.0	90.0	20	25	70	9,125	25,55
Oialdrin			4 28E-03	1.00E-06	5.800	1.0		20	25	70	9,125	25,55
Endoculfan I			4.02E-03	1.00E-06	5.800	1.0		20	25	70	9,125	25,55
Endoculfan culfate			2.61E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
Endosuman sumare			3.16E-03	1.00E-06	5.800	1.0		20	25	70	9,125	25,55
Cadrin betone			3 45E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
Hantachlor enovide				1.00E-06	5,800	1.0		20	25	70	9,125	25,55
alpha Chlordane			1.06E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,55
alpha-Cinoldane			1.51E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Dela-Dilo								6	20	c	50.0	2 20

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TABLE 7-24

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL
SITE WORKER EXPOSURE (CURRENT LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 2
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Avel T	Averaging Time (days)
METALS											Nc	Car
Arsenic Barium			5.54E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Cadmium	9.35E-08		2.06E+00	1.00E-06	5,800	0.1	0.01	20	25 52	70	9,125	25,550
Copper Lead			6.24E+01	1.00E-06	5,800	0.1		50	25	70	9,125	25,550
Mercury			1.11E-01	1.00E-06	5.800	0.0		20	25	70	9,125	25,550
Selenium			1.16E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25.550
Thallium			7.50E-01	1.00E-06	5,800	0.1.		20	25	70	9,125	25,550
Zinc			1.54E+02	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
HERBICIDES								1		2	7,123	055,52
MCPA			5.63E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
EQUATION:	Absorbed dose (mg/kg-day) =	(mg/kg-day) =		CSxCFxSA	CSxCFxSAxAFxABSxEFxED BWxAT	x ED						
Variables:		4	Assumptions:		**************************************	Variables:			7	Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF =Soil to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitless)	ng soil/kg) /cm²)		EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.0 (RME all receptors) Compound Specific for PCBs and Cd EPA, 1992b (Default Assumption 0%	Soil Data - RME cm² (RME Site Worker) tME all receptors) pound Specific for PCBs and Cd 1992b (Default Assumption 0% = 0.0)	= 0.0)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	Frequency (eve Duration (years ht (kg) Time (days)	nts/year))	NAT A	20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	'orker) 'orker)) x 365 Adult ((ar)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS				MARK.		
			1.00E-01	NA		
Acetone			NA	2.90E-02		
Benzene			6.00E-02	6.00E-02		
Methylene Chloride			1.20E-01	NA		
Toluene			3,03,51			
SEMIVOLATILE ORGANICS						
			2.00E-03	NA		
2,4-Dinitrotoluene			1.00E-03	NA		
2,6-Dinitrotoluene			NA NA	NA		
2-Methylnaphthalene			5.00E-02	NA		1
2-Methylphenol			NA NA	4.50E-01		4.1
3,3'-Dichlorobenzidine			NA NA	NA NA		
3-Nitroaniline			NA NA	NA NA		
4-Nitroaniline			6.00E-02	NA NA		
Acenaphthene				NA NA		E 1 18
Acenaphthylene			NA TOOK OF	12920000		
Anthracene			3.00E-01	NA 1 4 CF 1 OO		
Benzo(a)anthracene	160	1	NA	1.46E+00		
Benzo(a)pyrene		1	NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene	19.5		NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
			2.00E+00	NA		7
Butylbenzylphthalate			NA	2.00E-02		
Carbazole			NA	1.46E-01		
Chrysene			8.50E-02	NA		
Di-n-butylphthalate			NA	1.46E+01		
Dibenz(a,h)anthracene	See I		NA	NA		
Dibenzofuran			4.00E-02	NA		
Fluoranthene			4.00E-02	NA		
Fluorene			NA	1.46E+00		
Indeno(1,2,3-cd)pyrene			NA NA	4.90E-03		
N-Nitrosodiphenylamine (1)			5/8/3/8	NA NA		1
Naphthalene			NA 2 COT OZ	1.20E-01		
Pentachlorophenol			3.00E-02	NA		
Phenanthrene			NA	1000000		
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA 1 10F 02		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB					23	
A A! DDD			5.00E-04	2.40E-01		
4,4'-DDD			NA	NA		
4,4'-DDE			5.00E-04	3.40E-01		
4,4'-DDT			3.00E-05	1.70E+01		
Aldrin		2.51E-09	NA	8.11E+00		2.04E-08
Aroclor-1260			5.00E-05	1.60E+01		
Dieldrin			6.00E-03	NA		
Endosulfan I			5.00E-05	NA		
Endosulfan sulfate			3.00E-04	NA		1
Endrin			NA	NA		1
Endrin ketone			1.30E-05	9.10E+00		
Heptachlor epoxide			6.00E-05	1.30E+00		
alpha-Chlordane			NA	1.80E+00		
beta-BHC			NA NA	NA NA		
delta-BHC			NA	1414	1	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic			2.94E-04	1.79E+00		
Barium			7.00E-03	NA		
Cadmium	9.35E-08		3.00E-05	NA	3.12E-03	
Copper	5/33/99/75/24/98		2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA		
HERBICIDES						
МСРА			5.00E-04	NA		
Totals - HQ & CR					3.12E-03	2.04E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (d:	Averaging Time (days)
										Nc	Car
VOLATILE ORGANICS										icales.	
Acetone	2.18E-09	01 376 0	6.98E-03	100	1.00E-06		08	25	70	9,125	25
Benzene Methylene Chloride Toluene	0.00E+00 2.06E-09	0.00E+00	0.00E+00 6.59E-03	100	1.00E-06 1.00E-06 1.00E-06		808	22.22	02 02	9,125	25,550 25,550
SEMIVOLATILE ORGANICS											
2.4-Dinitrotoluene	8.73E-08		2.79E-01	100	1.00E-06	-	80	25	70	9,125	25,550
2,6-Dinitrotoluene	0.00E+00		0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	100	1.00E-06		80	25	0 2	9,125	25,550
2-Methylphenol	0.00E+00		0.00E+00	100	1.00E-06		80	25	70	9,125	25,550
3,3'-Dichlorobenzidine		2.76E-08	2.47E-01	991	1.00E-06		080	52	0 02	9,125	25,550
3-Nitroaniline			5 98E-01	100	1.00E-06		80	3 5	70	9,125	25.550
4-iviu odililile	1.03E-08		3.30E-02	100	1.00E-06		80	25	70	9,125	25,550
Acenaphthylene			9.60E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Anthracene	4.07E-08		1.30E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Benzo(a)anthracene		3.84E-08	3.44E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Benzo(a)pyrene		4.25E-08	3.80E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Benzo(b)fluoranthene		4.16E-08	3.72E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Benzo(g,h,i)perylene			3.06E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Benzo(k)fluoranthene		3.29E-08	2.95E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Butylbenzylphthalate	1.44E-08		4.60E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Carbazole		2.86E-08	2.56E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Chrysene		3.63E-08	3.25E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Di-n-butylphthalate	9.21E-08		2.94E-01	100	1.00E-06		80	25	70	9,125	25,550
Dibenz(a,h)anthracene		3.18E-08	2.84E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Dibenzofuran			3.60E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Fluoranthene	1.02E-07		3.25E-01	100	1.00E-06		80	25	70	9,125	25,550
Fluorene	1 10E-08		3 ROF-02	100	1 00F-06	_	80	25	70	0 125	25 550

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TABLE 7-18

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	Intake (Nc)	Intake (Car)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/dav)	Conv. Factor	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration	Body Weight	Aver Ti	Averaging Time
			(0.0)		(66)	(((cm. c)	(a)	Nc	Car
Indeno(1,2,3-cd)pyrene		3.68E-08	3.29E-01	100	1.00E-06	1	80	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)		1.06E-08	9.50E-02	100	1.00E-06	-	80	25	70	9,125	25,550
			3.70E-02	100	1.00E-06		80	25	70	9,125	25,550
Pentachlorophenol	2.07E-07	7.38E-08	6.60E-01	100	1.00E-06	-	80	25	70	9,125	25,550
			3.19E-01	100	1.00E-06	-	80	25	70	9,125	25,550
	9.43E-08		3.01E-01	100	1.00E-06	1	80	25	70	9,125	25,550
bis(2-Chloroisopropyl) ether	6.93E-08		2.21E-01	100	1.00E-06	-	80	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate	1.03E-07	3.67E-08	3.28E-01	100	1.00E-06	-	80	25	70	9,125	25,550
PESTICIDES/PCB											
	9.41E-10	3.36E-10	3.00E-03	100	1.00E-06	, —	80	25	70	9,125	25,550
			5.78E-03	100	1.00E-06	-	80	25	70	9,125	25,550
	1.09E-09	3.91E-10	3.49E-03	100	1.00E-06	-	80	25	70	9,125	25,550
	4.26E-10	1.52E-10	1.36E-03	100	1.00E-06	-	80	25	70	9,125	25,550
		2.89E-09	2.58E-02	100	1.00E-06	-	80	25	70	9,125	25,550
	1.34E-09	4.79E-10	4.28E-03	100	1.00E-06	-	80	25	70	9,125	25,550
	1.26E-09		4.02E-03	100	1.00E-06	_	80	25	70	9,125	25,550
Endosulfan sulfate	8.18E-10		2.61E-03	100	1.00E-06	-	80	25	70	9,125	25,550
	9.89E-10		3.16E-03	100	1.00E-06	-	80	25	70	9,125	25,550
			3.45E-03	100	1.00E-06	-	80	25	70	9,125	25,550
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
alpha-Chlordane	3.32E-10	1.19E-10	1.06E-03	100	1.00E-06	-	80	25	70	9,125	25,550
		1.69E-10	1.51E-03	100	1.00E-06	-	80	25	70	9,125	25,550
			1 37F-03	100	1 00F-06		08	35	70	0 135	25 550

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 2

CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Allalyte	Intake (Nc) (mg/kg-dav)	Intake (Car)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averagir Time (days)	Averaging Time (days)
	(0.0.0)	(1-0-0-)	6		6					Nc	Car
METALS											
Arcenic	1 73E-06	6.20E-07	5.54E+00	100	1.00E-06	-	80	25	70	9,125	25,550
Barium	3.92E-05		1.25E+02	100	1.00E-06	-	80	25	70	9,125	25,550
Cadmium	6.45E-07		2.06E+00	100	1.00E-06	-	80	25	70	9,125	25,550
Copper	1.95E-05		6.24E+01	100	1.00E-06	-	80	25	70	9,125	25,550
Lead			6.19E+02	100	1.00E-06	-	80	25	70	9,125	25,550
Mercury	3.48E-08		1.11E-01	100	1.00E-06	1	80	25	70	9,125	25,550
Selenium	3.63E-07		1.16E+00	100	1.00E-06	,	80	25	70	9,125	25,550
Silver	2.35E-07		7.50E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Thallium	1.91E-07		6.10E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Zinc	4.82E-05		1.54E+02	100	1.00E-06		80	25	70	9,125	25,550
				8							
HERBICIDES											
MCPA	1.76E-06		5.63E+00	100	1.00E-06	-	80	25	70	9,125	25,550
EQUATION:	Intake (mg/kg-day) =	ry) =	CSxIRxCFxFlxEFxED	FIXEFXED			-				
			BW XAI								
	Variables:					Assumptions:	::1				
The State of the S	CS = Chemical C	CS = Chemical Concentration in Soil (mg soil/kg)	il (mg soil/kg)			EPC - Soil Data (RME)	ata (RME)				
	IR = Ingestion Rate (mg soil/day)	ate (mg soil/day)	1			100 (RME A	100 (RME Adult Worker)				
	CF = Conversion ractor (10-6 kg FI = Fraction Ingested (unitless)	Cr = Conversion ractor (10-6 kg/mg) FI = Fraction Ingested (unitless)	60			1 (All Receptors)	(tors)				
	EF = Exposure	EF = Exposure Frequency (days/years)	ars)			80 (RME A	80 (RME Adult Industrial Worker)	Worker)			
	ED = Exposure Duration (years) RW = Rodyweight (kg)	Duration (years)				25 (Upper bound limit) 70 (Adult male)	ound limit) ale)				
	AT = Averaging Time (days)	Time (days)				25 x 365 (No	25 x 365 (Nc) 70 x 365 (Car)	r)			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone	2.18E-09		1.00E-01	NA	2.18E-08	
Benzene	13.5541.75211.5675	2.24E-10	NA	2.90E-02		6.49E-12
Methylene Chloride	0.00E+00	0.00E+00	6.00E-02	7.50E-03	0.00E+00	0.00E+0
Toluene	2.06E-09		2.00E-01	NA	1.03E-08	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene	8.73E-08		2.00E-03	NA	4.37E-05	
2,6-Dinitrotoluene	0.00E+00		1.00E-03	NA	0.00E+00	
2-Methylnaphthalene			NA	NA	NEW TRANSPORT	
2-Methylphenol	0.00E+00		5.00E-02	NA	0.00E+00	
3,3'-Dichlorobenzidine		2.76E-08	NA	4.50E-01		1.24E-08
3-Nitroaniline			NA	NA		
4-Nitroaniline	1		NA	NA		
Acenaphthene	1.03E-08		6.00E-02	NA	1.72E-07	
Acenaphthylene		1	NA	NA		
Anthracene	4.07E-08		3.00E-01	NA	1.36E-07	
Benzo(a)anthracene	1,000,000,000,000,000	3.84E-08	NA	7.30E-01	2000200000	2.81E-08
Benzo(a)pyrene		4.25E-08	NA	7.30E+00		3.10E-07
Benzo(b)fluoranthene		4.16E-08	NA	7.30E-01		3.04E-08
Benzo(g,h,i)perylene			NA	NA		I TANADA IN MERLENCE
Benzo(k)fluoranthene		3.29E-08	NA	7.30E-01		2.40E-08
Butylbenzylphthalate	1.44E-08		2.00E+00	NA	7.20E-09	Transperson and
Carbazole		2.86E-08	NA	2.00E-02		5.72E-10
Chrysene	10 (10 (10 (10 (10 (10 (10 (10 (10 (10 (3.63E-08	NA	7.30E-02		2.65E-09
Di-n-butylphthalate	9.21E-08		1.00E-01	NA	9.21E-07	Levinor entreposit
Dibenz(a,h)anthracene		3.18E-08	NA	7.30E+00		2.32E-07
Dibenzofuran	9057044-0167049-78-5		NA	NA		
Fluoranthene	1.02E-07		4.00E-02	NA	2.55E-06	
Fluorene	1.19E-08		4.00E-02	NA	2.97E-07	
Indeno(1,2,3-cd)pyrene		3.68E-08	NA	7.30E-01		2.68E-08
N-Nitrosodiphenylamine (1)		1.06E-08	NA	4.90E-03		5.21E-11
Naphthalene		77647347 \$44447 778 547	NA	NA	C	VWA ADELANTA DESI
Pentachlorophenol	2.07E-07	7.38E-08	3.00E-02	1.20E-01	6.89E-06	8.86E-09
Phenanthrene	2 20000		NA	NA		
Pyrene	9.43E-08		3.00E-02	NA	3.14E-06	
ois(2-Chloroisopropyl) ether	6.93E-08	2 (88	1.00E-03	NA	6.93E-05	1720354253044
ois(2-Ethylhexyl)phthalate	1.03E-07	3.67E-08	2.00E-02	1.40E-02	5.13E-06	5.13E-10
PESTICIDES/PCB						
4,4'-DDD	9.41E-10	3.36E-10	5.00E-04	2.40E-01	1.88E-06	8.06E-11
1,4'-DDE	Sycopogeon our ser-	12/10/2017/9 - 0:300	NA	NA	SALESSESSESSESSES	
,4'-DDT	1.09E-09	3.91E-10	5.00E-04	3.40E-01	2.19E-06	1.33E-10
Aldrin	4.26E-10	1.52E-10	3.00E-05	1.70E+01	1.42E-05	2.58E-09
Aroclor-1260		2.89E-09	NA	7.70E+00		2.22E-08
Dieldrin	1.34E-09	4.79E-10	5.00E-05	1.60E+01	2.68E-05	7.66E-09
Endosulfan I	1.26E-09		6.00E-03	NA	2.10E-07	
Endosulfan sulfate	8.18E-10		5.00E-05	NA	1.64E-05	
Endrin	9.89E-10		3.00E-04	NA	3.30E-06	
Endrin ketone	0.005.00	0.000:00	NA L 20E 05	NA	0.005.00	0.000
Heptachlor epoxide	0.00E+00	0.00E+00	1.30E-05	9.10E+00	0.00E+00	0.00E+00
alpha-Chlordane	3.32E-10	1.19E-10	6.00E-05	1.30E+00	5.53E-06	1.54E-10
peta-BHC	1	1.69E-10	NA	1.80E+00		3.04E-10
lelta-BHC	1		NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Thallium Zinc	1.73E-06 3.92E-05 6.45E-07 1.95E-05 3.48E-08 3.63E-07 2.35E-07 1.91E-07 4.82E-05	6.20E-07	3.00E-04 7.00E-02 5.00E-04 4.00E-02 NA 3.00E-04 5.00E-03 7.00E-03 7.00E-05 3.00E-01	1.75E+00 NA NA NA NA NA NA NA NA NA	5.78E-03 5.60E-04 1.29E-03 4.88E-04 1.16E-04 7.25E-05 4.70E-05 2.73E-03 1.61E-04	1.08E-06
HERBICIDES						19.
МСРА	1.76E-06		5.00E-04	NA	3.52E-03	
Totals - HQ & CR			10/11/		1.50E-02	1.79E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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TABLE 7-26

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

4	S. Const.	Control of the Contro	EPC	Conv.	Skin Surface	Adherence	Absorption	Exposure	Exposure	Body	Averaging	ging
Analyte	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	Area Contact (cm²)	Factor (mg soil/cm²)	Factor (unitless)	Frequency (days/year)	Duration (years)	Weight (kg)	Time (days)	Time (days)
											Nc	Car
VOLATILE ORGANICS												
Acetone			6.98E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzene			2.00E-03	1.00E-06	5,800	1.0		80	25	0/	9,125	25,550
Memylene Chloride Toluene			6.59E-03	1.00E-06 1.00E-06	5,800	1.0		80	25	70	9,125 9,125	25,550 25,550
SEMIVOLATILE ORGANICS											ś.	3
2,4-Dinitrotoluene			2.79E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
2,6-Dinitrotoluene				1.00E-06	5,800	1.0		80	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
2-Methylphenol			21 WASSINGTON 2513	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
3,3'-Dichlorobenzidine			2.47E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
3-Nitroaniline			5.98E-01	1.00E-06	2,800	1.0		80	25	70	9,125	25,550
4-Nitroaniline	-017		5.98E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Acenaphthylene			9.60E-02	1.00E-06	2,800	1.0		80	25	70	9,125	25,550
Anthracene			1.30E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzo(a)anthracene			3.44E-01	1.00E-06	2,800	1.0		80	25	70	9,125	25,550
Benzo(a)pyrene			3.80E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzo(b)fluoranthene			3.72E-01	1.00E-06	2,800	1.0		80	25	70	9,125	25,550
Benzo(g,h,i)perylene			3.06E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Benzo(k)tluoranthene			2.95E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Butylbenzylphthalate			4.60E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Carbazole			2.56E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Chrysene			3.25E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Di-n-butylphthalate			2.94E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Dibenz(a,h)anthracene			2.84E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Dibenzofuran			3.60E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Fluoranthene			3.25E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Fluorene			3.80E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550

TABLE 7-26

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils	Conv. Factor	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Weight (kg)	Tir Tir (da	Averaging Time (days)
	(IIIB/NB-day)	(mp se day)	(9u A)	(9						2020	Nc	Car
			3 29F_01	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
indeno(1,2,3-cd)pyrene			9 50E-02	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			3 70F-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Vapninaiene			6 60F-01	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
Pentachiorophenoi			3 19F-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Fuchanumene			3.01F-01	1 00F-06	5,800	1.0		80	25	70	9,125	25,550
l'yrene			2.21E-01	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate			3.28E-01	1.00E-06	5,800	1.0		08	25	70	9,125	25,550
PESTICIDES/PCB			16		4.4							
			3 00F-03	1.00E-06	5.800	1.0		80	25	70	9,125	25,550
77.7			5 78F-03	1 00E-06	5.800	1.0		80	25	70	9,125	25,550
4,4-DDE			3.49F_03	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
4,4-001			1.36F-03	1 00F-06	5.800	1.0		80	25	70	9,125	25,550
Aldrin		1 015-08	2 58F-02	1.00E-06	5,800	1.0	90'0	80	25	70	9,125	25,550
Arociot-1200			4 78F-03	1 00E-06	5,800	1.0		80	25	70	9,125	25,550
Dielarin			4.02E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Cadoculfan culfate			2.61E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Endrin			3.16E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Condin Latera			3 45F-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
narin ketone				1.00E-06	5,800	1.0		80	25	70	9,125	25,550
neplacinoi epoxide			1 06F-03	1.00F-06	5,800	1.0		80	25	70	9,125	25,550
aipna-Chlordane			1.51E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Dela-Dric			20 110	1 000 00	6 900	-		80	25	20	9 125	25.550

TABLE 7-26

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	iging ne vs)
METALS											Nc	Car
Arsenic			5.54E+00	1.00E-06	5,800	1.0		80	۲,	02	9110	25 550
Barium	100		1.25E+02	1.00E-06	5,800	1.0		80	3 23	2 2	9,125	25.550
Caumum	3./41E-0/		2.06E+00	1.00E-06	5,800	1.0	0.01	80	25	70	9,125	25,550
Copper			6.24E+01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Mercury			6.19E+02	1.00E-06	5,800	1.0		80	25	0/	9,125	25,550
Selenium			1.16E+00	1.00E-06	5,800	0		80	25	70	9,125	25,550
Silver			7.50E-01	1.00E-06	5,800	0.1		08	2 %	0 20	9,125	25,550
Thallium			6.10E-01	1.00E-06	5.800	0.1		08	0 x	0,6	5,175	25,550
Zinc			1.54E+02	1.00E-06	5,800	1.0		80	2 23	2 2	9,125	25,550
HERBICIDES												
MCPA			\$ 63E+00	1 005 00	000 4							
				00-700-1	2,800	0.1		08	25	20	9,125	25,550
EQUATION:	Absorbed Dos	e (mg/kg-day) = (Absorbed Dose (mg/kg-day) = CSxCFxSAxAFxABSxEFxED BW xAT	ABS X EF X ED BW x A T								
Variables:		44	Assumptions:			Variables:			Assumptions:			
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) AS = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitless)	(mg soil/kg) g/cm²)	41014	EPC - Soil Data (RME) 10-6 5.800 (RME Adult Worker) Annifeable for PCRs and Cadmium (FPA, 1907).	E) orker) tors) and Cadmium (FPA.	1007h)	EF = Exposure Frequency (days/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	requency (days/y uration (years) : (kg) ime (days)		80 (RME Industrial Worker) 25 (RME Industrial Worker) 70 (Adult Male) 25 x 365 (Nc), 70 x 365 (Car)	istrial Worke istrial Worke e) 70 x 365 (Ca		

h:\eng\seneca\s1617n\risk\human\17\risktabl\soirk17r.wk4

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

cetone dethylene Chloride doluene EMIVOLATILE ORGANICS 4-Dinitrotoluene			1.00E-01 NA	NA		
enzene Aethylene Chloride Foluene EMIVOLATILE ORGANICS			NA		1	
enzene Aethylene Chloride Foluene EMIVOLATILE ORGANICS			NA			
Aethylene Chloride foluene EMIVOLATILE ORGANICS			4 00F 00	2.90E-02		
oluene EMIVOLATILE ORGANICS			6.00E-02	6.00E-02		
			1.20E-01	NA		
4-Dinitrotoluene						
			2.00E-03	NA		
,6-Dinitrotoluene			1.00E-03	NA		
-Methylnaphthalene			NA	NA		
-Methylphenol			5.00E-02	NA		
3'-Dichlorobenzidine			NA	4.50E-01		
-Nitroaniline			NA	NA		
-Nitroaniline			NA .	NA NA		7-27
Acenaphthene			6.00E-02	NA NA		1. 1.9
Acenaphthylene			NA 2 00F 01	NA NA		
Anthracene			3.00E-01	1.46E+00	1 7 7 7 7	
Benzo(a)anthracene			NA	1.46E+01	- /	3.6
Benzo(a)pyrene			NA NA	1.46E+00		
Benzo(b)fluoranthene			NA NA	NA NA		
Benzo(g,h,i)perylene			NA NA	1.46E+00		
Benzo(k)fluoranthene			2.00E+00	NA NA		
Butylbenzylphthalate			NA	2.00E-02		
Carbazole			NA	1.46E-01		
Chrysene			8.50E-02	NA		
Di-n-butylphthalate	1 100		NA	1.46E+01		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			4.00E-02	NA		
Fluoranthene Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene	2.1		NA	1.46E+00		
N-Nitrosodiphenylamine (1)		1	NA	4.90E-03		
Naphthalene			NA	NA	1	
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA	1 4.2	
bis(2-Chloroisopropyl) ether	1 7	1	1.00E-03	NA 1.40E-02		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB				to government	1 1 3	
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA 2 40F 01		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		8.15E-0
Aroclor-1260		1.01E-08	NA 5 00F 05	8.11E+00 1.60E+01		0.1525
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA NA		
Endosulfan sulfate			5.00E-05 3.00E-04	NA NA		
Endrin			3.00E-04 NA	NA NA		
Endrin ketone			1.30E-05	9.10E+00		
Heptachlor epoxide			6.00E-05	1.30E+00		
alpha-Chlordane			NA	1.80E+00		
beta-BHC delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	(Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic			2.94E-04	1.79E+00		
Barium	20.0000		7.00E-03	NA		
Cadmium	3.74E-07		3.00E-05	NA	1.25E-02	
Copper	173 Aug 113 COURT 967		2.00E-02	NA	1 V 200 A 2 C V 2	
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA		
HERBICIDES						
МСРА			5.00E-04	NA		
Totals - HQ & CR					1.25E-02	8.15E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight	Ti	aging me
	(mg/kg-day)	(mg/kg-day)	(mg/m³)	(III /day)	(days/year)	(years)	(kg)	Nc (da	ays) Car
VOLATILE ORGANICS								NC	Car
Acetone			2.65E-10	2	50	5	25	1,825	25,550
Benzene		5.95E-14	7.60E-11	2	50	5	25	1,825	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+11	2	50	5	25		
Toluene		0.005+00		2		70		1,825	25,55
Totuene	2.74E-12		2.50E-10	2	50	5	25	1,825	25,55
SEMIVOLATILE ORGANICS									
2,4-Dinitrotoluene			1.06E-08	2	50	5	25	1,825	25,55
2,6-Dinitrotoluene			0.00E+00	2	50	5	25	1,825	25,55
2-Methylnaphthalene			4.94E-09	2	50	5	25	1,825	25,55
2-Methylphenol			0.00E+00	2	50	5	25	1,825	25,55
3,3'-Dichlorobenzidine			9.39E-09	2	50	5	25		
3-Nitroaniline			2.27E-08	2	50	5	25	1,825	25,55
4-Nitroaniline			2.27E-08 2.27E-08	2 2	50	5	25	1,825	25,55
								1,825	25,55
Acenaphthene			1.25E-09	2	50	5	25	1,825	25,55
Acenaphthylene			3.65E-09	2	50	5	25	1,825	25,55
Anthracene			4.94E-09	2	50	5	25	1,825	25,55
Benzo(a)anthracene			1.31E-08	2	50	5	25	1,825	25,55
Benzo(a)pyrene			1.44E-08	2	50	5	25	1,825	25,55
Benzo(b)fluoranthene			1.41E-08	2	50	5	25	1,825	25,55
Benzo(g,h,i)perylene			1.16E-08	2	50	5	25	1,825	25,55
Benzo(k)fluoranthene			1.12E-08	2	50	5	25	1,825	25,55
Butylbenzylphthalate			1.75E-09	2	50	5	25	1,825	25,55
Carbazole			9.72E-09	2	50	5	25	1,825	25,55
Chrysene			1.23E-08	2	50	5	25	1,825	25,55
Di-n-butylphthalate			1.12E-08	2	50	5	25	1,825	25,55
Dibenz(a,h)anthracene			1.08E-08	2	50	5	25	1,825	25,55
Dibenzofuran			1.37E-09	2	50	5	25	1,825	25,55
Fluoranthene			1.24E-08	2	50	5	25	1,825	25,55
Fluorene			1.44E-09	2	50	5	25	110000000000000000000000000000000000000	
Indeno(1,2,3-cd)pyrene			1.44E-09 1.25E-08	2	50	5	25	1,825	25,55
								1,825	25,55
N-Nitrosodiphenylamine (1)			3.61E-09	2	50	5	25	1,825	25,55
Naphthalene			1.41E-09	2	50	5	25	1,825	25,55
Pentachlorophenol	1		2.51E-08	2	50	5	25	1,825	25,55
Phenanthrene			1.21E-08	2	50	5	25	1,825	25,55
Pyrene	826 000 000		1.14E-08	2	50	5	25	1,825	25,55
bis(2-Chloroisopropyl) ether	9.22E-11		8.41E-09	2	50	5	25	1,825	25,55
bis(2-Ethylhexyl)phthalate			1.25E-08	2	50	5	25	1,825	25,550
PESTICIDES/PCB									
4,4'-DDD			1.14E-10	2	50	5	25	1,825	25,550
4,4'-DDE	1		2.20E-10	2	50	5	25	1,825	25,55
4,4'-DDT		1.04E-13	1.33E-10	2	50	5	25	1,825	25,55
Aldrin	5.66E-13	4.04E-14	5.17E-11	2	50	5	25	1,825	25,55
Aroclor-1260	2.22.4		9.82E-10	2	50	5	25	1,825	25,55
Dieldrin		1.27E-13	1.63E-10	2	50	5	25	1,825	25,55
Endosulfan I		1.2715-15	1.53E-10	2	50	5	25	1,825	25,55
Endosulfan sulfate			9.92E-11	2	50	5	25		
								1,825	25,55
Endrin			1.20E-10	2	50	5	25	1,825	25,55
Endrin ketone	1	0.000	1.31E-10	2	50	5	25	1,825	25,55
Heptachlor epoxide		0.00E+00	0.00E+00	2	50	5	25	1,825	25,55
alpha-Chlordane		1025 69	4.03E-11	2	50	5	25	1,825	25,55
beta-BHC		4.50E-14	5.74E-11	2	50	5	25	1,825	25,55
delta-BHC			5.21E-11	2	50	5	25	1,825	25,55

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	aging me ays)
	(mg/kg-day)	(mg/kg-day)	(mg/m/)	(m/day)	(any any anny		3.1756	Nc	Car
METALS							1700		
•••••••		1.65E-10	2.11E-07	2	50	5	25	1,825	25,550
Arsenic	5.22E-08	1.052-10	4.76E-06	2	50	5	25	1,825	25,550
Barium	3.22E-06	6.13E-11	7.83E-08	2	50	5	25	1,825	25,550
Cadmium		0.152-11	2.37E-06	2	50	5	25 25	1,825	25,550
Copper			2.35E-05	2	50	5		1,825	25,550
Lead	4.62E-11		4.22E-09	2 2 2	50	5	25	1,825	25,550
Mercury	4.02L-11		4.40E-08	2	50	5	25	1,825	25,550
Selenium			2.85E-08	2	50	5	25	1,825	25,550
Silver			2.32E-08	2	50	5	25	1,825	25,550
Thallium Zinc			5.85E-06	2	50	5	25	1,825	25,550
HERBICIDES									10/10/10/20
MCPA			2.14E-07	2	50	5	25	1,825	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day)

EF = Exposure Frequency (days/yr) ED = Exposure Duration (years)

BW = Bodyweight (kg)
AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME

2 (RME Child)

50 5

25 (Child)

5 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			NA	NA		
Benzene		5.95E-14	NA	2.91E-02		1.73E-15
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	2.74E-12		1.14E-01	NA	2.40E-11	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA NA		
2-Methylphenol			NA NA	NA NA		
3,3'-Dichlorobenzidine			NA NA	NA NA		
3-Nitroaniline			NA NA	NA NA		
			NA NA	NA NA		
4-Nitroaniline			NA NA	NA NA		
Acenaphthene			NA NA	NA NA		
Acenaphthylene			NA NA	NA NA		
Anthracene			NA NA	NA NA		
Benzo(a)anthracene			0.000	193090		
Benzo(a)pyrene			NA	NA NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Fluoranthene		1	NA	NA		
Fluorene		1	NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol		1	NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		-
bis(2-Chloroisopropyl) ether	9.22E-11		1.00E-03	NA	9.22E-08	
bis(2-Ethylhexyl)phthalate	THE WAY BUTTON'S THE		NA	NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE			NA	NA		
4,4'-DDT		1.04E-13	NA	3.40E-01		3.53E-14
Aldrin	5.66E-13	4.04E-14	1.70E+01	1.72E+01	3.33E-14	6.93E-13
Aroclor-1260	31470 SARS SPEEK	aprocess 3768	NA	NA		
Dieldrin		1.27E-13	NA	1.61E+01		2.05E-12
Endosulfan I			NA	NA		
Endosulfan sulfate	-		NA	NA		1
Endrin			NA	NA		1
Endrin ketone			NA	NA		l.
Heptachlor epoxide		0.00E+00	NA NA	9.10E+00		0.00E+00
alpha-Chlordane		U.UULTUU	NA NA	NA NA		
beta-BHC		4.50E-14	NA NA	1.86E+00		8.36E-14
		4.5015-14	NA NA	NA		5.5015 14
delta-BHC		T.	14/4	1471	I	1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS				3114		
Arsenic	344	1.65E-10	NA 1.43E-04	1.51E+01 NA	3.65E-04	2.48E-09
Barium	5.22E-08	6.13E-11	1.43E-04 NA	6.30E+00	3.03L-04	3.86E-10
Cadmium	100	0.132-11	NA NA	NA		
Copper Lead			NA	NA		
Mercury	4.62E-11		8.57E-05	NA	5.39E-07	
Selenium			NA	NA		
Silver			NA	NA NA		
Thallium			NA NA	NA NA		
Zinc			INA	INA.		
HERBICIDES						
МСРА			NA	NA		
Total HQ & CR					3.66E-04	2.87E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

TABLE 7-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

	SURFACE SOIL	AVERAGE	CONVERSION	AIR
COMPOUND	EPC Data mg/kg	TSP (ug/m³)	FACTOR (kg/ug)	(mg/m³)
		("6")	(16,16)	(g/)
VOLATILE ORGANICS				
Acetone	6.98E-03	3.80E+01	1.00E-09	2.65E-10
Benzene	2.00E-03	3.80E+01	1.00E-09	7.60E-11
Methylene Chloride	0.00E+00	3.80E+01	1.00E-09	0.00E+00
Toluene	6.59E-03	3.80E+01	1.00E-09	2.50E-10
SEMIVOLATILE ORGANICS				
2,4-Dinitrotoluene	2.79E-01	3.80E+01	1.00E-09	1.06E-08
2,6-Dinitrotoluene	0.00E+00	3.80E+01	1.00E-09	0.00E+00
2-Methylnaphthalene	1.30E-01	3.80E+01	1.00E-09	4.94E-09
2-Methylphenol	0.00E+00	3.80E+01	1.00E-09	0.00E+00
3,3'-Dichlorobenzidine	2.47E-01	3.80E+01	1.00E-09	9.39E-09
3-Nitroaniline	5.98E-01	3.80E+01	1.00E-09	2.27E-08
4-Nitroaniline	5.98E-01	3.80E+01	1.00E-09	2.27E-08
Acenaphthene	3.30E-02	3.80E+01	1.00E-09	1.25E-09
Acenaphthylene	9.60E-02	3.80E+01	1.00E-09	3.65E-09
Anthracene	1.30E-01	3.80E+01	1.00E-09	4.94E-09
Benzo(a)anthracene	3.44E-01	3.80E+01	1.00E-09	1.31E-08
Benzo(a)pyrene	3.80E-01	3.80E+01	1.00E-09	1.44E-08
Benzo(b)fluoranthene	3.72E-01	3.80E+01	1.00E-09	1.41E-08
Benzo(g,h,i)perylene	3.06E-01	3.80E+01	1.00E-09	1.16E-08
Benzo(k)fluoranthene	2.95E-01	3.80E+01	1.00E-09	1.12E-08
Butylbenzylphthalate	4.60E-02	3.80E+01	1.00E-09	1.75E-09
Carbazole	2.56E-01	3.80E+01	1.00E-09	9.72E-09
Chrysene	3.25E-01	3.80E+01	1.00E-09	1.23E-08
Di-n-butylphthalate	2.94E-01	3.80E+01	1.00E-09	1.12E-08
Dibenz(a,h)anthracene	2.84E-01	3.80E+01	1.00E-09	1.08E-08
Dibenzofuran	3.60E-02	3.80E+01	1.00E-09	1.37E-09
Fluoranthene	3.25E-01	3.80E+01	1.00E-09	1.24E-08
Fluorene	3.80E-02	3.80E+01	1.00E-09	1.44E-09
ndeno(1,2,3-cd)pyrene	3.29E-01	3.80E+01	1.00E-09	1.25E-08
N-Nitrosodiphenylamine (1)	9.50E-02	3.80E+01	1.00E-09	3.61E-09
Naphthalene Pentachlorophenol	3.70E-02	3.80E+01	1.00E-09	1.41E-09
Phenanthrene	6.60E-01 3.19E-01	3.80E+01	1.00E-09	2.51E-08
Pyrene	3.19E-01 3.01E-01	3.80E+01 3.80E+01	1.00E-09	1.21E-08
ois(2-Chloroisopropyl) ether	2.21E-01	3.80E+01	1.00E-09 1.00E-09	1.14E-08
ois(2-Ethylhexyl)phthalate	3.28E-01	3.80E+01	1.00E-09	8.41E-09 1.25E-08
PESTICIDES/PCB				
4,4'-DDD	3.00E-03	3.80E+01	1.00E-09	1.14E-10
1,4'-DDE	5.78E-03	3.80E+01	1.00E-09	2.20E-10
1,4'-DDT	3.49E-03	3.80E+01	1.00E-09	1.33E-10
Aldrin	1.36E-03	3.80E+01	1.00E-09	5.17E-11
Aroclor-1260	2.58E-02	3.80E+01	1.00E-09	9.82E-10
Dieldrin	4.28E-03	3.80E+01	1.00E-09	1.63E-10
Endosulfan I	4.02E-03	3.80E+01	1.00E-09	1.53E-10
Endosulfan sulfate	2.61E-03	3.80E+01	1.00E-09	9.92E-11
Endrin	3.16E-03	3.80E+01	1.00E-09	1.20E-10
Endrin ketone	3.45E-03	3.80E+01	1.00E-09	1.31E-10
Heptachlor epoxide	0.00E+00	3.80E+01	1.00E-09	0.00E+00
alpha-Chlordane	1.06E-03	3.80E+01	1.00E-09	4.03E-11
peta-BHC	1.51E-03	3.80E+01	1.00E-09	5.74E-11
lelta-BHC	1.37E-03	3.80E+01	1.00E-09	5.21E-11

TABLE 7-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

COMPOUND	SURFACE SOIL EPC Data mg/kg	AVERAGE TSP (ug/m³)	CONVERSION FACTOR (kg/ug)	AIR CALCULATED EPO (mg/m³)
METALS				
Arsenic	5.54E+00	3.80E+01	1.00E-09	2.11E-07
Barium	1.25E+02	3.80E+01	1.00E-09	4.76E-06
Cadmium	2.06E+00	3.80E+01	1.00E-09	7.83E-08
	6.24E+01	3.80E+01	1.00E-09	2.37E-06
Copper Lead	6.19E+02	3.80E+01	1.00E-09	2.35E-05
Mercury	1.11E-01	3.80E+01	1.00E-09	4.22E-09
Selenium	1.16E+00	3.80E+01	1.00E-09	4.40E-08
Silver	7.50E-01	3.80E+01	1.00E-09	2.85E-08
Thallium	6.10E-01	3.80E+01	1.00E-09	2.32E-08
Zinc	1.54E+02	3.80E+01	1.00E-09	5.85E-06
HERBICIDES				
МСРА	5.63E+00	3.80E+01	1.00E-09	2.14E-07

EQUATION:

Calculated Air EPC (mg/m3) = Soil EPC x TSP x CF

Variables:

Assumptions:

TSP = Total Suspended Particulates Average value - 38 ug/m3

CF = Conversion Factor

10-9 kg/ug

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging `ime lays)
	(mg ng day)	(mg ng duy)	(1116111)	(m/day)	(days year)	() curs)	(46)	No	Car
VOLATILE ORGANICS									
Acetone			2.65E-10	20	20	25	70	9,125	25,550
Benzene		4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20	20	25	70	9,125	
Toluene	3.92E-12	0.00L100	2.50E-10	20	20	25	70		25,550
	3.92E-12		2.30E-10	20	20	23	70	9,125	25,550
SEMIVOLATILE ORGANICS									
2,4-Dinitrotoluene			1.06E-08	20	20	25	70	9,125	25,550
2,6-Dinitrotoluene			0.00E+00	20	20	25	70	9,125	25,550
2-Methylnaphthalene			4.94E-09	20	20	25	70	9,125	25,550
2-Methylphenol			0.00E+00	20	20	25	70	9,125	25,550
3,3'-Dichlorobenzidine			9.39E-09	20	20	25	70	9,125	25,550
3-Nitroaniline			2.27E-08	20	20	25	70	9,125	25,550
4-Nitroaniline			2.27E-08	20	20	25	70	9,125	25,550
Acenaphthene			1.25E-09	20	20	25	70	9,125	25,550
Acenaphthylene			3.65E-09	20	20	25	70	9,125	25,550
Anthracene			4.94E-09	20	20	25	70	9,125	25,550
Benzo(a)anthracene			1.31E-08	20	20	25	70	9,125	25,550
Benzo(a)pyrene			1.44E-08	20	20	25	70	9,125	25,550
Benzo(b)fluoranthene			1.41E-08	20	20	25	70	9,125	25,550
Benzo(g,h,i)perylene			1.16E-08	20	20	25	70	9,125	
Benzo(k)fluoranthene			1.12E-08	20	20	25	70		25,550
Butylbenzylphthalate			1.75E-09	20				9,125	25,550
Carbazole					20	25	70	9,125	25,550
			9.72E-09	20	20	25	70	9,125	25,550
Chrysene			1.23E-08	20	20	25	70	9,125	25,550
Di-n-butylphthalate			1.12E-08	20	20	25	70	9,125	25,550
Dibenz(a,h)anthracene			1.08E-08	20	20	25	70	9,125	25,550
Dibenzofuran			1.37E-09	20	20	25	70	9,125	25,550
Fluoranthene			1.24E-08	20	20	25	70	9,125	25,550
Fluorene			1.44E-09	20	20	25	70	9,125	25,550
Indeno(1,2,3-cd)pyrene	1		1.25E-08	20	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)		3	3.61E-09	20	20	25	70	9,125	25,550
Naphthalene	1 1	9	1.41E-09	20	20	25	70	9,125	25,550
Pentachlorophenol	1 1		2.51E-08	20	20	25	70	9,125	25,550
Phenanthrene			1.21E-08	20	20	25	70	9,125	25,550
Pyrene	1 1		1.14E-08	20	20	25	70	9,125	25,550
ois(2-Chloroisopropyl) ether	1.32E-10		8.41E-09	20	20	25	70	9,125	25,550
ois(2-Ethylhexyl)phthalate			1.25E-08	20	20	25	70	9,125	25,550
PESTICIDES/PCB									
4,4'-DDD			1.14E-10	20	20	25	70	9,125	25,550
4,4'-DDE			2.20E-10	20	20	25	70	9,125	25,550
4,4'-DDT		7.42E-13	1.33E-10	20	20	25	70	9,125	25,550
Aldrin	8.09E-13	2.89E-13	5.17E-11	20	20	25	70	9,125	25,550
Aroclor-1260			9.82E-10	20	20	25	70	9,125	25,550
Dieldrin		9.10E-13	1.63E-10	20	20	25	70	9,125	25,550
Endosulfan I			1.53E-10	20	20	25	70	9,125	25,550
Endosulfan sulfate		-	9.92E-11	20	20	25	70	9,125	25,550
Endrin	1		1.20E-10	20	20	25	70	9,125	25,550
Endrin ketone			1.31E-10	20	20	25	70	9,125	
leptachlor epoxide		0.00E+00	0.00E+00	25/23/30					25,550
		0.00E+00		20	20	25	70	9,125	25,550
alpha-Chlordane		2 21E 12	4.03E-11	20	20	25	70	9,125	25,550
eta-BHC		3.21E-13	5.74E-11	20	20	25	70	9,125	25,550
elta-BHC			5.21E-11	20	20	25	70	9,125	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(ing/kg-day)							Nc	Car
METALS							17.75		
Arsenic		1.18E-09	2.11E-07	20	20	25	70	9,125	25,550
	7.45E-08	1.102-05	4.76E-06	20	20	25	70	9,125	25,550
Barium Cadmium	7.432-00	4.38E-10	7.83E-08	20	20	25	70	9,125	25,550
		4.501-10	2.37E-06	20		25		9,125	25,550
Copper			2.35E-05	20	20 20	25	70 70 70 70	9,125	25,550
Lead	6.60E-11		4.22E-09	20	20	25	70	9,125	25,550
Mercury	0.0012-11		4.40E-08	20	20	25	70	9,125	25,550
Selenium			2.85E-08	20	20	25	70	9,125	25,550
Silver			2.32E-08	20	20	25	70	9,125	25,550
Thallium Zinc			5.85E-06	20	20	25	70	9,125	25,550
HERBICIDES		0.0							
MCPA	The Law		2.14E-07	20	20	25	70	9,125	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)
BW = Bodyweight (kg)
AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME 20 (RME All Receptors)

20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male)

25 x 365 (Nc) 70 x 365 (Car)

TABLE 7-43 CASE 2

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS

FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE)

REASONABLE MAXIMUM EXPOSURE (RME) SITE WORKER EXPOSURE (CURRENT LAND USE)

SEAD-17 Remedial Investigation

Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS					T NATA	
Acetone			NA	NA		
Benzene		4.25E-13	NA	2.91E-02		1.24E-14
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	3.92E-12		1.14E-01	NA	3.43E-11	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA NA	NA NA		
2-Methylphenol			NA NA	NA NA		
3,3'-Dichlorobenzidine			NA NA	NA NA		
3,3-Dichiorobenzidine 3-Nitroaniline			NA NA	NA NA		
			(7035)5/	3300000		
4-Nitroaniline			NA NA	NA NA		
Acenaphthene			NA NA	NA NA		
Acenaphthylene			NA	NA NA		
Anthracene			NA	NA NA		
Benzo(a)anthracene			NA	NA NA		
Benzo(a)pyrene			NA	NA NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		
bis(2-Chloroisopropyl) ether	1.32E-10		1.00E-03	NA	1.32E-07	
bis(2-Ethylhexyl)phthalate			NA	NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE			NA	NA		
4,4'-DDT		7.42E-13	NA	3.40E-01		2.52E-13
Aldrin	8.09E-13	2.89E-13	1.70E+01	1.72E+01	4.76E-14	4.95E-12
Aroclor-1260		50.13.75.35.75.	NA	NA		
Dieldrin		9.10E-13	NA	1.61E+01		1.47E-11
Endosulfan I		A3400110000000	NA	NA		
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
alpha-Chlordane			NA	NA		
beta-BHC		3.21E-13	NA	1.86E+00		5.97E-13
delta-BHC			NA	NA		

TABLE 7-43 CASE 2

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE)

REASONABLE MAXIMUM EXPOSURE (RME) SITE WORKER EXPOSURE (CURRENT LAND USE)

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS Arsenic		1.18E-09	NA	1.51E+01	Med Store	1.77E-08
Barium Cadmium	7.45E-08	4.38E-10	1.43E-04 NA NA	NA 6.30E+00 NA	5.22E-04	2.76E-09
Copper Lead Mercury Selenium Silver Thallium Zinc	6.60E-11		NA 8.57E-05 NA NA NA NA	NA NA NA NA NA	7.70E-07	
HERBICIDES	- 4			No.		
МСРА			NA	NA		0
Total HQ & CR					5.22E-04	2.05E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime ays)
			1.400.300.000		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18970777380		Nc	Car
VOLATILE ORGANICS									
Acetone			2.65E-10	20	250	1	70	365	25,550
Benzene		2.12E-13	7.60E-11	20	250	i l	70	365	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20	250	i	70	365	25,550
Toluene	4.90E-11	0.00E100	2.50E-10	20	250	î l	70	365	25,550
SEMIVOLATILE ORGANI			-,					505	20,000
DEMIN DEATHER ORGANI									
2,4-Dinitrotoluene			1.06E-08	20	250	1	70	365	25,550
2,6-Dinitrotoluene			0.00E+00	20	250	1	70	365	25,550
2-Methylnaphthalene			4.94E-09	20	250	1	70	365	25,550
2-Methylphenol			0.00E+00	20	250	1	70	365	25,550
3,3'-Dichlorobenzidine			9.39E-09	20	250	1	70	365	25,550
3-Nitroaniline			2.27E-08	20	250	1	70	365	25,550
4-Nitroaniline			2.27E-08	20	250	1	70	365	25,550
Acenaphthene			1.25E-09	20	250	i	70	365	25,550
Acenaphthylene			3.65E-09	20	250	1	70	365	25,550
Anthracene		1	4.94E-09	20	250	i	70		
Benzo(a)anthracene		3				50		365	25,550
		1 2	1.31E-08	20	250	1	70	365	25,550
Benzo(a)pyrene			1.44E-08	20	250	1	70	365	25,550
Benzo(b)fluoranthene			1.41E-08	20	250	1	70	365	25,550
Benzo(g,h,i)perylene			1.16E-08	20	250	1	70	365	25,550
Benzo(k)fluoranthene			1.12E-08	20	250	1	70	365	25,550
Butylbenzylphthalate			1.75E-09	20	250	1	70	365	25,550
Carbazole			9.72E-09	20	250	1	70	365	25,550
Chrysene			1.23E-08	20	250	i	70	365	25,550
Di-n-butylphthalate			1.12E-08	20	250	i	70	365	25,550
Dibenz(a,h)anthracene			1.08E-08	20	250	;	70	365	
Dibenzofuran				2000000	A2579050000	1			25,550
			1.37E-09	20	250	1	70	365	25,550
Fluoranthene			1.24E-08	20	250	1	70	365	25,550
Fluorene			1.44E-09	20	250	1	70	365	25,550
ndeno(1,2,3-cd)pyrene			1.25E-08	20	250	1	70	365	25,550
N-Nitrosodiphenylamine (1)			3.61E-09	20	250	1	70	365	25,550
Naphthalene		1	1.41E-09	20	250	1	70	365	25,550
Pentachlorophenol			2.51E-08	20	250	1	70	365	25,550
Phenanthrene			1.21E-08	20	250	1	70	365	25,550
Pyrene			1.14E-08	20	250	i	70	365	25,550
ois(2-Chloroisopropyl) ether	1.65E-09		8.41E-09	20	250	i	70	365	25,550
ois(2-Ethylhexyl)phthalate	1.032-09		1.25E-08	20	250	î	70	365	25,550
PESTICIDES/PCB			27025735) TO (1)	(578-5)	0.25:	7/4	1575	
t ti DDD			LUBIO	200	240		-	24-	
1,4'-DDD			1.14E-10	20	250	1	70	365	25,550
,4'-DDE	1	2000 May 2004 2004	2.20E-10	20	250	1	70	365	25,550
,4'-DDT	L sangeparences	3.71E-13	1.33E-10	20	250	1	70	365	25,550
Aldrin	1.01E-11	1.44E-13	5.17E-11	20	250	1	70	365	25,550
Aroclor-1260	and and an All States		9.82E-10	20	250	1	70	365	25,550
Dieldrin		4.55E-13	1.63E-10	20	250	1	70	365	25,550
ndosulfan I	J 1		1.53E-10	20	250	i	70	365	25,550
indosulfan sulfate			9.92E-11	20	250	i	70	365	25,550
Endrin			1.20E-10	20	250	i	70	365	
	1				260000000	225	100000		25,550
Endrin ketone		0.005.00	1.31E-10	20	250	1	70	365	25,550
Heptachlor epoxide		0.00E+00	0.00E+00	20	250	1	70	365	25,550
lpha-Chlordane		8778888888878887	4.03E-11	20	250	1	70	365	25,550
eta-BHC		1.61E-13	5.74E-11	20	250	1	70	365	25,550
elta-BHC	1		5.21E-11	20	250	1	70	365	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2 SEAD-17 Remedial Investigation

Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(mg/kg-day)	(mg/kg day)						Nc	Car
METALS			4.0.				13 mm 14		
Arsenic		5.89E-10	2.11E-07	20	250	1	70	365	25,550
Barium	9.31E-07	5.072.10	4.76E-06	20	250	1	70	365	25,550
Cadmium	J.512 07	2.19E-10	7.83E-08	20	250	1	70	365	25,550
Copper		H145-H155	2.37E-06	20	250	1	70	365	25,550
Lead			2.35E-05	20	250	1	70	365	25,550
Mercury	8.25E-10		4.22E-09	20	250	1	70	365	25,550
Selenium	0.252 10		4.40E-08	20	250	1	70	365	25,550
Silver		0.1	2.85E-08	20	250	1	70	365	25,550
Thallium			2.32E-08	20	250	1	70	365	25,550
Zinc			5.85E-06	20	250	1	70	365	25,550
HERBICIDES									
мсра			2.14E-07	20	250	1	70	365	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)

BW = Bodyweight (kg)

AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME

20 (all receptors)

250 (RME Construction Workers) 1 (Upper bound period of Construction Worker)

70 (Adult Male)

1 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			NA	NA		
Benzene		2.12E-13	NA	2.91E-02		6.18E-15
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	4.90E-11		1.14E-01	NA	4.29E-10	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA NA		
2-Methylphenol			NA	NA NA		
3,3'-Dichlorobenzidine			NA	NA		
3-Nitroaniline			NA NA	NA NA		
4-Nitroaniline			NA NA	NA NA		
Acenaphthene			NA NA	NA NA		
Acenaphthylene			NA NA	NA NA		
Anthracene			NA NA	NA I		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA NA		
Benzo(g,h,i)perylene			NA	NA NA		
Benzo(k)fluoranthene			NA NA	NA NA		
Butylbenzylphthalate			NA NA	NA NA		
Carbazole			NA	NA NA		
Chrysene			NA	NA NA		
Di-n-butylphthalate			NA	NA NA		
Dibenz(a,h)anthracene			NA	NA NA		
Dibenzofuran			NA NA	NA NA		
Fluoranthene			NA	NA NA		
Fluorene			NA	NA NA		
Indeno(1,2,3-cd)pyrene			NA NA	NA NA		
N-Nitrosodiphenylamine (1)			NA	NA NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		
ois(2-Chloroisopropyl) ether	1.65E-09		1.00E-03	NA NA	1.65E-06	
pis(2-Ethylhexyl)phthalate	(0.000 FF.000 F.0.		NA	NA	212277777	
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE			NA	NA		
4,4'-DDT	000000000000000000000000000000000000000	3.71E-13	NA	3.40E-01		1.26E-13
Aldrin	1.01E-11	1.44E-13	1.70E+01	1.72E+01	5.95E-13	2.48E-12
Aroclor-1260			NA	NA		1 May 1 May 2 May
Dieldrin		4.55E-13	NA	1.61E+01		7.33E-12
Endosulfan I			NA	NA		
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
alpha-Chlordane			NA	NA		
beta-BHC		1.61E-13	NA	1.86E+00		2.99E-13
lelta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic		5.89E-10	NA	1.51E+01		8.86E-09
Barium	9.31E-07	55500000000000000000000000000000000000	1.43E-04	NA	6.52E-03	100
Cadmium	TOTAL STATE	2.19E-10	NA	6.30E+00		1.38E-09
Copper			NA	NA		
Lead			NA	NA	0.625.06	7
Mercury	8.25E-10		8.57E-05	NA	9.63E-06	
Selenium			NA	NA NA		
Silver			NA	NA NA		
Thallium			NA NA	NA NA		
Zinc			NA.	I NA		
HERBICIDES						
МСРА			NA	NA		
	100				6.53E-03	1.02E-08
Total HQ & CR					0.53E-03	1.02E-00

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
	1 1 1 2 2 10		1 25/20/25 1/5	- CO - ESS	0 4 6 1			Nc	Car
METALS									
Arsenic		1.47E-08	2.11E-07	20	250	25 25	70	9,125	25,550
Barium	9.31E-07		4.76E-06	20	250	25	70	9,125	25,550
Cadmium		5.47E-09	7.83E-08	20	250	25	70	9,125	25,550
Copper		Contract of the Contract of	2.37E-06	20	250	25	70	9,125	25,550
Lead			2.35E-05	20	250	25	70	9,125	25,550
Mercury	8.25E-10		4.22E-09	20	250	25	70	9,125	25,550
Selenium			4.40E-08	20	250	25	70	9,125	25,550
Silver			2.85E-08	20	250	25	70	9,125	25,550
Thallium			2.32E-08	20	250	25	70	9,125	25,550
Zinc			5.85E-06	20	250	25	70	9,125	25,550
HERBICIDES									
MCPA			2.14E-07	20	250	25	70	9,125	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years) BW = Bodyweight (kg)

BW = Bodyweight (kg) AT = Averaging Time (days) **Assumptions:**

Calculated EPC Air Data - RME 20 (all receptors)

250 (RME Industrial Workers)

70 (Adult Male)

5 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Avera Tir (da	me
	(mg/kg-day)	(mg/kg-day)	(mg/m³)	(m³/day)	(days/year)	(Jeas)	(1.87	Nc	Car
OLATILE ORGANICS							6000	CONSTRUCT I	
			2.65E-10	20	250	25	70	9,125	25,550
Acetone		5 0 1 F 10	7.60E-11	20	250	25	70	9,125	25,550
Benzene		5.31E-12			250	25	70	9,125	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20		25	70	9,125	25,550
Coluene	4.90E-11		2.50E-10	20	250	25	70	9,123	20,000
						1			
SEMIVOLATILE ORGANICS							# 0	0.125	25,550
2,4-Dinitrotoluene			1.06E-08	20	250	25	70	9,125 9,125	25,550
2,6-Dinitrotoluene			0.00E+00	20	250	25	70		25,550
			4.94E-09	20	250	25	70	9,125	
2-Methylnaphthalene			0.00E+00	20	250	25	70	9,125	25,550
2-Methylphenol			9.39E-09	20	250	25	70	9,125	25,550
3,3'-Dichlorobenzidine				20	250	25	70	9,125	25,550
3-Nitroaniline	2		2.27E-08		250	25	70	9,125	25,550
4-Nitroaniline			2.27E-08	20		25	70	9,125	25,550
Acenaphthene			1.25E-09	20	250			9,125	25,550
Acenaphthylene			3.65E-09	20	250	25	70		25,550
			4.94E-09	20	250	25	70	9,125	
Anthracene		1450	1.31E-08	20	250	25	70	9,125	25,550
Benzo(a)anthracene	1		1.44E-08	20	250	25	70	9,125	25,550
Benzo(a)pyrene			1.44E-08	20	250	25	70	9,125	25,550
Benzo(b)fluoranthene					250	25	70	9,125	25,550
Benzo(g,h,i)perylene	ii.		1.16E-08	20		25	70	9,125	25,550
Benzo(k)fluoranthene			1.12E-08	20	250		70	9,125	25,550
Butylbenzylphthalate	5 2	1 1 1 1 1 1	1.75E-09	20	250	25			25,550
			9.72E-09	20	250	25	70	9,125	
Carbazole			1.23E-08	20	250	25	70	9,125	25,550
Chrysene			1.12E-08	20	250	25	70	9,125	25,550
Di-n-butylphthalate			1.08E-08	20	250	25	70	9,125	25,550
Dibenz(a,h)anthracene				20	250	25	70	9,125	25,550
Dibenzofuran		1	1.37E-09		250	25	70	9,125	25,550
Fluoranthene		-	1.24E-08	20		25	70	9,125	25,550
Fluorene			1.44E-09	20	250	25	70	9,125	25,550
Indeno(1,2,3-cd)pyrene			1.25E-08	20	250	25			25,550
N-Nitrosodiphenylamine (1)			3.61E-09	20	250	25	70	9,125	
N-Nitrosodiphenylamine (1)			1.41E-09	20	250	25	70	9,125	25,55
Naphthalene		1	2.51E-08	20	250	25	70	9,125	25,55
Pentachlorophenol			1.21E-08	20	250	25	70	9,125	25,55
Phenanthrene				20	250	25	70	9,125	25,55
Pyrene			1.14E-08		250	25	70	9,125	25,55
bis(2-Chloroisopropyl) ether	1.65E-09		8.41E-09	20	250	25	70	9,125	25,55
bis(2-Ethylhexyl)phthalate			1.25E-08	20	250	23	70	,,,,,,	
PESTICIDES/PCB									
4.4! DDD			1.14E-10	20	250	25	70	9,125	25,55
4,4'-DDD			2.20E-10	20	250	25	70	9,125	25,55
4,4'-DDE	4	9.28E-12	1.33E-10	20	250	25	70	9,125	25,55
4,4'-DDT			5.17E-11	20	250	25	70	9,125	25,55
Aldrin	1.01E-11	3.61E-12	9.82E-10	20	250	25	70	9,125	25,55
Aroclor-1260		Annual control of the			250	25	70	9,125	25,55
Dieldrin		1.14E-11	1.63E-10				70	9,125	25,55
Endosulfan I			1.53E-10		250	25	70	9,125	25,55
Endosulfan sulfate			9.92E-11	20	250	25			25,55
The state of the s	1		1.20E-10	20	250	25	70	9,125	
Endrin		1	1.31E-10		250	25	70	9,125	25,55
Endrin ketone		0.005100	0.00E+00	0.00	250	25	70	9,125	25,55
Heptachlor epoxide		0.00E+00		OF 18 20 20 20 20 20 20 20 20 20 20 20 20 20	250	25	70	9,125	25,55
alpha-Chlordane		Name and the same	4.03E-11	0.000	250	25	70	9,125	25,55
beta-BHC		4.01E-12	5.74E-11			25	70	9,125	25,55
delta-BHC	1	1	5.21E-11	20	250	43	7.0		0.22(2)47(2)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			NA	NA		J
Benzene	50 SOURCE SEA	5.31E-12	NA	2.91E-02		1.55E-13
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	4.90E-11		1.14E-01	NA	4.29E-10	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			NA NA	NA		
			NA NA	NA NA		
3,3'-Dichlorobenzidine			0.0000000000000000000000000000000000000	100000000000000000000000000000000000000		
3-Nitroaniline		l A	NA NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA NA	NA		
Fluoranthene			NA NA	NA		
Fluorene	1		NA NA	NA		
			NA NA	NA NA		
Indeno(1,2,3-cd)pyrene			12000000	10000000		
N-Nitrosodiphenylamine (1)			NA NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		1
Pyrene			NA	NA		1
bis(2-Chloroisopropyl) ether	1.65E-09	1	1.00E-03	NA	1.65E-06	
pis(2-Ethylhexyl)phthalate			NA	NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE		010000000000000000000000000000000000000	NA	NA		1984-1110 no recent
4,4'-DDT		9.28E-12	NA	3.40E-01		3.15E-12
Aldrin	1.01E-11	3.61E-12	1.70E+01	1.72E+01	5.95E-13	6.19E-11
Aroclor-1260			NA	NA		\$1.550 PROVINCE
Dieldrin		1.14E-11	NA	1.61E+01		1.83E-10
Endosulfan I			NA	NA		
Endosulfan sulfate		1	NA	NA		
Endrin			NA	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
alpha-Chlordane			NA	NA		The state of the
		4.01E-12	NA	1.86E+00		7.47E-12
oeta-BHC		4.01E-12	13/4	1.005700		/,*+/ID=12

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS					H Charles	ii .
Arsenic	300	1.47E-08	NA	1.51E+01	< 00	2.21E-07
Barium	9.31E-07		1.43E-04	NA COST, OD	6.52E-03	3.45E-08
Cadmium		5.47E-09	NA	6.30E+00 NA		3,43E-00
Copper	7 7 11 1		NA NA	NA NA		
Lead	8.25E-10		8.57E-05	NA	9.63E-06	
Mercury Selenium	6.23L-10		NA	NA		
Silver			NA	NA		
Thallium	71		NA	NA		
Zinc			NA	NA		
HERBICIDES						
МСРА			NA	NA	-	
Total HO & CR					6.53E-03	2.56E-0

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

TABLE 7-38

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Conv. Skin Surface Atherence (kg/mg) (miless) (m	Child Africa Adherence Absorption Exa Area Counter Factor Factor (cm³/cvent) (mg sed/cm²) (unitless) (cvent (cm³/cvent) (mg sed/cm²) (unitless) (cvent (cm³/cvent) (mg sed/cm²) (unitless) (cvent (cm³/cvent) (cvent (cm³/cvent) (cvent (cvent (cm³/cvent) (cvent (Skin Surface Adherence Absorption Area Contact (cm//event) (mg sed/cm²) (unitless) 2,170 1.0	Skin Surface	Child Adherence
	Absorption Factor (unitless)	Absorption Exposure Frequency (unitless) (events/year) 25 25 25 25 25 25 25 25 25 25 25 25 25	Absorption Exposure Exposure Patetor Frequency Duration (wents/year) (years) 25 25 25 25 25 25 25 25 25 25 25 25 25 2	Absorption Exposure Child Child Factor Frequency Duration Weight (unitless) (events/year) (years) (kg) Child(1 25 5 25 1,822 25 25 25 1,822 25 25 25 25 1,822 25 25 25 25 25 1,822 25 25 25 25 1,822 25 25 25 25 1,822 25 25 25 25 1,822 25 25 25 25 1,822 25 25 25 25 1,822 25 25 25 25 25 1,822 25 25 25 25 25 25 25 25 25 25 25 25 2
	Exposure Frequency (events/year) 25 25 25 25 25 25 25 25 25 2		Child Exposure Duration (years) (years) 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Crhild Body Duration Weight (kg) (kg) Crhild (kg) (kg) Crhild(1) 5 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 1,822 5 25 25 25 25 25 25 25 25 25 25 25 25

TABLE 7-38

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

1	Absorbed Dose (Nc)	Absorbed Dose (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg sed/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	ing ()
Affairle	(fam Su Sun)	(9.5)	10.0	0	,						Child(Nc)	Car
STERRES												
Aluminum			1.83E+04	1.0E-06	2,170	1.0		25	s	25	1,825	25,550
Antimony			5.50E+00	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Arsenic			6.10E+00	1.0E-06	2,170	1.0		25	s	25	1,825	25,550
Barium			1.32E+02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Beryllium			7.64E-01	1.0E-06	2,170	1.0		25	8	25	1,825	25,550
Cadmium	1.43E-07		2.40E+00	1.0E-06	2,170	1.0	0.01	25	2	25	1,825	25,550
Calcium			1.08E+04	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Chromium			2,47E+01	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Cobalt			1.26E+01	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Copper			1.33E+02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Iron			2.94E+04	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Lead			6.83E+02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Magnesium			5.54E+03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Manganese			5.32E+02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Mercury			8.11E-02	1.0E-06	2,170	1.0		25	5	25	1,825	25,550
Nickel			3.16E+01	1.0E-06	2,170	1.0		25	5	25	1,825	25,550
Potassium			2.18E+03	1.0E-06	2,170	0.1		25	2	25	1,825	25,550
Selenium	711		1.27E+00	1.0E-06	2,170	1.0		25	S	25	1,825	25,550
Sodium			4.27E+02	1.0E-06	2,170	0.1		25	8	25	1,825	25,550
Thallium			8.24E-01	1.0E-06	2,170	1.0		25	8	25	1,825	25,550
Vanadium			2.97E+01	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Zinc			1.88E+02	1.0E-06	2,170	1.0		25	s	25	1,825	25,550
FOLIATION												
	Absorbed Dose (mg/kg-day) = CSACFASAAABSAEFAED BWxAT	= CSxCFxSA	SW XAT	EXED								
	Variables:				Assumptions:			Variables:			Assumptions:	
			1	30		2000			6			
	CS = Chemical CF = Conversio SA = Surface A AF = Sediment t	CS = Chemical Concentration in Sediment (mg sediment/kg) CF = Conversion Factor (10-6 kg/mg) SA = Súnface Area Contact (cm²) AF = Sediment to Skin Adherence Factor (mg/cm²)	Sediment (mg s g/mg)) e Factor (mg/cm	eediment/kg)	EPC - Sediment Data - RME 10-6 2,170 (RME Child) 1.0 (RME all receptors)	Data - RME ld) eptors)		EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	requency (event buration (years) it (kg) Time (days)	s/year)	25 (RME) 5 (RME) 25 kg (child) 5 x 365 (Nc), 70 x 365 (Car)	x 365 (Car)
	ABS = Absorpt	ABS = Absorption Factor (unitless)	:38)		Compound Specific PCBs and (Default Assumption 0% = 0.0)	Compound Specific PCBs and Cd, (EPA, 1992b) [Default Assumption 0% = 0.0]	d, (EPA, 1992b)					

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
Acatama			1.00E-01	NA		
Acetone Toluene		1	1.20E-01	NA I		
Tottene			1.202 01			
Semivolatile Organics						
2,4-Dimethylphenol		1 1	2.00E-02	NA		
2,4-Dinitrotoluene	i -	1 1	2.00E-03	NA		
Benzo(a)anthracene		1 1	NA	1.46E+00		
Benzo(a)pyrene		1 1	NA	1.46E+01		
Benzo(b)fluoranthene		1 1	NA	1.46E+00		
Benzo(g,h,i)perylene		1	NA	NA		
Benzo(k)fluoranthene		1 1	NA	1.46E+00		
Chrysene		1 1	NA	1.46E-01		
Fluoranthene			4.00E-02	NA NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
			NA	NA NA		
Phenanthrene			3.00E-02	NA NA		
Pyrene		1 1	2.00E-02	1.40E-02		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
Pesticides						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE		1 1	NA	NA		
4,4'-DDT		1 1	5.00E-04	3.40E-01		
Dieldrin	1	1 1	5.00E-05	1.60E+01		
Endosulfan I	1	1 1	6.00E-03	NA		
Endosulfan II			NA	NA		
Metals						
Aluminum		1 1	NA	NA		
Antimony		1 1	4.00E-04	NA		
Arsenic			2.94E-04	1.79E+00		
Barium		1	7.00E-03	NA		
Beryllium			5,00E-06	4.30E+03		
Cadmium	1.43E-07	1 1	3.00E-05	NA	4.76E-03	
Calcium		1 1	NA	NA		
Chromium			2.50E-04	NA		
Cobalt		1	NA	NA		
Copper		1 1	2,00E-02	NA		
Iron			NA	NA		
Lead			NA	NA		
Magnesium		1 1	NA	NA		
Manganese		1 1	5.00E-03	NA		
Mercury		1 1	4.50E-05	NA		
Nickel			1.00E-03	NA NA		
Potassium			NA	NA NA		
Selenium	1	1 1	3.00E-03	NA NA		
Sodium	1		NA NA	NA NA		
Thallium	1		7.00E-05	NA		
Vanadium	1	1 1	7.00E-03	NA NA		
Zinc			1.50E-01	NA NA		

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-36

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Child Ingestion Rate (mg sed/day)	Conv. Factor (kg/mg)	Fraction Ingested (unidess)	Exposure Frequency (days/year)	Child Exposure Duration (years)	Child Body Weight (kg)	Averaging Time (days)	veraging Time (days)
	(1-0-0-)	_	ò)	(STITE (SHEET)).			08450	Nc	Car
Volatile Organics											
Acetone	7.88E-09 4.38E-09	i	1.44E-02 8.00E-03	200	1.0E-06 1.0E-06		25	v v	25 25	1,825	25,550
Semivolatile Organics											
2 4-Dimethylphenol	1.75E-08		3.20E-02	200	1.0E-06	-	25	2	25	1,825	25,550
2 4-Dinitrotoluene	1.72E-07		3.14E-01	200	1.0E-06	-	25	2	25	1,825	25,550
Benzo(a)anthracene		9.78E-10	2.50E-02	200	1.0E-06	-	25	S	25	1,825	25,550
Benzo(a)pyrene		1.17E-09	3.00E-02	200	1.0E-06	-	25	S	25	1,825	25,550
Benzo(b)fluoranthene		1.68E-09	4.30E-02	200	1.0E-06	-	22	2	25	1,825	25,550
Benzo(g,h,i)perylene			3.10E-02	200	1.0E-06	-	25	S	25	1,825	25,550
Benzo(k)fluoranthene		1.29E-09	3.30E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Chrysene		1.88E-09	4.80E-02	200	1.0E-06		25	2	25	1,825	25,550
Fluoranthene	3.84E-08		7.00E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Indeno(1 2 3-cd)pyrene		9.39E-10	2.40E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Phenanthrene			3.50E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Pyrene	2.58E-08		4.70E-02	200	1.0E-06	-	25	2	25	1,825	25,550
bis(2-Ethylhexyl)phthalate	4.22E-08	3.01E-09	7.70E-02	200	1.0E-06	-	52	S	25	1,825	25,550
Pesticides							111				
4 4'-DDD	3.54E-09	2.53E-10	6.46E-03	200	1.0E-06	-	25	S	25	1,825	25,550
4.4'-DDE			4.82E-02	200	1.0E-06	-	25	2	25	1,825	25,550
4.4-DDT	2.68E-09	1.92E-10	4.90E-03	200	1.0E-06	-	25	2	25	1,825	25,550
Dieldrin	1.78E-09	1.27E-10	3.26E-03	200	1.0E-06	-	25	5	25	1,825	25,550
Endosulfan I	7.82E-10	10 Page 10 Pag	1.43E-03	200	1.0E-06	-	25	\$	25	1,825	25,550
Endosulfan II	STATE OF THE PARTY		3.05E-03	200	1.0E-06	-	25	S	25	1,825	25,550

TABLE 7-36

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Ingestion Rate (mg sed/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/vear)	Exposure Duration (years)	Chiid Body Weight (kg)	Aver Ti	Averaging Time
Metale										Nc	Car
THE PARTY OF THE P											
Aluminum			1.83E+04	200	1.0E-06	-	25	s	25	1,825	25,550
Antimony	3.01E-06	0.0000000000000000000000000000000000000	5.50E+00	200	1.0E-06	-	25	S	25	1,825	25,550
Arsenic	3.34E-06	2.39E-07	6.10E+00	200	1.0E-06	-	25	5	25	1,825	25,550
Barium	7.21E-05		1.32E+02	200	1.0E-06	_	25	2	25	1,825	25.550
Beryllium	4.19E-07	2.99E-08	7.64E-01	200	1.0E-06	-	25	8	25	1,825	25,550
Cadmium	1.32E-06		2.40E+00	200	1.0E-06	-	25	5	25	1,825	25.550
Calcium			1.08E+04	200	1.0E-06	-	25	2	25	1,825	25,550
Chromium	1.35E-05		2.47E+01	200	1.0E-06	-	25	5	25	1,825	25,550
Cobalt			1.26E+01	200	1.0E-06	-	25	2	25	1,825	25,550
Copper	7.31E-05		1.33E+02	200	1.0E-06	-	25	2	25	1,825	25,550
Iron			2.94E+04	200	1.0E-06	-	25	2	25	1,825	25,55
Lead			6.83E+02	200	1.0E-06	_	25	2	25	1,825	25,550
Magnesium	9		5.54E+03	200	1.0E-06	-	25	2	25	1,825	25,550
Manganese	2.92E-04		5.32E+02	200	1.0E-06	-	25	5	25	1,825	25,550
Mercury	4.44E-08		8.11E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Nickel	1.73E-05		3.16E+01	200	1.0E-06	-	25	2	25	1,825	25,550
Potassium			2.18E+03	200	1.0E-06	-	25	2	25	1,825	25,550
Selenium	6.94E-07		1.27E+00	200	1.0E-06	_	25	2	25	1,825	25,550
Sodium			4.27E+02	200	1.0E-06	-	25	S	25	1,825	25,550
Ihallium	4.51E-07		8.24E-01	200	1.0E-06	_	25	۰	25	1,825	25,550
Vanadium	1.63E-05		2.97E+01	200	1.0E-06	-	25	2	25	1,825	25,550
Zinc	1.03E-04		1.88E+02	200	1.0E-06	-	25	5	25	1,825	25,550
EQUATION:											
	Intake (mg/kg-day) = CSxIRxCFxFIxEFxED BWxAT	CSIRICEAL	FIXEFXEI T								
	Variables:						Assumptions:				
	CS = Chemica	I Concentration	in Sediment	CS = Chemical Concentration in Sediment (mg sediment/kg)	- 6		FPC - Sediment Data - RMF	t Data - RMF			
	IR = Ingestion	IR = Ingestion Rate (mg sediment/day)	nent/day)		à		200 (RME Child)	ld)			
	CF = Convers	CF = Conversion Factor (10-6 kg/mg) FI = Fraction Inpacted (unitlace)	kg/mg)				10-6				
	EF = Exposur	EF = Exposure Frequency (days/years)	avs/vears)				25 (RME)				
	ED = Exposur	ED = Exposure Duration (years)	13)				S (RME)				
	BW = Bodyweight (kg)	BW = Bodyweight (kg)					25 (Child)				
	AI = Averagi	19 I Imp (dave)									

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2 SEAD-17 Remedial Investigation

Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
Acetone	7.88E-09	100000	1.00E-01	NA NA	7.88E-08	
Toluene	4.38E-09		2.00E-01	NA	2.19E-08	
. Olasilis	1 2 2 2					
Semivolatile Organics						
2,4-Dimethylphenol	1.75E-08		2.00E-02	NA	8.77E-07	
2,4-Dinitrotoluene	1.72E-07		2.00E-03	NA	8.61E-05	#57#V#6487#58#6
Benzo(a)anthracene	11/200.57	9.78E-10	NA	7.30E-01		7.14E-10
Benzo(a)pyrene		1.17E-09	NA	7.30E+00		8.57E-09
Benzo(b)fluoranthene		1.68E-09	NA	7.30E-01		1.23E-09
			NA	NA		
Benzo(g,h,i)perylene		1.29E-09	NA	7.30E-01		9.43E-10
Benzo(k)fluoranthene		1.88E-09	NA	7.30E-02		1.37E-10
Chrysene	3.84E-08	1.0015	4.00E-02	NA	9.59E-07	- Communications
Fluoranthene	3.04E-00	9.39E-10	NA.	7.30E-01		6.86E-10
Indeno(1,2,3-cd)pyrene		7.57.6	NA	NA		1.0000000000000000000000000000000000000
Phenanthrene	2.58E-08		3.00E-02	NA NA	8.58E-07	
Pyrene	4.22E-08	3.01E-09	2.00E-02	1.40E-02	2.11E-06	4.22E-11
bis(2-Ethylhexyl)phthalate	4.226-08	3.012-03	2.002.02	1995-75	***********	1222-122
Pesticides						
4,4'-DDD	3.54E-09	2.53E-10	5.00E-04	2.40E-01	7.08E-06	6.07E-11
4.4'-DDE	TO SHARLALDESS		NA	NA		
4,4'-DDT	2.68E-09	1.92E-10	5.00E-04	3.40E-01	5.37E-06	6.52E-11
Dieldrin	1.78E-09	1.27E-10	5.00E-05	1.60E+01	3.57E-05	2.04E-09
Endosulfan I	7.82E-10		6.00E-03	NA	1.30E-07	
Endosulfan II	1371	607.0	NA	NA		
Metals						
			NA	NA		
Aluminum	3.01E-06		4.00E-04	NA	7.53E-03	
Antimony	3.34E-06	2.39E-07	3.00E-04	1.75E+00	1.11E-02	4.17E-07
Arsenic	7.21E-05	2.37E-07	7.00E-02	NA NA	1.03E-03	
Barium	4.19E-07	2.99E-08	5.00E-02	4 30E+00	8.37E-05	1.29E-07
Beryllium	1.32E-06	2.55E-08	5.00E-03	NA NA	2.63E-03	
Cadmium	1.32E-00		NA NA	NA NA		
Calcium	1.35E-05		5.00E-03	NA	2.70E-03	1=0
Chromium	1,55E-05	1	NA.	NA		
Cobalt	7.31E-05		4.00E-02	NA.	1.83E-03	
Copper	7.51E-05		NA NA	NA	417777835	
Iron			NA NA	NA		
Lead			NA.	NA		
Magnesium	2.92E-04		5.00E-03	NA	5.83E-02	
Manganese	4.44E-08		3.00E-04	NA	1.48E-04	
Mercury	1.73E-05	1	2.00E-02	NA NA	8.66E-04	
Nickel	1.73E-03		NA NA	NA NA		
Potassium	6.94E-07		5.00E-03	NA.	1.39E-04	
Selenium	6.94E-07		NA NA	NA NA		
Sodium	4.612.07		7.00E-05	NA.	6.45E-03	
Thallium	4.51E-07		7.00E-03	NA NA	2.33E-03	
Vanadium	1.63E-05 1.03E-04		3.00E-01	NA NA	3.44E-04	
Zinc	1.03E-04		2.232		2000000000000000	
Totals - HQ & CR					9.57E-02	5.61E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-20

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL
CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)		Averaging Time (days)
		_								Nc	Car
VOLATILE ORGANICS											
Anatoma	3 78E-08		6 08E-03	480	1 00E-06	-	250	-	70	365	25.550
Accione	2.484-00	1 34F-10	2 00F-03	480	1.00E-06	. –	250		70	365	25,550
Methylene Chloride		0.00E+00	0.00E+00	480	1.00E-06	-	250	-	70	365	25,550
Toluene	3.10E-08	4.42E-10	6.59E-03	480	1.00E-06	-	250		70	365	25,550
SEMIVOLATILE ORGANICS											
2 4-Dinitrotoluene	1 31E-06		2.79E-01	480	1.00E-06	-	250	-	70	365	25.550
2.6-Dinitrotoluene	0.00E+00		0.00E+00	480	1.00E-06	-	250	-	70	365	25,550
2-Methylnaphthalene			1.30E-01	480	1.00E-06		250	-	70	365	25,550
2-Methylphenol	0.00E+00		0.00E+00	480	1.00E-06	-	250	-	70	365	25,550
3.3'-Dichlorobenzidine		1.66E-08	2.47E-01	480	1.00E-06	-	250	_	70	365	25,550
3-Nitroaniline			5.98E-01	480	1.00E-06	-	250	-	70	365	25,550
4-Nitroaniline			5.98E-01	480	1.00E-06	-	250	-	70	365	25,550
Acenaphthene	1.55E-07		3.30E-02	480	1.00E-06	-	250	-	70	365	25,550
Acenaphthylene			9.60E-02	480	1.00E-06		250	-	70	365	25,550
Anthracene	6.11E-07		1.30E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(a)anthracene		2.31E-08	3.44E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(a)pyrene		2.55E-08	3.80E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(b)fluoranthene		2.50E-08	3.72E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(g.h.i)perylene			3.06E-01	480	1.00E-06	-	250	-	70	365	25,550
Benzo(k)fluoranthene		1.98E-08	2.95E-01	480	1.00E-06	1	250		70	365	25,550
Butylbenzylphthalate	2.16E-07		4.60E-02	480	1.00E-06	1	250	-	70	365	25,550
Carbazole		1.72E-08	2.56E-01	480	1.00E-06	1	250	-	70	365	25,550
Chrysene		2.18E-08	3.25E-01	480	1.00E-06	1	250	-	70	365	25,550
Di-n-hitvInhthalate	1.38E-06		2.94E-01	480	1 00F-06	-	250	-	70	365	25 550

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
										Nc	Car
Dibenz(a,h)anthracene		1.91E-08	2.84E-01	480	1.00E-06	-	250	1	70	365	25,550
Dibenzofuran			3.60E-02	480	1.00E-06	-	250		70	365	25,550
Fluoranthene	1.53E-06	,	3.25E-01	480	1.00E-06	-	250		70	365	25,550
Fluorene	1.78E-07		3.80E-02	480	1.00E-06	-	250	1	70	365	25,550
Indeno(1,2,3-cd)pyrene		2.21E-08	3.29E-01	480	1.00E-06	-	250	1	70	365	25,550
N-Nitrosodiphenylamine (1)		6.37E-09	9.50E-02	480	1.00E-06	-	250	_	70	365	25,550
Naphthalene			3.70E-02	480	1.00E-06	-	250	1	70	365	25,550
Pentachlorophenol	3.10E-06	4.43E-08	6.60E-01	480	1.00E-06	-	250	-	70	365	25,550
Phenanthrene			3.19E-01	480	1.00E-06	1	250	1	70	365	25,550
Pyrene	1.41E-06		3.01E-01	480	1.00E-06	-	250	-	70	365	25,550
bis(2-Chloroisopropyl) ether	1.04E-06		2.21E-01	480	1.00E-06	-	250	ı	70	365	25,550
bis(2-Ethylhexyl)phthalate	1.54E-06	2.20E-08	3.28E-01	480	1.00E-06	-	250	-	70	365	25,550
PESTICIDES/PCB											
4,4'-DDD	1.41E-08	2.02E-10	3.00E-03	480	1.00E-06	-	250	1	70	365	25,550
4,4'-DDE			5.78E-03	480	1.00E-06	-	250	-	70	365	25,550
4,4'-DDT	1.64E-08	2.34E-10	3.49E-03	480	1.00E-06		250	-	70	365	25,550
Aldrin	6.38E-09	9.12E-11	1.36E-03	480	1.00E-06	-	250		70	365	25,550
Aroclor-1254	0.00E+00	0.00E+00	0.00E+00	480	1.00E-06	-	250	-	70	365	25,550
Aroclor-1260		1.73E-09	2.58E-02	480	1.00E-06	П	250		70	365	25,550
Dieldrin	2.01E-08	2.87E-10	4.28E-03	480	1.00E-06	-	250	-	70	365	25,550
Endosulfan I	1.89E-08		4.02E-03	480	1.00E-06	-	250	-	70	365	25,550
Endosulfan sulfate	1.23E-08		2.61E-03	480	1.00E-06	-	250	-	70	365	25,550
Endrin	1.48E-08		3.16E-03	480	1.00E-06	1	250	-	70	365	25,550
Endrin ketone			3.45E-03	480	1.00E-06	1	250	-	70	365	25,550
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	480	1.00E-06	-	250	-	70	365	25,550
alpha-Chlordane	4.98E-09	7.11E-11	1.06E-03	480	1.00E-06	-	250	-	70	365	25,550
beta-BHC		1.01E-10	1.51E-03	480	1.00E-06	-	250	-	70	365	25,550
delta-BHC			1 37F-03	480	1 00F-06	-	250	_	70	365	25 550

TABLE 7-20

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averagi Time (days)	Averaging Time (days)
METALS							9 1	3		Nc	Car
Antimony	3.67E-05		7.82E+00	480	1.00E-06		250	-	70	365	25.550
Arsenic	2.60E-05	3.72E-07	5.54E+00	480	1.00E-06	-	250		70	365	25,550
Barium	5.88E-04		1.25E+02	480	1.00E-06	 .	250		0 6	365	25,550
Copper	2.93E-04		6.24E+01	480	1.00E-06	-6-	250		20 02	365	25,550
Lead			6.19E+02	480	1.00E-06		250		70	365	25,550
Mercury	5.20E-07		1.11E-01	480	1.00E-06	-	250	-	70	365	25,550
Selenium	5.44E-06		1.16E+00	480	1.00E-06		250		70	365	25,550
Zinc	7.22E-04		1.54E+02	480	1.00E-06		250		0 02	365	25,550
Sadicidadii								2			
HEKBICIDES											
MCPA	2.64E-05		5.63E+00	480	1.00E-06	-	250	-	20	365	25,550
EQUATION:	Intake (mg/kg-day) =		CSxIRxCExF BWxAT	CSxIRxCFxFlxEFxED BWxAT							
	Variables:					Assumptions:					
	CS = Chemics IR = Ingestion CF = Convers FI = Fraction EF = Exposur ED = Exposur	CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) EM = Exposure Duration (years)	n in Soil (mg day) -6 kg/mg) ess) days/years) ars)	soil/kg)		EPC - Soil Data (RME) 480 (RME Construction 10-6 1 (All Receptors) 250 (RME Construction 1 (Upper bound limit for	EPC - Soil Data (RME) 480 (RME Construction Worker) 10-6 1 (All Receptors) 250 (RME Construction Worker)	EPC - Soil Data (RME) 480 (RME Construction Worker) 10-6 1 (All Receptors) 250 (RME Construction Worker)	rker)		
	DW = Bodyweignt (kg) AT = Averaging Time (DW = Dodyweignt (kg) AT = Averaging Time (days)				70 (Addit maie) 1 x 365 (Nc) 70	(v (Adult male) 1 x 365 (Nc) 70 x 365 (Car)				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

Page 3 of 2

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS				1725		
Acetone	3.28E-08	FALS	1.00E-01	NA	3.28E-07	E PERSONAL
Benzene		1.34E-10	NA	2.90E-02		3.89E-12
Methylene Chloride		0.00E+00	NA	2.90E-02		0.00E+00
Toluene	3.10E-08	4.42E-10	6.00E-02	7.50E-03	5.16E-07	3.32E-12
SEMIVOLATILE ORGANICS				. 111		
2,4-Dinitrotoluene	1.31E-06		2.00E-03	NA	6.55E-04	7 4
2,4-Dinitrotoluene	0.00E+00	8944	1.00E-03	NA	0.00E+00	
2,6-Dinitrototuene 2-Methylnaphthalene	0.001.00		NA	NA		6. 5
2-Methylphenol	0.00E+00	11.1	5.00E-02	NA	0.00E+00	-0
2-Metnyiphenoi 3,3'-Dichlorobenzidine	0.000100	1.66E-08	NA	4.50E-01		7.46E-09
3,3'-Dichiorobenziaine 3-Nitroaniline		1.002-00	NA	NA		11
3-Nitroaniline 4-Nitroaniline		7.0400.00	NA	NA		
	1.55E-07	0.4.5.6	6.00E-02	NA	2.58E-06	
Acenaphthene	1.33107	F	NA	NA		
Acenaphthylene Anthracene	6.11E-07		3.00E-01	NA	2.04E-06	100
Benzo(a)anthracene	0.11L-07	2.31E-08	NA	7.30E-01		1.68E-08
		2.55E-08	NA	7.30E+00		1.86E-07
Benzo(a)pyrene		2.50E-08	NA	7.30E-01		1.82E-08
Benzo(b)fluoranthene		2.500 00	NA	NA		
Benzo(g,h,i)perylene Benzo(k)fluoranthene		1.98E-08	NA	7.30E-01		1.44E-08
	2.16E-07	1.702 00	2.00E+00	NA	1.08E-07	
Butylbenzylphthalate	2.1015-07	1.72E-08	NA NA	2.00E-02		3.43E-10
Carbazole		2.18E-08	NA	7.30E-02		1.59E-09
Chrysene Dian but de la	1.38E-06	2.100-00	1.00E-01	NA NA	1.38E-05	
Di-n-butylphthalate	1.36E-00	1.91E-08	NA	7.30E+00		1.39E-07
Dibenz(a,h)anthracene		1.7115-00	NA NA	NA NA		AREA (54.) (54.)
Dibenzofuran	1.53E-06		4.00E-02	NA	3.82E-05	
Fluoranthene	1.78E-07	11000	4.00E-02	NA NA	4.46E-06	
Fluorene	1.76E=U7	2.21E-08	NA	7.30E-01		1.61E-08
Indeno(1,2,3-cd)pyrene		6.37E-09	NA NA	4.90E-03		3.12E-11
N-Nitrosodiphenylamine (1)		0.5712-09	NA NA	NA NA		
Naphthalene	3.10E-06	4.43E-08	3.00E-02	1.20E-01	1.03E-04	5.31E-09
Pentachlorophenol	3.10E-00	4.43E-00	NA	NA NA		and the same of th
Phenanthrene	1.41E-06		3.00E-02	NA NA	4.72E-05	
Pyrene	1.41E-06 1.04E-06		1.00E-03	NA NA	1.04E-03	
bis(2-Chloroisopropyl) ether	1.04E-06 1.54E-06	2.20E-08	2.00E-02	1.40E-02	7.70E-05	3.08E-10
bis(2-Ethylhexyl)phthalate	1.54E-00	2.20E-00	2.00L-02	1,101,02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
PESTICIDES/PCB	(1.8.8.7)	(8 8 7)				
4,4'-DDD	1.41E-08	2.02E-10	5.00E-04	2.40E-01	2.82E-05	4.84E-11
4,4'-DDE	1.41L-00	2.025 10	NA NA	NA NA	2.022 00	110.12.11
4,4'-DDT	1.64E-08	2.34E-10	5.00E-04	3.40E-01	3.28E-05	7.97E-11
Aldrin	6.38E-09	9.12E-11	3.00E-05	1.70E+01	2.13E-04	1.55E-09
	0.00E+00	0.00E+00	2.00E-05	2.00E+00	0.00E+00	0.00E+00
Aroclor-1254	0.00E+00	1.73E-09	NA	7.70E+00	0.001	1.33E-08
Aroclor-1260	2.015.00		5.00E-05	1.60E+01	4.02E-04	4.60E-09
Dieldrin	2.01E-08	2.87E-10	6.00E-03	NA	3.15E-06	4.00E-09
Endosulfan I	1.89E-08			NA NA	3.15E-06 2.45E-04	
Endosulfan sulfate	1.23E-08		5.00E-05			
Endrin	1.48E-08		3.00E-04	NA	4.95E-05	
Endrin ketone	10/10/1417 (2021	5 222 22	NA	NA		
Heptachlor epoxide	0.00E+00	0.00E+00	1.30E-05	9.10E+00	0.00E+00	0.00E+00
alpha-Chlordane	4.98E-09	7.11E-11	6.00E-05	1.30E+00	8.30E-05	9.25E-11
beta-BHC		1.01E-10	NA	1.80E+00		1.83E-10
delta-BHC			NA	NA		
METALS						
Antimony	3.67E-05		4.00E-04	NA	9.18E-02	
Arsenic	2.60E-05	3.72E-07	3.00E-04	1.75E+00	8.67E-02	6.51E-07
Barium	5.88E-04		7.00E-02	NA	8.40E-03	
Cadmium	9.67E-06		5.00E-04	NA	1.93E-02	
Copper	2.93E-04		4.00E-02	NA	7.33E-03	
Lead			NA	NA		
Mercury	5.20E-07		3.00E-04	NA	1.73E-03	
Selenium	5.44E-06		5.00E-03	NA	1.09E-03	
Silver	3.52E-06		5.00E-03	NA NA	7.04E-04	
Zinc	7.22E-04		3.00E-01	NA	2.41E-03	
HERBICIDES						
	250 00000 \$ 10000 \$ 10000					
MCPA	2.64E-05		5.00E-04	NA	5.29E-02	
Totals - HQ & CR					2.75E-01	1.08E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	- 59	Averaging Time (days)
	(((0 0)	10.0								Nc	Car
VOLATILE ORGANICS												
Acetone			6.98E-03	1.00E-06	5,800	1.0		250	1	70	365	25,550
Benzene			2.00E-03	1.00E-06	5,800	1.0		250	_,	70	365	25,550
Methylene Chloride	64		6 59E-03	1.00E-06	5,800	0.1	100	250		0.07	365	25,550
SEMIVOLATILE ORGANICS												
2 4-Dinitrofoluene			2.79E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
2 6-Dinitrotoluene				1.00E-06	5,800	1.0		250	-	70	365	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
2-Methylphenol				1.00E-06	5,800	1.0		250	-	70	365	25,550
3 3'-Dichlorobenzidine			2.47E-01	1.00E-06	5,800	1.0		250	1	70	365	25,550
3-Nitroaniline			5.98E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
4-Nitroaniline			5.98E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Acenaphthylene			9.60E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Anthracene			1.30E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzo(a)anthracene			3.44E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzo(a)pyrene			3.80E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzo(b)fluoranthene			3.72E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzo(a h i)nervlene			3.06E-01	1.00E-06	5.800	1.0		250	-	20	365	25,550
Benzo(k)fluoranthene			2.95E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Butylbenzylnhthalate			4.60E-02	1.00E-06	5,800	1.0		250	-	20	365	25,550
Carbazole			2.56E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Chrysene			3.25E-01	1.00E-06	5,800	1.0		250	-	20	365	25,550
Di-n-hutylnhthalate			2 94E-01	1 OOF OK	2 800	-		250	-	70	365	25 550

TABLE 7-28

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL
CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 2
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Averaging Time (days)	Car	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		25.550	25,550	055,520	75,550	25,550	25,550	25,550	25,550	25,550	25,550	25.550	25.550	25,550	25,550	25,550	25,550
Avel T (d	Nc	365	365	365	365	365	365	365	365	365	365	365	365		365	365	202	365	365	365	365	365	365	365	365	365	365	365	365	365
Body Weight (kg)		70	70	70	70	70	70	70	70	70	70	70	70		70	2.0	2 0	0/	70	70	70	70	70	70	70	70	70	70	70	70
Exposure Duration (years)		-	-	-	-	-	-	-	-	-	-	1	_		-			_	_	-	-	-	-	_	-	-	-	-	-	-
Exposure Frequency (days/year)		250	250	250	250	250	250	250	250	250	250	250	250		250	250	020	067	250	250	250	250	250	250	250	250	250	250	250	250
Absorption Factor (unitless)																					90.0									
Adherence Factor (mg soil/cm²)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	10	0.0	0.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Skin Surface Area Contact (cm²)	20000000	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800		5.800	5 800	0,000	2,800	2,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800
Conv. Factor (kg/mg)	Confidence of the Confidence o	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1 00F-06	1 000 06	1.00E-00	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
EPC Total Soils (mg/kg)		2.84E-01	3.60E-02	3.25E-01	3.80E-02	3.29E-01	9.50E-02	3.70E-02	6.60E-01	3.19E-01	3.01E-01	2.21E-01	3.28E-01		3.00E-03	5 78F-03	3 400 03	5.49E-05	1.36E-03		2.58E-02	4.28E-03	4.02E-03	2.61E-03	3.16E-03	3,45E-03		1.06E-03	1.51E-03	1.37E-03
Dose (Car) (mg/kg-day)																					1.257E-09									
Dose (Nc) (mg/kg-day)																					8.796E-08									
Analyte		Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	N-Nitrosodiphenylamine (1)	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	bis(2-Chloroisopropyl) ether	bis(2-Ethylhexyl)phthalate	PESTICIDES/PCB	4.4'-DDD	4.4-DDF	TUU 'V'	1,4-1,7	Aldrin	Aroclor-1254	Aroclor-1260	Dieldrin	Endosulfan I	Endosulfan sulfate	Endrin	Endrin ketone	Heptachlor epoxide	alpha-Chlordane	beta-BHC	delta-BHC

TABLE 7-28

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils	Conv. Factor	Skin Surface Area Contact	Adherence Factor	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Averaging Time (days)	ging 1e s)
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(KK/IIIK)	(((((((((((((((((((((mg aons gm)	(conum)	(m. (m. (m.)			Nc	Car
METALS												
Antimony			7.82E+00	1.00E-06	5,800	1.0		250		70	365	25,550
Arsenic			5.54E+00	1.00E-06	5,800	1.0		250		70	365	25,550
Barium			2.06E+00	1.00E-06	5,800	1.0		250		70	365	25,550
Copper			6.24E+01	1.00E-06	5,800	1.0		250		5 5	365	25,550
Lead			1.11E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Selenium			1.16E+00	1.00E-06	5,800	1.0		250		0,5	365	25,550
Silver			7.50E-01 1.54E+02	1.00E-06 1.00E-06	5,800	0.1		250		0,0	365	25,550
				H								
HERBICIDES											4).0	022.20
MCPA			5.63E+00	1.00E-06	2,800	1.0		250	-	0/	363	000,02
EQUATION:	Absorbed Dos	Absorbed Dose (mg/kg-day) = CSxCFxSAxAFxABSxEFxED	CSxCFxSAx	AFXABS X E BW x A T	ExED							
Variables:			Assumptions:				Variables:			Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor (mg/cm²)	(mg soil/kg) () mg/cm²)		EPC - Soil Data (RME) 10-6 5,800 (RME Adult Worker) 1.0 (RME - All Receptors)	a (RME) luit Worker) Receptors)			EF = Exposure Freque ED = Exposure Durati BW = Bodyweight (kg) AT = Averaging Time	EF = Exposure Frequency (days/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	ys/year) s)	250 (RME Construction Wo 1 (Upper bound limit for CY 70 (Adult Male) 1 x 365 (Nc) 70 x 365 (Car)	250 (RME Construction Worker) 1 (Upper bound limit for CW) 70 (Adult Male) 1 x 365 (Nc) 70 x 365 (Car)	(La
ABS = Absorption Factor (unitless)			Applicable for	PCBs and Cad	Applicable for PCBs and Cadmium (EPA, 1992b)	92b)						

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			5.00E-02	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA	-	
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Anal	yte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
PESTICIDES/PCB							
4,4'-DDD 4,4'-DDE 4,4'-DDT Aldrin Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan I Endosulfan sulfate Endrin Endrin ketone Heptachlor epoxide alpha-Chlordane beta-BHC delta-BHC		8.80E-08	1.26E-09	5.00E-04 NA 5.00E-04 3.00E-05 1.90E-05 NA 5.00E-05 6.00E-03 5.00E-05 3.00E-04 NA 1.30E-05 6.00E-05 NA	2.40E-01 NA 3.40E-01 1.70E+01 2.11E+00 8.11E+00 1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00 NA		1.02E-08
METALS		200					
Antimony Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Zinc HERBICIDES				4.00E-04 2.94E-04 7.00E-03 3.00E-05 2.00E-02 NA 4.50E-05 3.00E-03 5.00E-03 1.50E-01	NA 1.79E+00 NA		
Totals - HQ & CR							1.02E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE WATER (while Wading)
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 2
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc)	Child Absorbed Dose (Car)	Absorbed Dose/Event	EPC Surface W.	Child Skin Surface Area Contact	Kp Permeability Coefficient	Exposure Time	Exposure Frequency	Child Exposure Duration	Volumetric Conv. Factor	B (unitless)	Tau	Child Body Weight (kg)	Averaging Time (days)	ging ie s)
	(iiig/kg-day)	(ion Sy Sin)	(mg cm Sm)	(7.8m)	Ì	((image)					6		Child (Nc)	Car
SEMIVOLATILE ORGANICS			11.	An An									T-4		
bis(2-Ethylhexyl)phthalate	1.64E-07	1.17E-08	8.36E-04	2.00E-03	2,170	3.3E-02	1	25	2	1.0E-03	1.30E+01	2.10E+01	25	1,825	25,550
METALS															
Antimony	L31E-10		2.21E-05	2.21E-02	2,170	1.0E-03	-	25	5	1.0E-03	NA	NA	25	1,825	25,550
Arsenic	2.54E-11	1.81E-12	4.26E-06	4.26E-03	2,170	1.0E-03	-	25	5	1.0E-03	NA	Y'A	25	1,825	25,550
Barium	4.29E-10		7.22E-05	7.22E-02	2,170	1.0E-03		25	v,	1.0E-03	Y X	NA.	2 2	1,825	25,550
Cadmium	4.65E-12		6 325-07	7.82E-04 6.32F+01	2,170	1.0E-03	-	2 22	n v	1.0E-03	X X	N AN	2 22	1,825	25,550
Carcium	1 50E-11		1.26E-06	6.31E-04	2,170	2.0E-03		25	2	1.0E-03	NA	NA	25	1,825	25,550
Copper				1.93E-02	2,170	NA	-	25	5	1.0E-03	NA	NA	25	1,825	25,550
Iron			1.93E-04	1.93E-01	2,170	1.0E-03	-	25	5	1.0E-03	NA	NA	25	1,825	25,550
Lead			1.48E-07	3.71E-02	2,170	4.0E-06	-	25	S	1.0E-03	NA	NA	25	1,825	25,550
Magnesium			8.90E-03	8.90E+00	2,170	1.0E-03	-	25	5	1.0E-03	NA	NA	25	1,825	25,550
Manganese	7.12E-11		1.20E-05	1.20E-02	2,170	1.0E-03	-	25	2	1.0E-03	NA	NA	25	1,825	25,550
Nickel	6.14E-14		1.03E-07	1.03E-03	2,170	1.0E-04	-	25	8	1.0E-03	AN	NA VA	25	1,825	25,550
Potassium			3.52E-03	3.52E+00	2,170	1.0E-03	-	25	2	1.0E-03	NA	AN	52	1,825	25,550
Selenium	1.92E-11		3.23E-06	3.23E-03	2,170	1.0E-03	-	25	5	1.0E-03	AN	NA	22	1,825	25,550
Sodium			7.03E-03	7.03E+00	2,170	1.0E-03	-	25	2	1.0E-03	NA.	YA.	25	1,825	25,550
Vanadium	5,35E-12		9.00E-07	9.00E-04	2,170	1.0E-03	-	25	2	1.0E-03	N'A	NA VA	25	1,825	25,550
Zinc	7.76E-11		2.18E-05	3.63E-02	2,170	6.0E-04	-	25	S	1.0E-03	NA	NA A	25	1,825	25,550
TOTAL STORY															
ECOALION:	Absorbed D	Absorbed Dose (mg/kg-day) = DAxSAxKpxETxEFxEDxCF BWxAT	DAXSAXKpx	ET x EF x ED x BW x AT	101										
												3			
	Variables:				Assumptions:			Variables:				Assumptions:	us:		
	DA = Absorbed SA = Surface At Kp = Permeabili	DA = Absorbed Dose per Event (mg-cm²/event) SA = Surface Area Contact (cm²) Kp = Permeability Coefficient (cm/hour)	ng-cm²/event) /hour)		Calculated from EPA, 1992 2,170 (RME Child) Compound Specific, EPA, 1992	n EPA, 1992 iild) cific, EPA, 199	e	EF = Exposure Frequency (days) ED = Exposure Duration (years) CF = Vol. Conv. Factor (1 L/100	are Frequen are Duration onv. Factor (EF = Exposure Frequency (days/year) ED = Exposure Duration (years) CF = Vol. Conv. Factor (1 L/1000 cm²)		25 5 (RME) 0.001			
	ET = Exposure Time (h	ET = Exposure Time (hours/day) Tao = Lag time (hours)			1 (RME) Compound Specific, EPA, 1992	cific, EPA, 199	2	BW = Bodyweight (kg) B = Bunge Model Value	weight (kg) fodel Value			25 (Child) Compound	25 (Child) Compound Specific, EPA, 1992	PA, 1992	
	0	,				-									

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

Page 1 of 1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 2

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg)	Child CDI (Car) (mg/kg)	Dermal RfD (mg/kg/day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
SEMITOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	1.64E-07	1.17E-08	2.00E-02	1.40E-02	8.20E-06	2.30E-09
METALS			annai. A			
WETALS						
Antimony	1.31E-10		4.00E-04	NA	3.28E-07	
Arsenic	2.54E-11	1.81E-12	2.94E-04	1.79E+00	8.62E-08	4.54E-11
Barium	4.29E-10		7.00E-03	NA	6.13E-08	
Cadmium	4.65E-12	- to 2	3.00E-05	NA	1.55E-07	
Calcium	145 50500.5 (404)	112 33 19	NA	NA		
Chromium	1.50E-11		2.50E-04	NA	6.00E-08	
Copper			2.00E-02	NA	- THE	
Iron		The same	NA	NA	17 6 6 3 7	1 6
Lead		1901.681	NA	NA	10 10 1	
Magnesium			NA	NA		
Manganese	7.12E-11		5.00E-03	NA	1.42E-08	
Nickel	6.14E-14		1.00E-03	NA	6.14E-11	-6
Potassium			NA	NA	c 100 00	
Selenium	1.92E-11		3.00E-03	NA	6.40E-09	4
Sodium			NA	NA	# CAT 10	
Vanadium	5.35E-12		7.00E-03	NA	7.64E-10	3.4
Zinc	7.76E-11		1.50E-01	NA	5.17E-10	
Totals - HQ & CR					8.91E-06	2.34E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

TABLE 7-32

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SURFACE WATER (while Wading)
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 1
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-day)	EPC Surface W. (mg/L)	Contact Rate (L/hr)	Exposure Time (hr/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	ging ne s)
				a l	28		83		Child(Nc)	Car
SEMIVOLATILE ORGANICS				l.						
bis(2-Ethylhexyl)phthalate	2,74E-07	1.96E-08	2.00E-03	0.05	-	25	5	25	1,825	25,550
METALS										
Antimony	3.03E-06		2.21E-02	0.05	-	25	5	35	1 875	25 550
Arsenic	5.84E-07	4.17E-08	4.26E-03	0.05	-	25	, 50	25	1.825	25 550
Barium	9.89E-06		7.22E-02	0.05	-	25	S	25	1,825	25,550
Cadmium	1.07E-07		7.82E-04	0.05	-	25	5	25	1,825	25,550
Calcium			6.32E+01	0.05	-	25	2	25	1,825	25,550
Chromium	8.64E-08		6.31E-04	0.05	-	25	5	25	1,825	25,550
Copper	2.64E-06		1.93E-02	0.05	-	25	5	25	1,825	25,550
ron			1.93E-01	0.05	-	25	2	25	1,825	25,550
Lead			3.71E-02	0.05	-	25	5	25	1,825	25,550
Magnesium			8.90E+00	0.05	_	25	2	25	1,825	25,550
Manganese	1.64E-06		1.20E-02	0.05	-	25	5	25	1,825	25,550
Nickel	1.42E-07		1.03E-03	0.05	-	25	5	25	1,825	25,550
Potassium	0.0000000000000000000000000000000000000		3.52E+00	0.05	-	25	5	25	1,825	25,550
Selenium	4.42E-07		3.23E-03	0.05	-	25	2	25	1,825	25,550
Sodium	127.202552500		7.03E+00	0.05	-	25	2	25	1,825	25,550
Vanadium	1.23E-07		9.00E-04	0.05	-	25	2	25	1,825	25,550
Zinc	4.97E-06		3.63E-02	0.05	-	25	5	25	1,825	25,550
EQUATION:		Intake (mg/kg-day) =	-day) =	CSxCRxETxEFxED BWxAT	X EF X ED					
	Variables:					Assumptions:				
	CS = Chemica	CS = Chemical Concentration in Surface Water (mg/L)	n in Surface W	'ater (mg/L)		EPC - Surface	EPC - Surface Water Data - RME	ZME		
	CR = Contact ET = Exposur EF = Exposur	CR = Contact Rate (Liters/hour) ET = Exposure Time (hours/day) EF = Exposure Frequency (days/year)	our) day)			0.05 (all recreators) 1 (RME - all recreators)	itors) screators)			
	ED = Exposur	ED = Exposure Duration (years)	ırs)			5 (RME)				
	BW = Bodyweight (kg)	BW = Bodyweight (kg)				25 (Child)	0,200			
	AI - AVERAGII	ig time (days)				5 x 365 (NC). /	5 x 365 (Nc), /0 x 365 (Car)			

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SURFACE WATER FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 2 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	2.74E-07	1.96E-08	2.00E-02	1.40E-02	1.37E-05	2.74E-10
METALS						
	3.03E-06	14 175 7 14	4.00E-04	NA	7.57E-03	
Antimony	5.84E-07	4.17E-08	3.00E-04	1.75E+00	1.95E-03	7.30E-08
Arsenic	9.89E-06	4.17L-00	7.00E-02	NA	1.41E-04	
Barium	1.07E-07		5.00E-04	NA	2.14E-04	
Cadmium	1.07E-07		NA	NA		
Calcium	8.64E-08		5.00E-03	NA	1.73E-05	
Chromium	2.64E-06		4.00E-02	NA	6.59E-05	
Copper	2.0415-00		NA	NA		
Iron			NA	NA		
Lead			NA	NA		
Magnesium	1.64E-06	THE PARKS	5.00E-03	NA	3.28E-04	
Manganese Nickel	1.42E-07		2.00E-02	NA	7.08E-06	
Potassium			NA	NA		15
Selenium	4.42E-07		5.00E-03	NA	8.84E-05	
Sodium	PAY 25 TAKE 2013		NA	NA	1 565 05	
Vanadium	1.23E-07		7.00E-03	NA	1.76E-05	1.5
Zinc	4.97E-06		3.00E-01	NA	1.66E-05	
		1 15 - 1	TIME		1.04E-02	7.33E-08
Totals - HQ & CR					1.0.12.02	

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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			No. of	No. of Rejected	No of						Lognormal	95th LICE.	
į			, dill.	rejector.		100		4		10		TO WE	CDC
Class VOI ATH F ORGANICS	Farameter	Units UG/KG	Analyses 31	odes 1	nus –	7 rreq. (%) Mean 3 2% 6	Mean 6.581	2.659	8.000	FALSE.	FALSE	7.038	7.038
VOI ATII E ORGANICS	Benzene	UG/KG	32	, 0	. 0	6.3%	5.953	1.180	2.000	FALSE	FALSE	6.610	2.000
VOLATILE ORGANICS	Toluene	UG/KG	32	0	m.	9.4%	6.063	1.134	8.000	FALSE	FALSE	6.624	6.624
SEMIVOLATILE ORGANICS	2,4-Dinitrotoluene	UG/KG	32	0	3	9.4%	251.906	208.161	880.000	FALSE	FALSE	285.788	285.788
SEMIVOLATILE ORGANICS	2,6-Dinitrotoluene	UG/KG	31	-	0	%0.0	196.452	15.286	0.000	TRUE	TRUE	201.107	0.000
SEMIVOLATILE ORGANICS	2-Methylnaphthalene	UG/KG	31	-	7	6.5%	190.419	35.362	130.000	FALSE	FALSE	220.816	130.000
SEMIVOLATILE ORGANICS		UG/KG	32	0	-	3.1%	232.656	172.257	410.000	FALSE	FALSE	251.163	251.163
SEMIVOLATILE ORGANICS		UG/KG	32	0	_	3.1%	562.500	411.049	990.000	FALSE	FALSE	607.294	607.294
SEMIVOLATILE ORGANICS		UG/KG	32	0	-	3.1%	562.500	411.049	990.000	FALSE	FALSE	607.294	607.294
SEMIVOLATILE ORGANICS		UG/KG	31	-	2	6.5%	186.323	45.420	33.000	FALSE	FALSE	239.797	33.000
SEMIVOLATILE ORGANICS		UG/KG	31	_	2	6.5%	189.548	36.756	96.000	FALSE	FALSE	216.576	96.000
SEMIVOLATILE ORGANICS		UG/KG	31		2	6.5%	193.065	24.072	130.000	FALSE	FALSE	202.377	130.000
SEMIVOLATILE ORGANICS	Benzo[a]anthracene	UG/KG	32	0	10	31.3%	213.063	217.411	720.000	FALSE	FALSE	358.367	358.367
SEMIVOLATILE ORGANICS	Benzo[a]pyrene	UG/KG	32	0	12	37.5%	214.781	248.342	940.000	FALSE	FALSE	398.693	398.693
SEMIVOLATILE ORGANICS		UG/KG	32	0	10	31.3%	265.938	405.604	2200.000	FALSE	FALSE	390.703	390.703
SEMIVOLATILE ORGANICS		UG/KG	32	0	8	25.0%	228.969	211.235	710.000	FALSE	FALSE	317.024	317.024
SEMIVOLATILE ORGANICS		UG/KG	32	0	00	25.0%	205.438	195.453	530.000	FALSE	FALSE	303.775	303.775
SEMIVOLATILE ORGANICS	Bis(2-Chloroisopropyl)ether	UG/KG	17	0	-	5.9%	203.235	54.571	410.000	FALSE	FALSE	221.331	221.331
SEMIVOLATILE ORGANICS		UG/KG	32	0	00	25.0%	256.438	263.989	1300.000	FALSE	FALSE	323.444	323.444
SEMIVOLATILE ORGANICS		UG/KG	31	-	1	3.2%	192.290	30.902	46.000	FALSE	FALSE	212.610	46.000
SEMIVOLATILE ORGANICS		UG/KG	32	0	3	9.4%	225.781	176.891	410.000	FALSE	FALSE	260.800	260.800
SEMIVOLATILE ORGANICS	Chrysene	UG/KG	32	0	18	26.3%	172.031	230.290	670.000	FALSE	FALSE	330.564	330.564
SEMIVOLATILE ORGANICS		UG/KG	3]	-	1	3.2%	193.710	20.452	120.000	FALSE	FALSE	201.080	120.000
SEMIVOLATILE ORGANICS	Di-n-butylphthalate	UG/KG	32	0	6	28.1%	241.406	222.192	1200.000	FALSE	FALSE	303.389	303.389
SEMIVOLATILE ORGANICS	Dibenz[a,h]anthracene	UG/KG	32	0	5	15.6%	222.063	183.669	470.000		FALSE	292.389	292.389
SEMIVOLATILE ORGANICS		UG/KG	3]		1	3.2%	191.968	32.492	36.000	.e.ua	FALSE	216.839	36.000
SEMIVOLATILE ORGANICS		UG/KG	32	0	19	59.4%	192.938	271.582	1000.000	Free No.	FALSE	333.775	333.775
SEMIVOLATILE ORGANICS		UG/KG	31	-	-	3.2%	2258	32.172	38.000	(T.)-(T.))-	FALSE	215.844	38.000
SEMIVOLATILE ORGANICS		UG/KG	37	0	00	25.0%		218.186	790.000		FALSE	341.962	341.962
SEMIVOLATILE ORGANICS	N-Nitrosodiphenylamine	UG/KG	3]		7	6.5%	189.903	35.189	95.000	e con	FALSE	211.815	95.000
SEMIVOLATILE ORGANICS	Naphthalene	UG/KG	31		3	6.7%		53.270	37.000		FALSE	250.492	37.000
SEMIVOLATILE ORGANICS	Pentachlorophenol	UG/KG	32	0	7	6.3%		420.895	990.000	Soldie	FALSE	675.909	675.909
SEMIVOLATILE ORGANICS	Phenanthrene	UG/KG	32	0	10	31.3%		193.325	360.000	200	FALSE	329.947	329.947
SEMIVOLATILE ORGANICS		UG/KG	32	0	19	59.4%	15	282.622	1200.000	-	FALSE	307.838	307.838
PESTICIDES/PCB	4,4'-DDD	UG/KG	37	0	2	6.3%		3.528	15.000	C. C.	FALSE	3.093	3.093
PESTICIDES/PCB	4,4'-DDE	UG/KG	33	0	7	21.9%	7.750	24.932	140.000	FALSE	FALSE	6.212	6.212
PESTICIDES/PCB	4,4'-DDT	UG/KG	33	0	3	9.4%		3.570	13.000	-	FALSE	3.626	3.626
PESTICIDES/PCB	Aldrin	UG/KG	33	0	1	3.1%		1.415	1.900	FALSE	FALSE	1.387	1.387
PESTICIDES/PCB	Alpha-Chlordane	UG/KG	3	<i></i>	-	3.2%	1.029	0.077	1.100	FALSE	FALSE	1.064	1.064
PESTICIDES/PCB	Aroclor-1260	UG/KG	3,	0	7	6.3%	24.875	27.473	28.000	FALSE	FALSE	26.326	26.326
PESTICIDES/PCB	Beta-BHC	UG/KG	33	0	-	3.1%	1.617	3.355	20.000	FALSE	FALSE	1.555	1.555

		Ž	No. of N	No. of									
		V	Valid R	Rejected	No. of						Lognormal		
	Darameter	Units A	Analyses St		Hits	Freq. (%) Mean		Std. Dev. 1	Max. Hit	Normal?		of Mean F	EPC
Class	Delta-BHC	C	~	0	-	3.1%	1.313	1.420	2.200	FALSE	FALSE	1.400	1.400
PESTICIDES/PCB	Dialdrin	TIG/RG	32	0	"	9.4%	4.572	10.735	62.000	FALSE	FALSE	4.509	4.509
PESTICIDES/PCB	Dielann	11G/KG	32	0 0	. "	9.4%	14.797	75.791	430.000	FALSE	FALSE	4.431	4.431
PESTICIDES/PCB	Endoculfor culfate	TIG/KG	32	0	-	3.1%	2.545	3.189	20.000	FALSE	FALSE	2.664	2.664
PESTICIDES/PCB	Endosultan sunate	11G/KG	32	0	2	6.3%	3.386	7.258	43.000	FALSE	FALSE	3.263	3.263
PESTICIDES/PCB	Endrin betone	11G/KG	32	0	2 2	6.3%	4.236	12.194	71.000	FALSE	FALSE	3.585	3.585
PESITCIDES/PCB	Miscato Mittogon	MG/KG	32	C	32	100 0%	0.339	0.423	2.400	FALSE	TRUE	0.460	0.460
OTHER ANALYSES	2.4 Dinitrotolliane	IIG/KG	3.5	0	-	3.1%	70.625	47.396	330.000	FALSE	FALSE	75.387	75.387
NIIROAROMATICS	2 & Dinitrotoluene	11G/KG	32	0	-	3.1%	88.594	148.086	900.000	FALSE	FALSE	161.68	89.191
NIIROAKOMAIICS	Aluminum	MG/KG	32	0	32	100.0%	########	2969.022	19300.000	FALSE	FALSE	########	14736.484
MEIALS	Authoritie	MG/KG	33	0	17	53.1%	4.675	8.917	52.000	FALSE	TRUE	7.790	7.790
MEIALS	Amunony	MG/KG	32	0	32	100.0%	5.188	1.074	8.900	FALSE	TRUE	5.507	5.507
MEIALS	Desimo	MG/KG	32	0	26	81.3%	105.920	60.489	357.000	FALSE	TRUE	125.562	125.562
MEIALS	Danum	MG/KG	32	0	32	100 0%	0.579	0.176	0.990	TRUE	FALSE	0.631	0.631
MEIALS	Setymum	MG/KG	33	0	23	71.9%	1.224	1.992	3.500	FALSE	TRUE	2.043	2.043
MEIALS	Cadmun	MG/KG	3 6	0 0	32	100 0%	########	########	#########	FALSE	FALSE	########	41678.432
MEIALS	Calcium	MG/KG	33	0	32	100 0%	19.609	3.820	27.900	TRUE	FALSE	20.754	20.754
MEIALS	Caromani	MG/KG	3.5	0	32	100.0%	10.272	3.834	21.900	-	TRUE	11.448	11.448
MEIALS	Conner	MG/KG	32	0	32	100.0%	55.522	91.711	546.000	FALSE	FALSE	62.476	62.476
MEIALS	Cronide	MG/KG	32	0	-	3.1%	0.313	0.227	1.500	FALSE	FALSE	0.379	0.379
MEIALS	Teon	MG/KG	3 6	0	32	100.0%	#	5072.381	36100.000	TRUE	FALSE	########	24746.207
METALS	Loui	MG/KG	32	0	31	%6'96		553.353	496.000	FALSE	TRUE	576.842	496.000
MEIALS	Mognetium	MG/KG	32	0	32	100.0%	5032.813	1990.612	9830.000	FALSE	TRUE	5695.790	5695.790
METALS	Manganese	MG/KG	32	0	32	100.0%		221.797	1080.000	TRUE	TRUE	594.029	594.029
METALS	Mercillo	MG/KG	32	0	29	%9.06	0.103	0.187	1.000	FALSE	FALSE	0.117	0.117
METALS	Nickel	MG/KG	32	0	32	100.0%	26.697	9.321	50.800	FALSE	TRUE	29.792	29.792
METAIS	Potassium	MG/KG	32	0	32	100.0%	1330.813	283.073	1960.000	TRUE	TRUE	1415.601	1415.601
METAIS	Colonium	MG/KG	32	0	20	62.5%	0.670	0.520	1.600	FALSE	FALSE	1.250	1.250
METAIS	Silver	MG/KG	32	0	4	12.5%	0.536	0.788	4.600	FALSE	FALSE	0.738	0.738
METAIS	Sodium	MG/KG	32	0	21	65.6%	69.575	69.949	383.00	FALSE	FALSE	84.336	84.336
METALS	Thallium	MG/KG	32	0	7	21.9%	0.435	0.390	1.500	FALSE	FALSE	0.656	0.656
METAIS	Vanadiim	MG/KG	32	0	32	100.0%	22.981	4.497	30.700	TRUE	TRUE	24.328	24.328
METAIS	Zine	MG/KG	32		32	100.0%	133.325	110.589	620.000	FALSE	FALSE	155.685	155.685
HERBICIDES	MCPA	UG/KG	15	_	-	6.7%	5016.667	7469.239	32000.000	FALSE	FALSE	6203.085	6203.085
1													

SS QLS HIS Freq. (%) Mean Std. Dev. Max. Hit Normal 31 1 3.2% 6.581 2.659 8.000 FALSE 32 0 3 9.4% 5.953 1.180 2.00 FALSE 32 0 3 9.4% 5.190 1.180 2.00 FALSE 31 0 3 9.4% 5.190 1.180 2.00 FALSE 31 1 0 0.0% 196.452 15.286 190.00 FALSE 32 0 3 9.4% 5.21.90 7.00 FALSE 32 0 0 1 3.1% 522.50 190.40 54.8E 32 0 1 3.1% 522.50 110.49 990.00 FALSE 31 1 2 6.5% 190.41 35.50 140.00 FALSE 32 0 1 3.1% 25.50 411.049 990.00 <td< th=""><th></th><th></th><th></th><th>No. of Valid</th><th>No. of Rejected</th><th>No of</th><th></th><th></th><th></th><th></th><th></th><th>Lognormal</th><th>for Total 105th Hill of</th><th></th></td<>				No. of Valid	No. of Rejected	No of						Lognormal	for Total 105th Hill of	
WIGS Franciscus of Colores Colores Transference of Colores Transferen		Daramatar			TO I	1						Logilolillai		
NGCANICS Persone UGKG 21 1 1 1 1 1 1 1 1	מטוועי טמט ז	rameter	(STDS	HITS .	rreq. (%)		Std. L	Max. Hit	Normal?			
NGCANICS Jenzeme UGKG 32 0.3 4.4% 5.053 11.18 2.000 PALSE PALSE 6.610 NGCANICS Jeducentolene UGKG 31 0.4 0.4 0.4 0.4 0.4 0.4 0.4 NGCANICS Jedichitropolene UGKG 31 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 NGCANICS Jedichitropolene UGKG 31 0.4	LE ORGANICS	Acetone	UG/KG	31		-	3.2%			8.000	FALSE	FALSE	7.038	7.038
MORGANICS A-District colored UCK G 32 9, 4% 51,956 60.83 1114 8,000 FALSE FALSE 6.6.5 RORANICS A-District colored UCKG 31 1 0 0% 94,45 21,956 0.008.10 RAS 1 20.80.10 RAS 1 1 0 1 31.95 20.80.10 RAS 1 1 0 1 31.95 20.20 4 1 1 0 0 1 1 1 0	LE ORGANICS	Benzene	UG/KG	32	0	7	6.3%	5.953		2.000	FALSE	FALSE	6.610	2.000
RGANNICS 2-Dimirrocluene UGKG 31 9 44 511 906 2011 07 70 74 511 906 2011 07 70 70 71 31.96 2011 07 70 70 70 71 31.96 2011 07 70 </td <td>LE ORGANICS</td> <td>Toluene</td> <td>UG/KG</td> <td>32</td> <td>0</td> <td>3</td> <td>9.4%</td> <td>6.063</td> <td></td> <td>8.000</td> <td>FALSE</td> <td>FALSE</td> <td>6.624</td> <td>6.624</td>	LE ORGANICS	Toluene	UG/KG	32	0	3	9.4%	6.063		8.000	FALSE	FALSE	6.624	6.624
REGANNICS 2-Methyluphtheline UGKG 31 1 0 0 9 9 4 1 0 0 9 1 2 0.0% 9 1 2 0.0% 9 1 2 0.0% 9 1 2 0.0% 1 3.1% 2 2 0 1 3.1% 2 2 0 1 3.1% 2 2 0 1 3.1% 2 2 0 1 3.1% 2 2 0 1 3.1% 2 2 0 1 3.1% 2 2 3 1 2 6.5% 18.0 4 3 1 2 6.5% 18.0 4 1 2 6.5% 18.0 4 1 2 6.5% 18.0 4 1 2 6.5% 18.0 4 1 2 6.5% 18.0 4 1 2 6.5% 18.0 4 1 2 <t< td=""><td>MATILE ORGANICS</td><td>2,4-Dinitrotoluene</td><td>UG/KG</td><td>32</td><td>0</td><td>3</td><td>9.4%</td><td>251.906</td><td>208.161</td><td>880.000</td><td>FALSE</td><td>FALSE</td><td>285.788</td><td>285.788</td></t<>	MATILE ORGANICS	2,4-Dinitrotoluene	UG/KG	32	0	3	9.4%	251.906	208.161	880.000	FALSE	FALSE	285.788	285.788
ROBGANICS S-Michinophilatine UGKG 31 1 2 2 55 10000 FALSE PALSE 2016 RGANNICS 3-Nichosphilathen UGKG 32 0 1 31% 522.665 110.49 990.000 FALSE FALSE 2011.63 RGANNICS 3-Nitroaniline UGKG 32 0 1 31% 522.667 111.049 990.000 FALSE FALSE 2017.24 RGANICS A-Nitroaniline UGKG 31 1 2 6.3% 189.348 36.76 990.000 FALSE FALSE 207.77 RGANNICS Bernzilgianthreene UGKG 32 0 1 31.3% 21.78 36.20 20.00 FALSE FALSE 20.57 RCANICS Bernzilgianthreene UGKG 32 0 1 31.3% 21.47 30.000 FALSE FALSE 20.237 RCANICS Bernzilgiptyree UGKG 32 0 1 31.3% 25.24 30.000 FALSE 20.27 20.	DLATILE ORGANICS	2,6-Dinitrotoluene	UG/KG	31	1	0	%0.0	196.452	15.286	0.000	TRUE	TRUE	201.107	0.000
RGANICS SA-Nitroamiline UGKG 32 0 1 314 \$22.566 172.274 410.00 FALSE PALSE 51.16 RGANMICS A-Nitroamiline UGKG 32 0 1 314 \$62.266 411.049 990.000 FALSE FALSE 50.734 RGANMICS A-Nitroamiline UGKG 31 1 2 55.8 185.248 35.756 96.000 FALSE FALSE 20.737 RGANMICS Acemphithylene UGKG 31 1 2 55.8 189.548 35.00 FALSE FALSE 216.757 RGANMICS Benzolg Jamintacene UGKG 32 0 1 31.36 21.4741 70.00 FALSE FALSE 216.775 RGANMICS Benzolg Jamintacene UGKG 32 0 1 31.36 21.4741 70.00 FALSE FALSE 216.775 RGANMICS Benzolg Jamintacene UGKG 32 0 1 31.36 31.448 32.741 30.00 FALSE FALSE	DLATILE ORGANICS	2-Methylnaphthalene	UG/KG	31	_	7	6.5%	190.419	35.362	130.000	FALSE	FALSE	220.816	130.000
ORGANICS SHymmilline UGKG 32 0 1 31% 562.500 411049 990.000 FALSE GALS ORGANICS Alvincanilline UGKG 31 1 31% 562.500 411049 990.000 FALSE FALSE 6759 ORGANICS Alvincanilline UGKG 31 1 2 65% 185.236 41,420 330.00 FALSE FALSE 259.773 ORGANICS Amthracene UGKG 32 0 12 53% 189.363 340.00 FALSE 180.237 ORGANICS Benzo[alpithracene UGKG 32 0 12 313% 21,471 120000 FALSE 180.835 ORGANICS Benzo[alpithracene UGKG 32 0 12 31.3% 23.000 FALSE 180.835 ORGANICS Benzo[alpithracene UGKG 32 0 12 31.3% 214.781 24.072 180.00 FALSE 57.85 30.93 46.420 30.00 FALSE 67.85 57.93 30.93 46.420	DLATILE ORGANICS	3,3'-Dichlorobenzidine	UG/KG	32	0		3.1%	232.656	172.257	410.000	FALSE	FALSE	251.163	251.163
RIGANICS A-Mitronnilline UGKG 31 11,8 562,204 900000 FALSE FALSE 67,237 RGANICS A-Mitronnilline UGKG 31 1 2 6.5% 180,234 90,000 FALSE FALSE 203,977 RGANICS Accomplishine UGKG 31 1 2 6.5% 180,538 36,756 90,000 FALSE FALSE 233,977 RGANICS Admitscene UGKG 32 0 13,358 21,306 200,00 FALSE 216,576 200,00 FALSE 213,777 21,110 200,00 FALSE 214,778 21,000 FALSE PALSE 213,777 21,110 200,00 FALSE 21,277 21,110 200,00 FALSE 21,277 21,277 21,110 200,00 FALSE 21,277 21,278 21,112 21,00 21,278 21,111 20,00 21,278 21,112 21,00 21,278 21,111 20,00 21,278 21,111 20,00 21,278 21,111 2	DLATILE ORGANICS	3-Nitroaniline	UG/KG	32	0	-	3.1%	562.500	411.049	990.000	FALSE	FALSE	607.294	607.294
ORGANICS Acensphilthene UGKG 31 1 2 6.5% 186.333 4.40 31.00 FALSE 2.16.57 ORGANICS Acensphilthene UGKG 31 1 2 6.5% 189.063 3.000 FALSE FALSE 2.05.77 ORGANICS Anthreene UGKG 31 1 2 6.5% 189.063 3.000 FALSE FALSE 2.02.37 ORGANICS Benzolejilyene UGKG 32 0 10 31.3% 2.65.98 405.604 220.000 FALSE 5.98.83 ORGANICS Benzolejilyene UGKG 32 0 1 31.3% 2.65.98 170.00 FALSE 7.17.72 ORGANICS Benzolejilyene UGKG 32 0 1 3.29% 2.05.43 1.00 FALSE 3.00 3.00 3.00 3.00 3.00 A.00 A.00 <td>OLATILE ORGANICS</td> <td>4-Nitroaniline</td> <td>UG/KG</td> <td>32</td> <td>0</td> <td>-</td> <td>3.1%</td> <td>562.500</td> <td>411.049</td> <td>990.000</td> <td>FALSE</td> <td>FALSE</td> <td>607.294</td> <td>607.294</td>	OLATILE ORGANICS	4-Nitroaniline	UG/KG	32	0	-	3.1%	562.500	411.049	990.000	FALSE	FALSE	607.294	607.294
RGANICS Acanaphthylene UGKG 31 1 2 65% 189.548 36.756 96.000 FALSE FALSE 205.377 RGAANICS Acanaphthylene UGKG 32 0 10 31.3% 21.3063 24.072 130.000 FALSE FALSE 20.377 RGAANICS Benzolglantmanene UGKG 32 0 12 37.3% 21.3063 21.0000 FALSE FALSE 23.375 RGAANICS Benzolghiltonamidnene UGKG 32 0 12 37.3% 24.038 240.000 FALSE FALSE 39.073 RGAANICS Benzolghiltonamidnene UGKG 32 0 12 37.5% 20.383 30.000 FALSE FALSE 20.375 RGAANICS Benzolghiltonamidnene UGKG 32 0 8 25.0% 20.383 30.000 FALSE FALSE 20.303 RGAANICS Benzolghiltonamidnene UGKG 32 0 13 14 32.000 FALSE 70.000 FALSE FALSE	DLATILE ORGANICS	Acenaphthene	UG/KG	31	-	7	6.5%	186.323		33.000	FALSE	FALSE	239.797	33.000
RGANICS Anthracene UGKG 31 1 2 6.5% 193.065 24072 130.00 FALSE FALSE 203.37 RGANICS Bezzolal anthracene UGKG 32 0 1 31.3% 213.063 17.411 70.000 FALSE FALSE 398.697 RGANICS Bezzolal purparene UGKG 32 0 1 31.3% 26.593 400.000 FALSE FALSE 399.693 RGANICS Bezzolpilluoranthene UGKG 32 0 8 22.0% 20.23.969 11.235 10.000 FALSE FALSE 397.00 RGANICS Bezzolpilluoranthene UGKG 32 0 8 22.0% 20.23.99 10.000 FALSE FALSE 397.37 RGANICS Bezzolpilluoranthene UGKG 32 0 8 25.0% 20.23.99 10.000 FALSE FALSE 21.00 8 20.0% 20.23.99 10.000 FALSE FALSE 21.00 8 20.0% 20.23.93 10.000 FALSE	OLATILE ORGANICS	Acenaphthylene	UG/KG	31	-	2	6.5%	189.548		96.000	FALSE	FALSE	216.576	96.000
RGANICS Benzolalantinacene UGKG 32 0 13.3% 213.063 214.781 770.000 FALSE FALSE 383.36 DRGANICS Benzolalantinacene UGKG 32 0 12 37.8% 214.781 700.00 FALSE FALSE 390.703 DRGANICS Benzolpilioranthene UGKG 32 0 1 37.8% 214.781 700.000 FALSE FALSE 390.703 DRGANICS Benzolpiliperylene UGKG 32 0 8 25.9% 205.438 405.604 FALSE 517.024 DRGANICS Buzole UGKG 32 0 1 52.9% 205.438 10.000 FALSE FALSE 20.173 DRGANICS Buzole UGKG 32 0 1 52.6438 20.900 FALSE FALSE 20.21.31 DRGANICS Devizole UGKG 32 0 1 1 25.44 20.000 FALSE FALSE 20.21.31 DRGANICS Devizole 1 1 1 <t< td=""><td>OLATILE ORGANICS</td><td>Anthracene</td><td>UG/KG</td><td>31</td><td>-</td><td>2</td><td>6.5%</td><td>193.065</td><td></td><td>130.000</td><td>FALSE</td><td>FALSE</td><td>202.377</td><td>130.000</td></t<>	OLATILE ORGANICS	Anthracene	UG/KG	31	-	2	6.5%	193.065		130.000	FALSE	FALSE	202.377	130.000
RIGANICS Benzoligiyenee UGKG 32 0 12 37.5% 214.781 248.342 940.000 FALSE FALSE 398.693 RCANICS Benzolpilporanthene UGKG 32 0 1 31.3% 265.988 420.604 2200.000 FALSE FALSE 390.003 RCANICS Benzolpilporanthene UGKG 32 0 8 25.0% 228.989 111.235 710.000 FALSE FALSE 300.703 RCANICS Bis/C-Ethylbroxylphthalate UGKG 32 0 8 25.0% 25.488 130.000 FALSE FALSE 230.44 RCANICS Buybenzylphthalate UGKG 32 0 8 25.0% 25.98 130.000 FALSE FALSE 230.44 RCANICS Carbois (-o) UGKG 32 0 1 32.94 120.000 FALSE FALSE 20.500 RCANICS Dependant (-o) UGKG 32 0 1 32.94 120.000 FALSE FALSE 20.10.000	OLATILE ORGANICS	Benzo[a]anthracene	UG/KG	32	0	10	31.3%	213.063	217.411	720.000	FALSE	FALSE	358.367	358.367
RORANICS Benzolpilluoranthene UG/KG 32 0 1133% 265,938 405,604 2200,000 FALSE FALSE 390,703 RORANICS Benzolpilluoranthene UG/KG 32 0 8 250% 203,438 170000 FALSE FALSE 310,724 RORANICS Benzolpilluoranthene UG/KG 32 0 8 250% 203,235 34,71 410,000 FALSE 51,032 RORANICS BisQ-Chipurosepropylether UG/KG 31 1 1 25% 203,235 34,51 410,000 FALSE 51,334 RORANICS Carbazole UG/KG 32 0 3 9,4% 225,781 176,891 410,000 FALSE 51,631 21,030 RORANICS Carbazole UG/KG 32 0 3 9,4% 225,781 176,891 410,000 FALSE 21,261 RORANICS Chiperacolitare UG/KG 32 0 9 28,1% 225,781 176,802 44,185 54,185 203,338	OLATILE ORGANICS	Benzo[a]pyrene	UG/KG	32	0	12	37.5%	214.781		940.000	FALSE	FALSE	398.693	398.693
RORGANICS Benzolgilloervlene UGKG 32 0 8 25.0% 228.969 11.235 710.000 FALSE FALSE 73.775 RORGANICS Benzolgillucanthene UGKG 32 0 8 25.0% 205.438 150.000 FALSE FALSE 73.775 RORGANICS BisQ-Ethylhevylphthalate UGKG 32 0 8 25.0% 255.438 26.398 130.000 FALSE FALSE 23.344 RORGANICS BisQ-Ethylhevylphthalate UGKG 32 0 8 25.0% 255.438 130.000 FALSE FALSE 23.344 RORGANICS Chrysene UGKG 32 0 1 32% 172.031 20.000 FALSE FALSE 23.343 RORANICS Chrysene UGKG 32 0 1 32% 172.031 20.20 67.000 FALSE FALSE 20.333 RORANICS Chrysene UGKG 32 0 9 28.4% 225.781 170.000 FALSE FALSE 20.3	OLATILE ORGANICS	Benzo[b]fluoranthene	UG/KG	32	0	10	31.3%	265.938	076	2200.000	FALSE	FALSE	390.703	390.703
ORGANICS Bis(2-Chlorosporpy)ether UG/KG 12 5.9% 20.54.8 195.453 530.00 FALSE FALSE 30.775 ORGANICS Bis(2-Chlorosporpy)ether UG/KG 17 1 5.9% 25.0% 26.438 195.453 530.00 FALSE FALSE 23.344 ORGANICS Bis(2-Chlorosporpy)ether UG/KG 31 1 1 5.9% 256.438 150.00 FALSE FALSE 212.610 ORGANICS Bis(2-Chlorosporp)pithelate UG/KG 32 0 3 24% 25.781 170.000 FALSE FALSE 212.610 ORGANICS Chrysme UG/KG 32 0 3 9.4% 25.781 170.000 FALSE FALSE 212.610 ORGANICS Chrysme UG/KG 32 0 9 28.79 19.00 FALSE FALSE 212.610 ORGANICS Chrysme UG/KG 32 0 9 28.79 19.00 FALSE FALSE 212.610 ORGANICS Processis (-a) UG/KG 32 0 9 28.4	OLATILE ORGANICS	Benzo[ghi]perylene	UG/KG	32	0	8	25.0%	228.969	211.235	710.000	FALSE	FALSE	317.024	317.024
ORGANICS Bist/2-Chlorosisopropy)ether UG/KG 117 0 1 59% 203.235 54.571 410.000 FALSE 721.331 ORGANICS Bist/2-Chlorosisopropy)ether UG/KG 31 1 3.26% 56.438 56.389 130.000 FALSE FALSE 212.310 ORGANICS Bist/2-Ehylheavylphthalate UG/KG 32 0 3 9.4% 25.781 17.681 46.000 FALSE FALSE 212.010 ORGANICS Carbazole UG/KG 32 0 3 9.4% 25.781 17.681 46.000 FALSE FALSE 212.010 ORGANICS Carbazole UG/KG 32 0 9 28.1% 172.03 170.00 FALSE FALSE 212.010 ORGANICS Chrysene UG/KG 32 0 5 18.6% 222.05 18.200 67.00 FALSE 51.68.30 ORGANICS Plorence UG/KG 32 0 9 28.3% 17.582 10.00 FALSE 17.832 10.00 ORGAN	OLATILE ORGANICS	Benzo[k]fluoranthene	UG/KG	32	0	8	25.0%	205.438	195.453	530.000	FALSE	FALSE	303.775	303.775
ORGANICS BisQ-Ethylhexylphthalate UGKG 32 0 8 25.0% 256.438 263.989 1300.000 FALSE 723.44 ORGANICS BuyDenzylphthalate UGKG 31 1 1 3.2% 122.20 360.00 FALSE FALSE 215.01 ORGANICS Chrysene UGKG 32 0 18 56.3% 172.03 26.020 FALSE FALSE 20.800 ORGANICS Chrysene UGKG 32 0 18 56.3% 172.03 20.000 FALSE FALSE 20.800 ORGANICS Chrysene UGKG 32 0 9 28.1% 172.03 20.000 FALSE FALSE 20.180 ORGANICS Dibenzed, Institutace UGKG 32 0 9 28.1% 172.03 20.000 FALSE FALSE 20.239 ORGANICS Dibenzed, Institutace UGKG 31 1 1 32.9 19.000 FALSE FALSE 20.239 ORGANICS Dibenzed, Institutace UGKG	OLATILE ORGANICS	Bis(2-Chloroisopropyl)ether	UG/KG	17	0	-	2.9%	203.235		410.000	FALSE	FALSE	221.331	221.331
ORGANICS Buylbenzylphthalate UG/KG 31 1 3.2% 192.290 36.902 46.000 FALSE FALSE 212.610 ORGANICS Carbazole UG/KG 32 0 3 44% 225.781 176.91 40.000 FALSE FALSE 20.610 ORGANICS Carbazole UG/KG 32 0 9 28.1% 21.313 20.20 67.000 FALSE FALSE 20.1080 ORGANICS Obserzala, handracene UG/KG 32 0 9 28.1% 22.103 12.0000 FALSE FALSE 20.1080 ORGANICS Disenzia, handracene UG/KG 32 0 9 28.1% 22.103 12.0000 FALSE FALSE 20.1080 ORGANICS Disenzia, handracene UG/KG 32 0 9 28.1% 22.103 12.0000 FALSE FALSE 20.1080 ORGANICS Disenzia, handracene UG/KG 31 1 1 3.2% 12.29 30.000 FALSE FALSE 21.183	OLATILE ORGANICS	Bis(2-Ethylhexyl)phthalate	UG/KG	32	0	∞	25.0%	256.438		1300.000	FALSE	FALSE	323.444	323.444
ORGANICS Carbazole UGKG 32 94% 225781 176.891 410.000 FALSE FALSE 260.800 ORGANICS Carbazole UGKG 32 0 18 55.4% 172.01 670.000 FALSE FALSE 260.800 ORGANICS Creasis UGKG 32 0 9 281% 221.02 170.000 FALSE FALSE 20.808 ORGANICS Dienzla, Ijanthracene UGKG 32 0 9 281% 221.06 170.000 FALSE FALSE 20.389 ORGANICS Dienzeltana UGKG 32 0 9 281% 221.06 18.600 FALSE FALSE 20.389 ORGANICS Dienzelturan UGKG 31 1 1 32.60 18.60 22.102 170.000 FALSE FALSE 20.389 ORGANICS Plearanthene UGKG 32 0 9 28.81 21.82 36.00 FALSE FALSE 20.289 ORGANICS Plearanthene UGKG 3	OLATILE ORGANICS	Butylbenzylphthalate	UG/KG	31	-	-	3.2%	192.290		46.000	FALSE	FALSE	212.610	46.000
ORGANICS Chrysene UGKG 32 0 18 56.3% 172.031 230.290 670.000 FALSE FALSE 330.564 ORGANICS Cresols (-o) UGKG 31 1 1 3.2% 193.710 20.452 120.000 FALSE FALSE 20.1080 ORGANICS Diversida, hlanthracene UGKG 32 0 9 28.1% 222.063 18.569 470.000 FALSE FALSE 20.1080 ORGANICS Diversidante UGKG 32 0 9 28.1% 222.063 18.69 470.000 FALSE FALSE 20.1080 ORGANICS Plucranthene UGKG 31 1 1 3.2% 192.032 36.000 FALSE FALSE 216.839 ORGANICS Plucranthene UGKG 31 1 1 3.2% 192.032 37.000 FALSE 74.8E 74.8E 216.839 ORGANICS Plucranthene UGKG 31 1 1 3.2% 182.492 36.00 FALSE <	OLATILE ORGANICS	Carbazole	UG/KG	32	0	3	9.4%	225.781	176.891	410.000	FALSE	FALSE	260.800	260.800
ORGANICS Cresols (~o) UGKG 31 1 3.2% 193.710 20.452 120.000 FALSE FALSE 201.080 ORGANICS Obenz(a,h)anthracene UGKG 32 0 9 28.1% 221.063 120.000 FALSE FALSE 201.080 ORGANICS Diverz(a,h)anthracene UGKG 31 1 1 32% 191.58 22.103 120.000 FALSE FALSE 201.080 ORGANICS Diverz(a,h)anthracene UGKG 31 1 1 3.2% 191.58 22.003 FALSE FALSE 201.083 ORGANICS Incenct UGKG 31 1 1 3.2% 192.032 36.000 FALSE FALSE 215.83 ORGANICS Incencio L.2.3-cd]pyrene UGKG 31 1 2.5% 192.032 32.172 38.000 FALSE FALSE 215.83 ORGANICS Indepolic L.2.3-cd]pyrene UGKG 31 1 2.5% 189.484 53.270 70.00 FALSE FALSE 218.185		Chrysene	UG/KG	32	0	18	56.3%	172.031		670.000	FALSE	FALSE	330.564	330.564
ORGANICS Dis-butylphthalate UG/KG 32 0 9 28.1% 241.406 222.192 1200.000 FALSE FALSE 303.389 ORGANICS Dibenzia, hjanthracene UG/KG 32 0 5 15.6% 222.063 183.669 470.000 FALSE FALSE 29.289 ORGANICS Dibenzia, hjanthracene UG/KG 31 1 3.2% 191.988 23.492 36.000 FALSE FALSE 29.289 ORGANICS Fluorene UG/KG 31 1 1 3.2% 192.032 27.178 18.000 FALSE FALSE 29.289 ORGANICS Fluorene UG/KG 31 1 2.5% 189.903 35.18 79.000 FALSE FALSE 27.84 ORGANICS N-Nitrosediphenylamine UG/KG 31 1 2 6.5% 189.903 35.189 95.00 FALSE FALSE 27.84 ORGANICS Portationophenol UG/KG 32		Cresols (-o)	UG/KG	31	1	1	3.2%	193.710		120.000	FALSE	FALSE	201.080	120.000
ORGANICS Dibenz(a,h]anthracene UGKG 32 0 5 15.6% 222.063 183.669 470.000 FALSE FALSE 292.389 ORGANICS Dibenzofuran UGKG 31 1 1 3.2% 191.968 32.492 36.000 FALSE FALSE 74.82 216.839 ORGANICS Dibenzofuran UGKG 31 1 1 3.2% 192.032 32.492 36.000 FALSE FALSE 216.839 ORGANICS Fluorente UGKG 31 1 1 3.2% 192.032 32.112 38.000 FALSE FALSE 216.839 ORGANICS Indemol-LL3cdlpyrene UGKG 31 1 2 6.5% 189.033 35.189 50.000 FALSE FALSE 216.839 ORGANICS Indemol-LL3cdlpyrene UGKG 31 1 2 6.5% 189.469 420.895 95.000 FALSE FALSE 21.832 ORGANICS Prena UGKG 32 0 0 2 6.3%	DLATILE ORGANICS	Di-n-butylphthalate	UG/KG	32	0	6	28.1%	241.406		1200.000	FALSE	FALSE	303.389	303.389
NGANICS Dibenzofuran UG/KG 31 1 3.2% 191,968 32.492 36.000 FALSE FALSE 216.839 ORGANICS Pluoranthene UG/KG 31 1 1 3.2% 192.38 271.582 100.000 FALSE FALSE 33.775 33.775 ORGANICS Pluoranthene UG/KG 31 1 1 3.2% 122.381 21.185 790.00 FALSE FALSE 215.844 ORGANICS Indeno[1.23-cd]pyrene UG/KG 31 1 2 6.5% 122.818 790.00 FALSE FALSE 211.815 ORGANICS N-Nitrosoliphenylamine UG/KG 31 1 2 6.5% 189.903 33.18 700 FALSE FALSE 271.815 ORGANICS N-Nitrosoliphenylamine UG/KG 32 0 2 6.3% 549.469 420.895 990.00 FALSE FALSE 271.82 ORGANICS Phranthrene UG/KG 32 0 0 2 6.3% 549.469 420	DLATILE ORGANICS	Dibenz[a,h]anthracene	UG/KG	32	0	S	15.6%	222.063		470.000	FALSE	FALSE	292.389	292.389
ORGANICS Fluoranthene UG/KG 32 0 19 59.4% 192.938 271.582 1000.000 FALSE FALSE FALSE 333.775 34.775 34.775 32.172 38.000 FALSE FALSE FALSE 215.84 31.952 34.1962	DLATILE ORGANICS	Dibenzofuran	UG/KG	31	-	-	3.2%	191.968		36.000	FALSE	FALSE	216.839	36.000
ORGANICS Fluorene UG/KG 31 1 3.2% 192.032 32.172 38.000 FALSE FALSE 215.844 ORGANICS Indenol1,2,3-cd]pyrene UG/KG 31 1 2 6.5% 189.903 35.189 950.00 FALSE FALSE 211.815 ORGANICS Indenol1,2,3-cd]pyrene UG/KG 31 1 2 6.5% 189.903 35.189 950.00 FALSE FALSE 211.815 ORGANICS Naphthalene UG/KG 32 0 2 6.3% 549.469 420.895 990.00 FALSE FALSE 250.492 ORGANICS Pentachlorophenol UG/KG 32 0 10 31.3% 197.669 193.325 360.00 FALSE FALSE 250.497 ORGANICS Phenanthrene UG/KG 32 0 19 59.4% 194.531 28.052 12.0E FALSE 75.99 47.40 ORGANICS Phenanthrene UG/KG 32 0 194.531 28.63 140.00 FALSE	LATILE ORGANICS	Fluoranthene	UG/KG	32	0	19	59.4%	192.938		1000.000	FALSE	FALSE	333.775	333.775
ORGANICS Indeno[1,2,3-cd]pyrene UG/KG 32 0 8 25.0% 228.813 218.186 790.000 FALSE FALSE 341.962 341.962 ORGANICS Indeno[1,2,3-cd]pyrene UG/KG 31 1 2 6.5% 189.903 35.189 95.000 FALSE FALSE 211.815 ORGANICS Naphthalene UG/KG 32 0 2 6.3% 549.469 420.895 990.000 FALSE FALSE 250.492 ORGANICS Phenanthrene UG/KG 32 0 10 31.3% 197.969 193.325 360.000 FALSE FALSE 57.909 675.909 ORGANICS Phenanthrene UG/KG 32 0 194.531 28.662 15.00 FALSE FALSE 675.909 675.909 ORGANICS Phenanthrene UG/KG 32 0 194.531 28.66 15.00 FALSE FALSE 77.89 44.4.DE FALSE 77.89 44.4.DE 77.50 24.932 140.00 FALSE FALSE </td <td></td> <td>Fluorene</td> <td>UG/KG</td> <td>31</td> <td>_</td> <td>-</td> <td>3.2%</td> <td>192.032</td> <td></td> <td>38.000</td> <td>FALSE</td> <td>FALSE</td> <td>215.844</td> <td>38.000</td>		Fluorene	UG/KG	31	_	-	3.2%	192.032		38.000	FALSE	FALSE	215.844	38.000
DRGANICS N-Nitrosodiphenylamine UG/KG 31 1 2 6.5% 189,903 35.189 95.000 FALSE FALSE 211.815 DRGANICS Naphthalene UG/KG 31 1 3 9.7% 182.484 53.270 37.000 FALSE FALSE 250.492 DRGANICS Pentachlorophenol UG/KG 32 0 2 6.3% 549.469 420.895 990.00 FALSE FALSE 250.492 DRGANICS Phenanthrene UG/KG 32 0 10 31.3% 197.969 193.325 360.00 FALSE FALSE 57.997 DRGANICS Pyrene UG/KG 32 0 1 21.3% 2.866 3.528 15.00 FALSE FALSE 37.838 A.4DDD UG/KG 32 0 7 21.9% 7.750 24.932 140.00 FALSE FALSE 6.212 Aldrin UG/KG 32 0 1 31.9%		Indeno[1,2,3-cd]pyrene	UG/KG	32	0	00	25.0%	228.813	C	790.000	FALSE	FALSE	341.962	341.962
ORGANICS Naphthalene UG/KG 31 1 3 9.7% 182.484 53.270 37.000 FALSE FALSE 250.492 ORGANICS Pentachlorophenol UG/KG 32 0 2 6.3% 549.469 420.895 990.000 FALSE FALSE 675.909 ORGANICS Phenanthrene UG/KG 32 0 10 31.3% 197.969 193.325 360.000 FALSE FALSE 675.909 ORGANICS Phenanthrene UG/KG 32 0 19 59.4% 194.531 282.622 1200.000 FALSE FALSE 675.909 ORGANICS Phenanthrene UG/KG 32 0 1 2.866 3.528 15.000 FALSE FALSE 671.20 ORGANICS Phenanthrene UG/KG 32 0 1 21.9% 17.750 24.932 140.000 FALSE FALSE 7.12 Addrin UG/KG 32 0 1 <td< td=""><td></td><td>N-Nitrosodiphenylamine</td><td>UG/KG</td><td>31</td><td>_</td><td>7</td><td>6.5%</td><td>189.903</td><td></td><td>95.000</td><td>FALSE</td><td>FALSE</td><td>211.815</td><td>95.000</td></td<>		N-Nitrosodiphenylamine	UG/KG	31	_	7	6.5%	189.903		95.000	FALSE	FALSE	211.815	95.000
ORGANICS Pentachlorophenol UG/KG 32 0 2 6.3% 549.469 420.895 990.000 FALSE FALSE 675.909 ORGANICS Phenanthrene UG/KG 32 0 10 31.3% 197.969 193.325 360.000 FALSE FALSE 782.947 ORGANICS Pyrene UG/KG 32 0 19 59.4% 194.531 282.622 1200.000 FALSE FALSE 37.934 4,4'-DDD UG/KG 32 0 2 6.3% 2.866 3.528 15.000 FALSE FALSE 52.12 4,4'-DDD UG/KG 32 0 7 21.9% 7.750 24.932 140.00 FALSE FALSE 6.212 Aldrin UG/KG 32 0 1 3.1% 1.305 1.415 1.900 FALSE FALSE 7.387 Aldrin UG/KG 31 1 1 3.2% 2.4.875 27.473 28.00 FALSE FALSE		Naphthalene	UG/KG	31	_	m	6.7%	182.484		37.000	FALSE	FALSE	250.492	37.000
ORGANICS Phenanthrene UG/KG 32 0 10 31.3% 197.969 193.325 360.000 FALSE FALSE 329.947 ORGANICS Pyrene UG/KG 32 0 19 59.4% 194.531 282.622 1200.000 FALSE FALSE 37.838 4,4'-DDD UG/KG 32 0 2 6.3% 2.866 3.528 15.000 FALSE FALSE 307.838 4,4'-DDD UG/KG 32 0 7 21.9% 7.750 24.932 140.000 FALSE FALSE 6.212 4,4'-DDT UG/KG 32 0 1 3.1% 1.308 1.415 1.900 FALSE FALSE 1.387 Aldrin UG/KG 31 1 1 3.2% 1.029 0.077 1.100 FALSE FALSE 1.064 Aroclor-1260 UG/KG 32 0 2 6.3% 24.875 27.473 28.00 FALSE FALSE 1.064		Pentachlorophenol	UG/KG	32	0	7	6.3%	549.469		990.000	FALSE	FALSE	675.909	675.909
ORGANICS Pyrene UG/KG 32 0 19 59.4% 194.531 282.622 1200.000 FALSE FALSE 307.838 4,4'-DDD UG/KG 32 0 2 6.3% 2.866 3.528 15.00 FALSE FALSE 3.093 4,4'-DDD UG/KG 32 0 7 21.9% 7.750 24.932 140.000 FALSE FALSE 6.212 A,4'-DDT UG/KG 32 0 1 3.78 1.305 1.415 1.900 FALSE FALSE 6.212 Addrin UG/KG 31 1 1 3.2% 1.029 0.077 1.100 FALSE FALSE 1.064 Aroclor-1260 UG/KG 32 0 2 6.3% 24.875 27.473 28.00 FALSE FALSE 7.555 Beta-BHC UG/KG 32 0 1 3.1% 1.617 3.355 20.000 FALSE FALSE 1.555	DLATILE ORGANICS	Phenanthrene	UG/KG	32	0	10	31.3%	197.969		360.000	FALSE	FALSE	329.947	329.947
4,4"-DDD UG/KG 32 0 2 6.3% 2.866 3.528 15.000 FALSE FALSE 3.093 4,4"-DDE UG/KG 32 0 7 21.9% 7.750 24.932 140.000 FALSE FALSE 6.212 4,4"-DDT UG/KG 32 0 3 9.4% 3.208 3.570 13.00 FALSE FALSE 6.212 Addrin UG/KG 32 0 1 3.1% 1.305 1.415 1.900 FALSE FALSE 1.387 Aroclor-1260 UG/KG 31 1 1 3.2% 24.875 27.473 28.000 FALSE FALSE 1.654 Beta-BHC UG/KG 32 0 1 3.1% 1.617 3.355 20.000 FALSE FALSE 1.555		Pyrene	UG/KG	32	0	19	59.4%	194.531		1200.000	FALSE	FALSE	307.838	307.838
4,4"-DDE UG/KG 32 0 7 21.9% 7.750 24.932 140.000 FALSE FALSE 6.212 4,4"-DDT UG/KG 32 0 3 9.4% 3.208 3.570 13.000 FALSE FALSE 3.626 Aldrin UG/KG 32 0 1 3.1% 1.305 1.415 1.900 FALSE FALSE 1.387 Appha-Chlordane UG/KG 31 1 1 3.2% 1.029 0.077 1.100 FALSE FALSE 1.064 Aroclor-1260 UG/KG 32 0 2 6.3% 24.875 27.473 28.000 FALSE FALSE 26.326 2 Beta-BHC UG/KG 32 0 1 3.1% 1.617 3.355 20.000 FALSE FALSE FALSE 1.555		4,4'-DDD	UG/KG	32	0	2	6.3%	2.866		15.000	FALSE	FALSE	3.093	3.093
4,4"-DDT UG/KG 32 0 3 9,4% 3.208 3.570 13.000 FALSE FALSE 3.626 Aldrin UG/KG 32 0 1 3.1% 1.305 1.415 1.900 FALSE FALSE 1.387 Alpha-Chlordane UG/KG 31 1 1 3.2% 1.029 0.077 1.100 FALSE FALSE 1.064 Aroclor-1260 UG/KG 32 0 2 6.3% 24.875 27.473 28.000 FALSE FALSE 26.326 2 Beta-BHC UG/KG 32 0 1 3.1% 1.617 3.355 20.000 FALSE FALSE 1.555		4,4'-DDE	UG/KG	32	0	7	21.9%	7.750	24.932	140.000	FALSE	FALSE	6.212	6.212
Aldrin UG/KG 32 0 1 3.1% 1.305 1.415 1.900 FALSE FALSE 1.387 Alpha-Chlordane UG/KG 31 1 1 3.2% 1.029 0.077 1.100 FALSE FALSE 1.064 Aroclor-1260 UG/KG 32 0 2 6.3% 24.875 27.473 28.000 FALSE FALSE 26.326 2 Beta-BHC UG/KG 32 0 1 3.1% 1.617 3.355 20.000 FALSE FALSE 1.555		4,4'-DDT	UG/KG	32	0	3	9.4%	3.208	3.570	13.000	FALSE	FALSE	3.626	3.626
Alpha-Chlordane UG/KG 31 1 1 3.2% 1.029 0.077 1.100 FALSE FALSE 1.064 Aroclor-1260 UG/KG 32 0 2 6.3% 24.875 27.473 28.000 FALSE FALSE 26.326 2 Beta-BHC UG/KG 32 0 1 3.1% 1.617 3.355 20.000 FALSE FALSE 1.555		Aldrin	UG/KG	32	0	1	3.1%	1.305	1.415	1.900	FALSE	FALSE	1.387	1.387
Aroclor-1260 UG/KG 32 0 2 6.3% 24.875 27.473 28.000 FALSE FALSE 26.326 Beta-BHC UG/KG 32 0 1 3.1% 1.617 3.355 20.000 FALSE FALSE 1.555		Alpha-Chlordane	UG/KG	31	-	П	3.2%	1.029	0.077	1.100	FALSE	FALSE	1.064	1.064
Beta-BHC UG/KG 32 0 1 3.1% 1.617 3.355 20.000 FALSE FALSE 1.555	DES/PCB	Aroclor-1260	UG/KG	32	0	2	6.3%	24.875	27.473	28.000	FALSE	FALSE	26.326	26.326
	DES/PCB	Beta-BHC	UG/KG	32	0	-	3.1%	1.617	3.355	20.000	FALSE	FALSE	1.555	1.555

			No. of No. of	7	No of					1	Lognormal 95th UCL of		
		11.71				Ered (%) Mean		Std Dev	Max. Hit	Normal? ?		Mean E	EPC
Class	Parameter	Units	Analyses of	<		2 10%	1 313	20	2 200	FALSE	FALSE	1.400	1.400
PESTICIDES/PCB	Delta-BHC	UG/KG	35	0 0	٠, ١	0.1.0	C15.1	10 735	62.000	FALSE	FALSE	4.509	4.509
PESTICIDES/PCB	Dieldrin	UG/KG	32	0 0	י ר	0.4%	14 707	75 791	430 000	FALSE	FALSE	4.431	4.431
PESTICIDES/PCB	Endosulfan I	UG/KG	32	> 0	0 -	2 10%	2 545	3 189	20 000	FALSE	FALSE	2.664	2.664
PESTICIDES/PCB	Endosultan sultate	UG/KG	32	0 0	٠, ر	6 3%	3 386	7.258	43.000	FALSE	FALSE	3.263	3.263
PESTICIDES/PCB	Endrin	UG/KG	25	0	4 C	7000	4 236	12 194	71 000	FALSE	FALSE	3.585	3.585
PESTICIDES/PCB	Endrin ketone	UG/KG	75	0 0	4 (0.000	0.330	0.423	2 400	FALSE	TRUE	0.460	0.460
OTHER ANALYSES	Nitrate/Nitrite Nitrogen	MG/KG	32	0 0	32	3 10%	70.625	47 396	330.000	FALSE	FALSE	75.387	75.387
NITROAROMATICS	2,4-Dinitrotoluene	UG/KG	25	0 0	-	2.1%	88 504	148 086	000.006	FALSE	FALSE	161.68	161.68
NITROAROMATICS	2,6-Dinitrotoluene	DO/KG	32	0 0	33	%0.001	13317 188	2969.022	19300.000	FALSE	FALSE	14736.484	14736.484
METALS	Aluminum	DA/DIM	32	0 0	17	53.1%	4.675	8.917	52.000	FALSE	TRUE	7.790	7.790
METALS	Antimony	DA/DIM	3, 5	0 0	33	100 0%	5 188	1.074	8.900	FALSE	TRUE	5.507	5.507
METALS	Arsenic	DA/DIVI	33	0 0	26	81 3%	105 920	60.489	357.000	FALSE	TRUE	125.562	125.562
METALS	Вапит	MG/NG	32	0 0	3 6	200001	0.579	0.176	0.990	TRUE	FALSE	0.631	0.631
METALS	Beryllium	MG/NG	32	0 0	32	71 00%	1 224	1 992	3.500	-	TRUE	2.043	2.043
METALS	Cadmium	DA/DW	32	0 0	3 6	100 0%	26394 375	52842.403	########		FALSE	41678.432	41678.432
METALS	Calcium	MG/NG	200	0 0	3 6	100.0%	19 609	3 820	27.900		FALSE	20.754	20.754
METALS	Chromium	MG/NG	35	0	3 6	100.0%	10.272	3 834	21.900	-	TRUE	11.448	11.448
METALS	Cobalt	MG/NG	32	0 0	3 6	100.0%	55 522	91.711	546.000	1	FALSE	62.476	62.476
METALS	Copper	DA ON CAN	32	0 0	-	3 1%	0.313	0.227	1.500	FALSE	FALSE	0.379	0.379
METALS	Cyanide	MG/KG		0 0	33	100 0%	278 96656	5072 381	36100.000	33.2	FALSE	24746.207	24746.207
METALS	Iron	MG/NG		0 0	3.1	%6 96	275 619	553.353	496.000	FALSE	TRUE	576.842	496.000
METALS	Lead	DA DIM		o c	3 6	100 0%	5032 813	1990.612	9830.000	FALSE	TRUE	5695.790	5695.790
METALS	Magnesium	DA/DIM		0 0	3 6	100 0%	527 594	221.797	1080.000	_	TRUE	594.029	594.029
METALS	Manganese	DA/DIM		0 0	2 00	%9 06	0.103	0.187	1.000	FALSE	FALSE	0.117	0.117
METALS	Mercury	DA/DIVI		0 0	3 6	100 0%	26.697	9.321	50.800	FALSE	TRUE	29.792	29.792
METALS	Nickel	DA DIM	•	0 0	3 6	100 0%	1330 813	283.073	1960.000) TRUE	TRUE	1415.601	1415.601
METALS	Potassium	DA/ONA		0 0	200	62 5%	0.670	0.520	1.600	F	FALSE	1.250	1.250
METALS	Selenium	DAPON	•	0	2	12 50%	985 0	0.788	4.600	D FALSE	FALSE	0.738	0.738
METALS	Silver	DADM	33	0		65.6%	575 69	69 646	383.000	0 FALSE	FALSE	84.336	84.336
METALS	Sodium	MG/NG	20.60	0 0	1	21 0%	0.435	0 390	1.50	-	FALSE	0.656	0.656
METALS	Ihallium	DA/DM	200	0 0	33	100 0%	22 981	4 497	30.700		TRUE	24.328	24.328
METALS	Vanadium	MG/NG MG/NG	32	> <	32	100.0%	133.325	110.589	620.000	F	FALSE	155.685	155.685
METALS	Zinc	NOW!	15	0 0	4 -	6 70%	5016 667	7469 239	32000,000	1	FALSE	6203.085	6203.085
HERBICIDES	MCPA	UG/KG		>	-	2.7.70	20100				3347 (B) 354 (B) 354 (B)		

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CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
	(mg/kg-day)	(mg/kg-day)	(mg/m)	(in /day)	(days/year)	(years)	(vP)	Nc	Car
OLATILE ORGANICS									
	12		2.67E-10	2	50	5	25	1,825	25,55
Acetone		6 05E 14		2	50	5	25	1,825	25,55
Benzene	0.000.00	5.95E-14	7.60E-11				4,977524		
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	2	50	5	25	1,825	25,55
Γoluene	2.76E-12		2.52E-10	2	50	5	25	1,825	25,55
SEMIVOLATILE ORGANICS									
2,4-Dinitrotoluene			1.09E-08	2	50	5	25	1,825	25,55
2,6-Dinitrotoluene			0.00E+00	2	50	5	25	1,825	25,55
2-Methylnaphthalene			4.94E-09	2	50	5	25	1,825	25,55
			0.00E+00		50	5	25	1,825	25,55
2-Methylphenol				2		5	2000000		
3,3'-Dichlorobenzidine			9.54E-09	2	50	5	25	1,825	25,55
3-Nitroaniline			2.31E-08	2	50	5	25	1,825	25,55
4-Nitroaniline			2.31E-08	2	50	5	25	1,825	25,55
Acenaphthene	1		1.25E-09	2	50	5	25	1,825	25,55
Acenaphthylene	1		3.65E-09	2	50	5	25	1,825	25,55
Anthracene			4.94E-09	2	50	5	25	1,825	25,55
Benzo(a)anthracene		=	1.36E-08	2	50	5	25	1,825	25,55
			1.50E-08	2	50	5	25		25,55
Benzo(a)pyrene	1						500000	1,825	(0.05/2014/55)
Benzo(b)fluoranthene			1.48E-08	2	50	5	25	1,825	25,55
Benzo(g,h,i)perylene			1.20E-08	2	50	5	25	1,825	25,55
Benzo(k)fluoranthene			1.15E-08	2	50	5	25	1,825	25,55
Butylbenzylphthalate			1.75E-09	2	50	5	25	1,825	25,55
Carbazole			9.91E-09	2	50	5	25	1,825	25,55
Chrysene			1.26E-08	2	50	5	25	1,825	25,55
Di-n-butylphthalate			1.15E-08	2	50	5	25	1,825	25,55
Dibenz(a,h)anthracene			1.11E-08	2	50	5	25	1,825	25,55
	100						175,350,7		302336503
Dibenzofuran			1.37E-09	2	50	5	25	1,825	25,55
Fluoranthene			1.27E-08	2	50	5	25	1,825	25,55
Fluorene			1.44E-09	2	50	5	25	1,825	25,55
Indeno(1,2,3-cd)pyrene			1.30E-08	2	50	5	25	1,825	25,55
N-Nitrosodiphenylamine (1)			3.61E-09	2	50	5	25	1,825	25,55
Naphthalene			1.41E-09	2	50	5	25	1,825	25,55
Pentachlorophenol			2.57E-08	2	50	5	25	1,825	25,55
Phenanthrene			1.25E-08	2	50	5	25	1,825	25,55
					50		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		100000000000000000000000000000000000000
Pyrene	0.000		1.17E-08	2		5	25	1,825	25,55
bis(2-Chloroisopropyl) ether bis(2-Ethylhexyl)phthalate	9.22E-11		8.41E-09 1.23E-08	2 2	50 50	5	25 25	1,825 1,825	25,55 25,55
PESTICIDES/PCB			1.222-00					.,	25,55
			1.18E-10	2	50	5	25	1,825	25,55
4,4'-DDD				2					5504500000
4,4'-DDE	1		2.36E-10	2	50	5	25	1,825	25,55
4,4'-DDT	400000000000000000000000000000000000000	1.08E-13	1.38E-10	2	50	5	25	1,825	25,55
Aldrin	5.78E-13	4.13E-14	5.27E-11	2	50	5	25	1,825	25,55
Aroclor-1260			1.00E-09	2	50	5	25	1,825	25,55
Dieldrin		1.34E-13	1.71E-10	2	50	5	25	1,825	25,55
Endosulfan I		ANTENNES (N. 50)	1.68E-10	2	50	5	25	1,825	25,55
Endosulfan fi Endosulfan sulfate			1.01E-10	2	50	5	25	1,825	25,55
				2	50	5	25	1,825	25,55
Endrin			1.24E-10						
Endrin ketone			1.36E-10	2	50	5	25	1,825	25,55
Heptachlor epoxide		0.00E+00	0.00E+00	2	50	5	25	1,825	25,55
alpha-Chlordane			4.04E-11	2	50	5	25	1,825	25,55
beta-BHC		4.62E-14	5.91E-11	2	50	5	25	1,825	25,55
delta-BHC			5.32E-11	2	50	5	25	1,825	25,55

CALCULATION OF INTAKE (ONSITE) FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(mg/kg-day)	(mg/kg-day)	(mg/m)		(4.3-3-1.7)			Nc	Car
METALS									
Arsenic		1.64E-10	2.09E-07	2	50	5	25	1,825	25,550
Arsenic Barium	5.23E-08	1.0 12 10	4.77E-06	2	50	5	25	1,825	25,550
Cadmium	J.25L-00	6.08E-11	7.76E-08	2	50	5	25	1,825	25,550
		0.002.11	2.37E-06	2	50	5	25	1,825	25,550
Copper			1.88E-05	2	50	5	25	1,825	25,550
Lead	4.87E-11		4.45E-09	2 2	50	5	25	1,825	25,550
Mercury	4.07111		4.75E-08	2	50	5	25	1,825	25,550
Selenium			2.80E-08	2 2	50	5	25	1,825	25,550
Silver			2.49E-08	2	50	5	25	1,825	25,550
Thallium Zinc			5.92E-06	2	50	5	25	1,825	25,550
Zilic									
HERBICIDES									
МСРА			2.36E-07	2	50	5	25	1,825	25,550
eft ()									

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day)

EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years) BW = Bodyweight (kg)

AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME

2 (RME Child)

50

25 (Child)

5 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
			NIA	27.4		
Acetone		5.055.14	NA NA	NA 201F.02		1 725 15
Benzene	0.005.00	5.95E-14	NA 0.57F.01	2.91E-02	0.000.00	1.73E-15
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	2.76E-12		1.14E-01	NA NA	2.41E-11	
SEMIVOLATILE ORGANICS			- 177			
2,4-Dinitrotoluene			NA	NA NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			NA	NA		1
3,3'-Dichlorobenzidine			NA	NA		1
3-Nitroaniline		9	NA	NA NA		1
4-Nitroaniline		()	NA	NA NA		1
Acenaphthene			NA	NA NA		1
Acenaphthylene			NA NA	NA NA		
Anthracene			NA NA	NA NA		
Benzo(a)anthracene			NA NA	NA NA		
Benzo(a)pyrene			NA NA	NA NA		
Benzo(b)fluoranthene			NA NA	NA NA		
Benzo(g,h,i)perylene			NA NA	NA NA		
Benzo(k)fluoranthene			NA NA	NA NA		
Butylbenzylphthalate			NA NA	NA NA		
Carbazole			NA NA	NA NA		1
Chrysene	1		NA NA	NA NA		
Di-n-butylphthalate			NA NA	NA NA		
Dibenz(a,h)anthracene			NA NA	NA NA		1
Dibenzofuran			NA NA	6533567		
Fluoranthene			8397.5	NA NA		
			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene	1		NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene	0.00=		NA	NA		
bis(2-Chloroisopropyl) ether bis(2-Ethylhexyl)phthalate	9.22E-11	177 146	1.00E-03 NA	NA NA	9.22E-08	
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE			NA	NA		
4,4'-DDT		1.08E-13	NA	3.40E-01		3.66E-14
Aldrin	5.78E-13	4.13E-14	1.70E+01	1.72E+01	3.40E-14	7.08E-13
Aroclor-1260		CLUB AND A CO.	NA	NA NA	and the second of the	
Dieldrin		1.34E-13	NA	1.61E+01		2.16E-12
Endosulfan I			NA	NA NA		202.12
Endosulfan f Endosulfan sulfate			NA NA	NA NA		
Endrin			NA NA	NA NA		
Endrin ketone			NA NA	NA NA		
Heptachlor epoxide		0.00E+00	NA NA	9.10E+00		0.00E+00
alpha-Chlordane		0.002700	NA NA	NA NA		0.002700
		4.60E 14	NA NA	1.86E+00		8 60E 14
beta-BHC		4.62E-14	5,43			8.60E-14
lelta-BHC	1		NA	NA		1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Thallium Zinc	5.23E-08 4.87E-11	1.64E-10 6.08E-11	NA 1.43E-04 NA NA NA 8.57E-05 NA NA NA	1.51E+01 NA 6.30E+00 NA NA NA NA NA NA	3.66E-04 5.68E-07	2.47E-09 3.83E-10
HERBICIDES MCPA Total HQ & CR			NA	NA	3.67E-04	2.85E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

TABLE 7-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

COMPOUND	SURFACE SOIL EPC Data	AVERAGE TSP	CONVERSION FACTOR	AIR CALCULATED EPO
	mg/kg	(ug/m³)	(kg/ug)	(mg/m³)
VOLATILE ORGANICS				
Acetone	7.04E-03	3.80E+01	1.00E-09	2.67E-10
Benzene	2.00E-03	3.80E+01	1.00E-09	7.60E-11
Methylene Chloride	0.00E+00	3.80E+01	1.00E-09	0.00E+00
Toluene	6.62E-03	3.80E+01	1.00E-09	2.52E-10
SEMIVOLATILE ORGANICS				
2,4-Dinitrotoluene	2.86E-01	3.80E+01	1.00E-09	1.09E-08
2,6-Dinitrotoluene	0.00E+00	3.80E+01	1.00E-09	0.00E+00
2-Methylnaphthalene	1.30E-01	3.80E+01	1.00E-09	4.94E-09
2-Methylphenol	0.00E+00	3.80E+01	1.00E-09	0.00E+00
3,3'-Dichlorobenzidine	2.51E-01	3.80E+01	1.00E-09	9.54E-09
3-Nitroaniline	6.07E-01	3.80E+01	1.00E-09	2.31E-08
4-Nitroaniline	6.07E-01	3.80E+01	1.00E-09	2.31E-08
Acenaphthene	3.30E-02	3.80E+01	1.00E-09	1.25E-09
Acenaphthylene	9.60E-02	3.80E+01	1.00E-09	3.65E-09
Anthracene	1.30E-01	3.80E+01	1.00E-09	4.94E-09
Benzo(a)anthracene	3.58E-01	3.80E+01	1.00E-09	1.36E-08
Benzo(a)pyrene	3.99E-01	3.80E+01	1.00E-09	1.52E-08
Benzo(b)fluoranthene	3.91E-01	3.80E+01	1.00E-09	1.48E-08
Benzo(g,h,i)perylene	3.17E-01	3.80E+01	1.00E-09	1.20E-08
Benzo(k)fluoranthene	3.04E-01	3.80E+01	1.00E-09	1.15E-08
Butylbenzylphthalate	4.60E-02	3.80E+01	1.00E-09	1.75E-09
Carbazole	2.61E-01	3.80E+01	1.00E-09	9.91E-09
Chrysene	3.31E-01	3.80E+01	1.00E-09	1.26E-08
Di-n-butylphthalate	3.03E-01	3.80E+01	1.00E-09	1.15E-08
Dibenz(a,h)anthracene	2.92E-01	3.80E+01	1.00E-09	1.11E-08
Dibenzofuran	3.60E-02	3.80E+01	1.00E-09	1.37E-09
Fluoranthene	3.34E-01	3.80E+01	1.00E-09	1.27E-08
Fluorene	3.80E-02	3.80E+01	1.00E-09	1.44E-09
Indeno(1,2,3-cd)pyrene	3.42E-01	3.80E+01	1.00E-09	1.30E-08
N-Nitrosodiphenylamine (1)	9.50E-02	3.80E+01	1.00E-09	3.61E-09
Naphthalene	3.70E-02	3.80E+01	1.00E-09	1.41E-09
Pentachlorophenol	6.76E-01	3.80E+01	1.00E-09	2.57E-08
Phenanthrene Pyrene	3.30E-01	3.80E+01	1.00E-09	1.25E-08
bis(2-Chloroisopropyl) ether	3.08E-01	3.80E+01	1.00E-09	1.17E-08
bis(2-Ethylhexyl)phthalate	2.21E-01 3.23E-01	3.80E+01 3.80E+01	1.00E-09 1.00E-09	8.41E-09 1.23E-08
PESTICIDES/PCB				
4,4'-DDD	3.09E-03	3.80E+01	1.00E-09	1.18E-10
4,4'-DDE	6.21E-03	3.80E+01	1.00E-09	2.36E-10
4,4'-DDT	3.63E-03	3.80E+01	1.00E-09	1.38E-10
Aldrin	1.39E-03	3.80E+01	1.00E-09	5.27E-11
Aroclor-1260	2.63E-02	3.80E+01	1.00E-09	1.00E-09
Dieldrin	4.51E-03	3.80E+01	1.00E-09	1.71E-10
Endosulfan I	4.43E-03	3.80E+01	1.00E-09	1.68E-10
Endosulfan sulfate	2.66E-03	3.80E+01	1.00E-09	1.01E-10
Endrin	3.26E-03	3.80E+01	1.00E-09	1.24E-10
Endrin ketone	3.59E-03	3.80E+01	1.00E-09	1.36E-10
Heptachlor epoxide	0.00E+00	3.80E+01	1.00E-09	0.00E+00
alpha-Chlordane	1.06E-03	3.80E+01	1.00E-09	4.04E-11
beta-BHC	1.55E-03	3.80E+01	1.00E-09	5.91E-11
delta-BHC	1.40E-03	3.80E+01	1.00E-09	5.32E-11

TABLE 7-7A

AMBIENT AIR EXPOSURE POINT CONCENTRATIONS REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

COMPOUND	SURFACE SOIL EPC Data mg/kg	AVERAGE TSP (ug/m³)	CONVERSION FACTOR (kg/ug)	AIR CALCULATED EPC (mg/m³)	
METALS Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Thallium Zinc	5.51E+00 1.26E+02 2.04E+00 6.25E+01 4.96E+02 1.17E-01 1.25E+00 7.38E-01 6.56E-01 1.56E+02	3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01 3.80E+01	1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09 1.00E-09	2.09E-07 4.77E-06 7.76E-08 2.37E-06 1.88E-05 4.45E-09 4.75E-08 2.80E-08 2.49E-08 5.92E-06	
HERBICIDES MCPA	6.20E+00	3.80E+01	1.00E-09	2.36E-07	
EQUATION:	Calculated Air EPC Variables: TSP = Total Susper CF = Conversion F	nded Particulate	Assumptions:		

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Т	raging ime ays)
		(-5-5-7)	X-10-11-0		(/	(3)	(6/	No	Car
VOLATILE ORGANICS									
				22		20	122	12/3/25	
Acetone		175.655.65	2.67E-10	20	20	25	70	9,125	25,550
Benzene		4.25E-13	7.60E-11	20	20	25	70	9,125	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
Toluene	3.94E-12		2.52E-10	20	20	25	70	9,125	25,550
SEMIVOLATILE ORGANICS									
3.4 Dinitratal			1.000.00	20	20	26	70	0.105	25.55
2,4-Dinitrotoluene			1.09E-08	20	20	25	70	9,125	25,550
2,6-Dinitrotoluene	1		0.00E+00	20	20	25	70	9,125	25,550
2-Methylnaphthalene			4.94E-09	20	20	25	70	9,125	25,550
2-Methylphenol			0.00E+00	20	20	25	70	9,125	25,550
3,3'-Dichlorobenzidine			9.54E-09	20	20	25	70	9,125	25,550
3-Nitroaniline			2.31E-08	20	20	25	70	9,125	25,550
4-Nitroaniline			2.31E-08	20	20	25	70	9,125	25,550
Acenaphthene			1.25E-09	20	20	25	70	9,125	25,550
Acenaphthylene			3.65E-09	20	20	25	70	9,125	25,550
Anthracene			4.94E-09	20	20	25	70	9,125	25,550
Benzo(a)anthracene			1.36E-08	20	20	25	70	9,125	25,550
Benzo(a)pyrene			1.52E-08	20	20	25	70	9,125	25,550
Benzo(b)fluoranthene	1 8		1.48E-08	20	20	25	70	9,125	25,550
Benzo(g,h,i)perylene			1.20E-08	20	20	25	70	9,125	25,550
Benzo(k)fluoranthene			1.15E-08	20	20	25	70	9,125	25,550
Butylbenzylphthalate			1.75E-09	20	20	25	70	9,125	25,550
Carbazole			9.91E-09	20	20	25	35.57		
Chrysene							70	9,125	25,550
			1.26E-08	20	20	25	70	9,125	25,550
Di-n-butylphthalate			1.15E-08	20	20	25	70	9,125	25,550
Dibenz(a,h)anthracene			1.11E-08	20	20	25	70	9,125	25,550
Dibenzofuran			1.37E-09	20	20	25	70	9,125	25,550
Fluoranthene		7	1.27E-08	20	20	25	70	9,125	25,550
Fluorene	1 1		1.44E-09	20	20	25	70	9,125	25,550
Indeno(1,2,3-cd)pyrene			1.30E-08	20	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)	1 1		3.61E-09	20	20	25	70	9,125	25,550
Naphthalene	1		1.41E-09	20	20	25	70	9,125	25,550
Pentachlorophenol	1 1		2.57E-08	20	20	25	70	9,125	25,550
Phenanthrene			1.25E-08	20	20	25	70	9,125	25,550
Pyrene			1.17E-08	20	20	25	70	9,125	25,550
bis(2-Chloroisopropyl) ether	1.32E-10		8.41E-09	20	20	25	70	9,125	25,550
ois(2-Ethylhexyl)phthalate			1.23E-08	20	20	25	70	9,125	25,550
PESTICIDES/PCB									
4,4'-DDD			1.18E-10	20	20	25	70	9,125	25.550
4,4'-DDE	1	1						1000 TANGE 1000	25,550
		7 705 12	2.36E-10	20	20	25	70	9,125	25,550
4,4'-DDT	0.065.10	7.70E-13	1.38E-10	20	20	25	70	9,125	25,550
Aldrin	8.25E-13	2.95E-13	5.27E-11	20	20	25	70	9,125	25,550
Aroclor-1260			1.00E-09	20	20	25	70	9,125	25,550
Dieldrin		9.58E-13	1.71E-10	20	20	25	70	9,125	25,550
Endosulfan I		-	1.68E-10	20	20	25	70	9,125	25,550
Endosulfan sulfate			1.01E-10	20	20	25	70	9,125	25,550
Endrin	1 1		1.24E-10	20	20	25	70	9,125	25,550
Endrin ketone		i	1.36E-10	20	20	25	70	9,125	25,550
leptachlor epoxide		0.00E+00	0.00E+00	20	20	25	70	9,125	25,550
alpha-Chlordane			4.04E-11	20	20	25	70	9,125	25,550
peta-BHC		3.30E-13	5.91E-11	20	20	25	70	9,125	25,550
lelta-BHC		J.JUL-13	5.32E-11	20	20	25	70	9,125	25,550
icha-DHC			J.52E-11	20	20	23	70	9,125	23,330

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car) (mg/kg-day)	EPC Air	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(mg/kg-day)		(mg/m³)		(days year)	07	()	Nc	Car
METALS									2010000000
		1.17E-09	2.09E-07	20	20	25	70 70 70	9,125	25,550
Arsenic	a 4ac 00	1.17E-09	4.77E-06	20	20	25	70	9,125	25,550
Barium	7.47E-08	4.34E-10	7.76E-08	20	20	25		9,125	25,550
Cadmium		4.54L-10	2.37E-06	20 20	20	25	70	9,125	25,550
Copper			1.88E-05	20	20	25 25	70 70 70 70	9,125	25,550
Lead	6,96E-11		4.45E-09	20	20	25	70	9,125	25,550
Mercury	0.90E-11		4.75E-08	20	20	25 25 25 25		9,125	25,550
Selenium	100		2.80E-08	20	20	25	70	9,125	25,550 25,550
Silver	22 1 22		2.49E-08	20	20	25	70	9,125	
Thallium Zinc			5.92E-06	20	20	25	70	9,125	25,550
HERBICIDES		1 3		200			70	9,125	25,550
МСРА			2.36E-07	20	20	25	70	9,123	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day) EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)

BW = Bodyweight (kg)
AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME

20 (RME All Receptors) 20 (RME Site Worker)

25 (RME Site Worker)

70 (Adult Male)

25 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			NA	NA		
Benzene		4.25E-13	NA	2.91E-02		1.24E-14
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	3.94E-12		1.14E-01	NA	3.45E-11	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			NA	NA		
3,3'-Dichlorobenzidine			NA	NA		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene			NA	NA		
Acenaphthylene			NA	NA		
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran		i i	NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA NA		
Indeno(1,2,3-cd)pyrene			NA NA	NA NA		
N-Nitrosodiphenylamine (1)			NA NA	NA NA		1
Naphthalene Pentachlorophenol			NA NA	NA NA		
Phenanthrene			NA NA	NA NA		
		1	NA NA	NA NA		
Pyrene bis(2-Chloroisopropyl) ether	1.32E-10		1.00E-03	NA NA	1.32E-07	
bis(2-Ethylhexyl)phthalate	1.321-10		NA	NA NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE			NA	NA		
4,4'-DDT		7.70E-13	NA	3.40E-01		2.62E-13
Aldrin	8.25E-13	2.95E-13	1.70E+01	1.72E+01	4.85E-14	5.05E-12
Aroclor-1260		(0), N 4, SQUEDO S A2.57	NA	NA		C BALLO
Dieldrin		9.58E-13	NA	1.61E+01		1.54E-11
Endosulfan I			NA	NA		
Endosulfan sulfate			NA	NA		
Endrin		1	NA	NA		
Endrin ketone			NA	NA 0.10F.100		0.000.0
Heptachlor epoxide	-	0.00E+00	NA	9.10E+00	Į.	0.00E+0
alpha-Chlordane		2 207 12	NA	NA L RCELOO		K 14E 1
beta-BHC		3.30E-13	NA NA	1.86E+00		6.14E-13
delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analy	te	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS					- FUA	No les	
Arsenic			1.17E-09	NA	1.51E+01		1.76E-08
Barium		7.47E-08		1.43E-04	NA	5.23E-04	1011000000000
Cadmium			4.34E-10	NA	6.30E+00		2.73E-09
Copper				NA	NA NA		1
Lead		1010/00/00/00		NA 0.55F-0.5	NA NA	8.12E-07	
Mercury		6.96E-11		8.57E-05	NA NA	8.12E-07	
Selenium				NA NA	NA NA		
Silver				NA NA	NA NA		
Thallium				NA NA	NA		
Zinc				153670	292.5		-
HERBICIDES		1					
МСРА				NA	NA		
						5 2 4 F 0 4	2.04E-08
Total HQ & CR						5.24E-04	2.04E-00

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	1	eraging Time days)
	((((,)	(day or y carry	(Jeans)	("6)	Nc	Car
VOLATILE ORGANICS									
Andread harman									
Acetone		Na rayasa rayar	2.67E-10	20	250	1	70	365	25,550
Benzene	04/2004/05/04/04	2.12E-13	7.60E-11	20	250	1	70	365	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20	250	1	70	365	25,550
Toluene	4.93E-11		2.52E-10	20	250	1	70	365	25,550
SEMIVOLATILE ORGANI	cs								
2,4-Dinitrotoluene			1.09E-08	20	250		70	265	25.550
2,6-Dinitrotoluene			0.00E+00	20	250	1 1	70	365	25,550
			4.94E-09	20	10000000	1 1	97.02	365	25,550
2-Methylnaphthalene				10000	250	1 1	70	365	25,550
2-Methylphenol			0.00E+00	20	250	1	70	365	25,550
3,3'-Dichlorobenzidine			9.54E-09	20	250	1 1	70	365	25,550
3-Nitroaniline			2.31E-08	20	250	1	70	365	25,550
4-Nitroaniline			2.31E-08	20	250	1	70	365	25,550
Acenaphthene			1.25E-09	20	250	1	70	365	25,550
Acenaphthylene			3.65E-09	20	250	1	70	365	25,550
Anthracene			4.94E-09	20	250	1	70	365	25,550
Benzo(a)anthracene			1.36E-08	20	250	1	70	365	25,550
Benzo(a)pyrene			1.52E-08	20	250	1	70	365	25,550
Benzo(b)fluoranthene			1.48E-08	20	250	1	70	365	25,550
Benzo(g,h,i)perylene			1.20E-08	20	250	1	70	365	25,550
Benzo(k)fluoranthene			1.15E-08	20	250	ì	70	365	25,550
Butylbenzylphthalate			1.75E-09	20	250	î	70	365	25,550
Carbazole			9.91E-09	20	250	i l	70	365	25,550
Chrysene			1.26E-08	20	250	1	70		100000000000000000000000000000000000000
Di-n-butylphthalate			1.15E-08	20	250	1		365	25,550
Dibenz(a,h)anthracene				20	2250000	2 1	70	365	25,550
Dibenzofuran			1.11E-08		250	ı	70	365	25,550
Fluoranthene			1.37E-09	20	250	1	70	365	25,550
			1.27E-08	20	250	1	70	365	25,550
Fluorene	ł I		1.44E-09	20	250	1	70	365	25,550
ndeno(1,2,3-cd)pyrene			1.30E-08	20	250	1	70	365	25,550
N-Nitrosodiphenylamine (1)			3.61E-09	20	250	1	70	365	25,550
Naphthalene			1.41E-09	20	250	1	70	365	25,550
Pentachlorophenol			2.57E-08	20	250	1	70	365	25,550
Phenanthrene			1.25E-08	20	250	1	70	365	25,550
Pyrene			1.17E-08	20	250	1	70	365	25,550
ois(2-Chloroisopropyl) ether	1.65E-09		8.41E-09	20	250	1	70	365	25,550
bis(2-Ethylhexyl)phthalate			1.23E-08	20	250	1	70	365	25,550
PESTICIDES/PCB									
4.4'-DDD			1.18E-10	20	250	1	70	365	25,550
4,4'-DDE			2.36E-10	20	250	i l	70	365	
4.4'-DDT		3.85E-13	1.38E-10	20	250	i l	70	365	25,550
Aldrin	1.03E-11	1.47E-13	5.27E-11	20	250	î 1	70	365	25,550
Aroclor-1260	1,032-11	1.4715-13	1.00E-09	20	250	1	9-3400		25,550
Dieldrin		4.79E-13	1.71E-10		250	1	70	365	25,550
Endosulfan I		4.796*13		20		1	70	365	25,550
		1	1.68E-10	20	250	1	70	365	25,550
Endosulfan sulfate			1.01E-10	20	250	1	70	365	25,550
Endrin		1	1.24E-10	20	250	1	70	365	25,550
Endrin ketone			1.36E-10	20	250	1	70	365	25,550
leptachlor epoxide		0.00E+00	0.00E+00	20	250	1	70	365	25,550
lpha-Chlordane		LUCKE STRUCTURE STATE	4.04E-11	20	250	1	70	365	25,550
eta-BHC		1.65E-13	5.91E-11	20	250	1	70	365	25,550
elta-BHC	1	- 1	5.32E-11	20	250	1	70	365	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC Air	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	raging ime ays)
	(mg/kg-day)	(mg/kg-day)	(mg/m³)	(III /day)	(day 3/ y car /	,	, , ,	Nc	Car
METALS							100		
		5.85E-10	2.09E-07	20	250	1	70	365	25,550
Arsenic	0.245.07	5.85E-10	4.77E-06	20	250	1	70	365	25,550
Barium	9.34E-07	2.17E-10	7.76E-08	20	250	1	70	365	25,550
Cadmium		2.17E-10	2.37E-06	20	250	1	70	365	25,550
Copper			1.88E-05	20	250	1	70	365	25,550
Lead	8.70E-10		4.45E-09	20	250	1	70	365	25,550
Mercury	8.70E-10		4.75E-08	20	250	1	70	365	25,550
Selenium			2.80E-08	20	250	1	70	365	25,550
Silver			2.49E-08	20	250	1	70	365	25,550
Thallium Zinc			5.92E-06	20	250	1	70	365	25,550
HERBICIDES									
MCPA			2.36E-07	20	250	1	70	365	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m³/day)

EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)

BW = Bodyweight (kg)

AT = Averaging Time (days)

Assumptions:

Calculated EPC Air Data - RME

20 (all receptors)

250 (RME Construction Workers)

1 (Upper bound period of Construction Worker)

70 (Adult Male)

1 x 365 (Nc) 70 x 365 (Car)

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			NA	NA		
Benzene		2.12E-13	NA	2.91E-02		6.18E-15
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	4.93E-11	123927-00-00-031000	1.14E-01	NA	4.31E-10	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA.	NA I		
2-Methylnaphthalene			NA NA	NA NA		
2-Methylphenol			NA NA	NA NA		
3,3'-Dichlorobenzidine			NA NA	NA NA		
3-Nitroaniline		1	NA NA	NA NA		1
4-Nitroaniline			NA NA	52000		1
Acenaphthene			70.1707	NA NA		
			NA NA	NA NA		
Acenaphthylene Anthracene			NA	NA NA		
			NA	NA NA		
Benzo(a)anthracene			NA	NA		
Benzo(a)pyrene			NA	NA		
Benzo(b)fluoranthene			NA	NA		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	NA		
Butylbenzylphthalate			NA	NA		1
Carbazole			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
Indeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA		
Pentachlorophenol			NA	NA		
Phenanthrene			NA	NA		
Pyrene			NA	NA		
ois(2-Chloroisopropyl) ether	1.65E-09		1.00E-03	NA	1.65E-06	
pis(2-Ethylhexyl)phthalate			NA	NA		
PESTICIDES/PCB						
4,4'-DDD			NA	NA		
4,4'-DDE	1		NA	NA		
4,4'-DDT		3.85E-13	NA	3.40E-01		1.31E-13
Aldrin	1.03E-11	1.47E-13	1.70E+01	1.72E+01	6.07E-13	2.53E-12
Aroclor-1260	FOR THE WORLD'S TOP DOS		NA	NA		APP AT STATE AST LTD
Dieldrin		4.79E-13	NA	1.61E+01		7.71E-12
Endosulfan I		0.00000.0000000000000000000000000000000	NA	NA		SOUNDER POR
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
alpha-Chlordane			NA	NA		
beta-BHC		1.65E-13	NA	1.86E+00		3.07E-13
lelta-BHC		L.MALITED	NA	NA NA		3.0715-13
icim-DIIC	1		INA	4363		I

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Thallium	9.34E-07 8.70E-10	5.85E-10 2.17E-10	NA 1.43E-04 NA NA NA 8.57E-05 NA NA NA	1.51E+01 NA 6.30E+00 NA NA NA NA NA NA	6.54E-03 1.02E-05	8.80E-09 1.37E-09
Zinc HERBICIDES MCPA Total HQ & CR			NA	NA	6.55E-03	1.02E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration
Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Ti (da	raging ime ays)
VOLATILE ORGANICS								Nc	Car
, our till order ties									
Acetone		040000000000000000000000000000000000000	2.67E-10	20	250	25	70	9,125	25,550
Benzene		5.31E-12	7.60E-11	20	250	25	70	9,125	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	20	250	25	70	9,125	25,550
Toluene	4.93E-11		2.52E-10	20	250	25	70	9,125	25,550
SEMIVOLATILE ORGANICS									
2,4-Dinitrotoluene			1.09E-08	20	250	25	70	9,125	25,550
2,6-Dinitrotoluene			0.00E+00	20	250	25	70	9,125	25,550
2-Methylnaphthalene			4.94E-09	20	250	25	70	9,125	25,55
				20	250	25	70		
2-Methylphenol			0.00E+00	20	1000 - 1000			9,125	25,550
3,3'-Dichlorobenzidine			9.54E-09		250	25	70	9,125	25,550
3-Nitroaniline			2.31E-08	20	250	25	70	9,125	25,550
4-Nitroaniline			2.31E-08	20	250	25	70	9,125	25,550
Acenaphthene			1.25E-09	20	250	25	70	9,125	25,55
Acenaphthylene			3.65E-09	20	250	25	70	9,125	25,55
Anthracene			4.94E-09	20	250	25	70	9,125	25,55
Benzo(a)anthracene			1.36E-08	20	250	25	70	9,125	25,55
Benzo(a)pyrene			1.52E-08	20	250	25	70	9,125	25,55
Benzo(b)fluoranthene			1.48E-08	20	250	25	70	9,125	25,55
Benzo(g,h,i)perylene			1.20E-08	20	250	25	70	9,125	25,550
Benzo(k)fluoranthene			1.15E-08	20	250	25	70	9,125	25,550
Butylbenzylphthalate			1.75E-09	20	250	25	70	9,125	25,550
Carbazole			9.91E-09	20	250	25	70	9,125	25,550
Chrysene			1.26E-08	20	250	25	70	9,125	25,550
Di-n-butylphthalate			1.15E-08	20	250	25	70	9,125	25,55
Dibenz(a,h)anthracene			1.11E-08	20	250	25	70	9,125	25,550
Dibenzofuran	1 1		1.37E-09	20	250	25	70	9,125	25,550
Fluoranthene	1		1.27E-08	20	250	25	70	9,125	25,550
Fluorene			1.44E-09	20	250	25	70	9,125	25,550
ndeno(1,2,3-cd)pyrene			1.30E-08	20	250	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			3.61E-09	20	250	25	70	9,125	
									25,550
Naphthalene			1.41E-09	20	250	25	70	9,125	25,550
Pentachlorophenol			2.57E-08	20	250	25	70	9,125	25,550
Phenanthrene			1.25E-08	20	250	25	70	9,125	25,550
Pyrene		4	1.17E-08	20	250	25	70	9,125	25,550
ois(2-Chloroisopropyl) ether	1.65E-09		8.41E-09	20	250	25	70	9,125	25,550
pis(2-Ethylhexyl)phthalate			1.23E-08	20	250	25	70	9,125	25,550
PESTICIDES/PCB									
1,4'-DDD			1.18E-10	20	250	25	70	9,125	25,550
1,4'-DDE			2.36E-10	20	250	25	70	9,125	25,550
1,4'-DDT		9.63E-12	1.38E-10	20	250	25	70	9,125	25,550
Aldrin	1.03E-11	3.68E-12	5.27E-11	20	250	25	70	9,125	25,550
Aroclor-1260			1.00E-09	20	250	25	70	9,125	25,550
Dieldrin		1.20E-11	1.71E-10	20	250	25	70	9,125	25,550
Endosulfan I		1.201-11	1.68E-10	20	250	25	70	9,125	25,550
					250	25	70		
Endosulfan sulfate			1.01E-10	20				9,125	25,550
Endrin			1.24E-10	20	250	25	70	9,125	25,550
Endrin ketone		100 mm	1.36E-10	20	250	25	70	9,125	25,550
Heptachlor epoxide		0.00E+00	0.00E+00	20	250	25	70	9,125	25,550
alpha-Chlordane		-commercial teles. I	4.04E-11	20	250	25	70	9,125	25,55
oeta-BHC		4.13E-12	5.91E-11	20	250	25	70	9,125	25,550
			-1.1000 - 500	20	250	25	70	9,125	25,550

CALCULATION OF INTAKE FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car)	EPC Air (mg/m³)	Inhalation Rate (m³/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	T	aging ime ays)
	(mg/kg-day)	(mg/kg-uay)	(mg/m/)	(mrauj)	(44) 5.7 17	750.555500	, , ,	Nc	Car
METALS							1000		
		1.46E-08	2.09E-07	20	250	25	70	9,125	25,550
Arsenic	9.34E-07	1.402-06	4.77E-06	20	250	25	70	9,125	25,550
Barium	9.54E-07	5.43E-09	7.76E-08	20	250	25	70	9,125	25,550
Cadmium		3.43L-07	2.37E-06	20	250	25	70	9,125	25,550
Copper			1.88E-05	20	250	25	70	9,125	25,550
Lead	8.70E-10		4.45E-09	20	250	25	70	9,125	25,550
Mercury	8.70E-10		4.75E-08	20	250	25	70	9,125	25,550
Selenium	4	1.0	2.80E-08	20	250	25	70	9,125	25,550
Silver			2.49E-08	20	250	25	70	9,125	25,550
Thallium Zinc			5.92E-06	20	250	25	70	9,125	25,550
HERBICIDES							-		
MCPA		14 7	2.36E-07	20	250	25	70	9,125	25,550

EQUATION:

Intake (mg/kg-day) =

CA x IR x EF x ED BW x AT

Variables:

CA = Chemical Concentration in Air (mg/m³)

IR = Inhalation Rate (m3/day)

EF = Exposure Frequency (days/yr)

ED = Exposure Duration (years)

BW = Bodyweight (kg)

Assumptions:

Calculated EPC Air Data - RME

20 (all receptors)

250 (RME Industrial Workers)

70 (Adult Male)

5 x 365 (Nc) 70 x 365 (Car)

AT = Averaging Time (days)

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						1
Acetone				***		
		5 21F 12	NA NA	NA		
Benzene	0.007.00	5.31E-12	NA .	2.91E-02		1.55E-13
Methylene Chloride	0.00E+00	0.00E+00	8.57E-01	1.65E-03	0.00E+00	0.00E+00
Toluene	4.93E-11		1.14E-01	NA	4.31E-10	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			NA	NA		
2,6-Dinitrotoluene			NA	NA		
2-Methylnaphthalene			NA NA	NA		
2-Methylphenol	1		NA NA	NA		
3,3'-Dichlorobenzidine			7.5.4			
3-Nitroaniline			NA	NA		1
			NA	NA		1
4-Nitroaniline		1	NA	NA		
Acenaphthene			NA	NA		1
Acenaphthylene			NA	NA		1
Anthracene			NA	NA		
Benzo(a)anthracene			NA	NA		1
Benzo(a)pyrene			NA	NA		1
Benzo(b)fluoranthene			NA	NA		1
Benzo(g,h,i)perylene			NA NA	NA NA		1
Benzo(k)fluoranthene			NA NA	NA NA		1
Butylbenzylphthalate			177,077,77	17007000		1
Carbazole			NA	NA		
			NA	NA		
Chrysene			NA	NA		
Di-n-butylphthalate			NA	NA		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA	NA		
Fluoranthene			NA	NA		
Fluorene			NA	NA		
ndeno(1,2,3-cd)pyrene			NA	NA		
N-Nitrosodiphenylamine (1)			NA	NA		
Naphthalene			NA	NA NA		
Pentachlorophenol			NA NA	30000000		
Phenanthrene			550035	NA		
			NA	NA		
Pyrene	1 (50 00		NA LOOF OO	NA	12002220000	
ois(2-Chloroisopropyl) ether ois(2-Ethylhexyl)phthalate	1.65E-09		1.00E-03 NA	NA NA	1.65E-06	
PESTICIDES/PCB						
1,4'-DDD			NA	NA		
I.4'-DDE			NA NA	NA NA		1
I,4'-DDT		9.63E-12	2000 AC 5450			2 225 12
Aldrin	1.025.11		NA 1.70F+01	3.40E-01	C 07F 12	3.27E-12
Aroclor-1260	1.03E-11	3.68E-12	1.70E+01	1.72E+01	6.07E-13	6.32E-11
		1 000	NA	NA		September 1
Dieldrin		1.20E-11	NA	1.61E+01		1.93E-10
Endosulfan I			NA	NA		
Endosulfan sulfate			NA	NA		
Endrin			NA	NA		
Endrin ketone			NA	NA		
leptachlor epoxide		0.00E+00	NA	9.10E+00		0.00E+00
lpha-Chlordane		United States of the Control of the	NA	NA		
eta-BHC		4.13E-12	NA	1.86E+00		7.68E-12
elta-BHC		1,1515-12	NA NA	NA NA		7.08E-12
CHa-DITC	The state of the s	4	INA	NA		1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INHALATION OF DUST IN AMBIENT AIR INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfC (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS Arsenic Barium Cadmium Copper Lead Mercury Selenium Silver Thallium Zinc	9.34E-07 8.70E-10	1.46E-08 5.43E-09	NA 1.43E-04 NA NA NA 8.57E-05 NA NA NA	1.51E+01 NA 6.30E+00 NA NA NA NA NA NA	6.54E-03 1.02E-05	2.20E-07 3.42E-08
HERBICIDES MCPA Total HQ & CR			NA	NA	6.55E-03	2.55E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic) / Reference Concentration Cancer Risk = Chronic Daily Intake (Cancinogenic) x Inhalation Slope Factor

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TABLE 7-38

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-17 Remedial Investigation Seneca Army Depot Activity

	Absorbed Dose (Nc) (mg/kg-day)	Absorbed Dose (Car) (mg/kg-day)	EPC Sediment (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg sed/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	iging ne is)
											Child(Nc)	Car
Volatile Organics												
Acetone			1.44E-02 8.00E-03	1.0E-06 1.0E-06	2,170	1.0		25 25	8.8	22 52	1,825	25,550
Semivolatile Organics					į							
2,4-Dimethylphenol			3.20E-02	1.0E-06	2,170	1.0		25	s	25	1 825	25 550
,4-Dinitrotoluene	Ì		3.14E-01	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Benzo(a)anthracene			2.50E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Benzo(a)pyrene			3.00E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Senzo(b)fluoranthene			4.30E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Benzo(g,h,i)perylene			3.10E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
enzo(k)fluoranthene			3.30E-02	1.0E-06	2,170	1.0		25	5	25	1,825	25,550
Chrysene			4.80E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Fluoranthene			7.00E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Indeno(1,2,3-cd)pyrene			2.40E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Phenanthrene			3.50E-02	1.0E-06	2,170	1.0		25	5	25	1,825	25,550
Pyrene			4.70E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
ois(2-Ethylhexyl)phthalate			7.70E-02	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Pesticides												
4'-DDD			6.46E-03	1.0E-06	2,170	1.0		25	\$	25	1.825	25.550
4,4'-DDE			4.82E-02	1.0E-06	2,170	1.0		25	5	25	1,825	25,550
4'-DDT			4.90E-03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Dieldrin			3.26E-03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Endosulfan I			1.43E-03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
ndosulfan II			3.05E-03	1.0E-06	2,170	1.0		25	2	25	1,825	25,550

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TABLE 7-38

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-17 Remedial Investigation Seneta Army Depot Activity

Analyte	Absorbed Dose (Nc)	Absorbed Dose (Car)	EPC Sediment	Conv. Factor	Skin Surface Area Contact	Adherence Factor (mg sed/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	
	(тржд-аау)	(ing/kg-day)	(Sv.Sm)	(9Av)						W. C.	Child(Nc)	Car
Metals										8		
			1 83E+04	1.0E-06	2,170	1.0		25	2	25	1,825	25,550
Aluminum			5 SOE+00	1.0E-06	2,170	1.0		25	s	25	1,825	25,550
Antimony			6 10F+00	1 0E-06	2,170	1.0		25	2	25	1,825	25,550
Arsenic			1 37F+07	1 OF-06	2 170	1.0		25	S	25	1,825	25,550
Barium			7.64E-01	1 OF-06	2 170	1.0		25	2	25	1,825	25,550
Beryllium	to Let		3 405 100	1 OF OF	2,170	1.0	0.01	25	2	25	1,825	25,550
Cadmium	1.43E-07		1 088404	1 OF-06	2,170	1.0		25	2	25	1,825	25,550
Calcium			2.47E+01	1 0F-06	2.170	1.0		25	2	25	1,825	25,550
Chromium			1 26E+01	1 0E-06	2,170	1.0		25	S	25	1,825	25,550
Cobalt			1 33F+07	1 0F-06	2.170	1.0		25	S	25	1,825	25,550
Copper			2 94E+04	1.0E-06	2,170	1.0		25	s	25	1,825	25,550
Iron			6.83E+02	1.0E-06	2,170	1.0		25	s	25	1,825	25,550
cad			5.54E+03	1.0E-06	2,170	1.0		25	v .	25	1,825	25,550
Magnesium			5.32E+02	1.0E-06	2,170	0.1		25	2	57	C78'I	25,530
Manganese			8,11E-02	1.0E-06	2,170	1.0		25	۰ ۷	25	1,825	066,62
Melculy			3.16E+01	1.0E-06	2,170	1.0		25	n	3	1,825	25,330
Nickel			2.18E+03	1.0E-06	2,170	1.0		25	s 1	52 52	1,825	000000
Saldin			1.27E+00	1.0E-06	2,170	1.0		52	0	9	270,1	00000
Sedim			4.27E+02	1.0E-06	2,170	1.0		25	· ·	2.2	1,825	25,550
Thellium			8.24E-01	1.0E-06	2,170	1.0		52	۰,	9 %	2001	25,55
Vanadium			2.97E+01	1.0E-06	2,170	1.0		25	n 1	25	1,825	25,530
Zinc			1.88E+02	1.0E-06	2,170	1.0		23	0	g	1,823	000,00
EQUATION:	1 1 2 2		6	6								
	Absorbed Dose (mg/kg-day) = CAXCEXSAIAFIABSILEXED BWxAT	y) = CSICEISA	BWXAT	TEN								
	Variables:				Assumptions:			Variables:			Assumptions:	
	CS = Chemical CF = Conversion	CS = Chemical Concentration in Sedi CF = Conversion Factor (10-6 kg/mg)	Concentration in Sediment (mg sediment/kg) Tactor (10-6 kg/mg)	sediment/kg)	EPC - Sediment Data - RME 10-6 2.170 (RME Child)	t Data - RME		EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (kg)	Frequency (even Duration (years) ht (kg)	ts/year)	25 (RME) 5 (RME) 25 kg (child)	
	AF =Sedimen ABS = Absor	AF =Sediment to Skin Adherence Factor (mg/cm²) ABS = Absorption Factor (unitless)	ce Factor (mg/cr less)	(FI	1.0 (RME all receptors) Compound Specific PC	1.0 (RME all receptors) Compound Specific PCBs and Cd, (EPA, 1992b)	d, (EPA, 1992b)	AT = Averaging Time (days)	Time (days)		5 x 365 (Nc), 70) x 365 (Car

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
Volatile Organics						
Acetone		1 1	1.00E-01	NA		
Toluene			1.20E-01	NA		
Semivolatile Organics						
2,4-Dimethylphenol			2.00E-02	NA		
2,4-Dinitrotoluene		1 1	2.00E-03	NA		
Benzo(a)anthracene		1 1	NA	1.46E+00		
Benzo(a)pyrene		1 1	NA	1.46E+01		
Benzo(b)fluoranthene	1	1 1	NA	1.46E+00		0
Benzo(g,h,i)perylene	1	1 1	NA	NA		
Benzo(k)fluoranthene		1 1	NA	1.46E+00		
Chrysene			NA 4 cor. co	1.46E-01		
Fluoranthene			4.00E-02	NA 1.46E+00		
Indeno(1,2,3-cd)pyrene			NA NA	1.46E+00 NA		
Phenanthrene		1 1	3.00E-02	NA NA		
Pyrene bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
Pesticides						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE		1 1	NA	NA		
4,4'-DDT		1 1	5.00E-04	3.40E-01		
Dieldrin		1 1	5.00E-05	1.60E+01		
Endosulfan I		1 1	6.00E-03	NA		
Endosulfan II			NA	NA		
Metals	1					
Aluminum			NA	NA		
Antimony		1 1	4.00E-04	NA		
Arsenic		1 1	2.94E-04	1.79E+00		
Barium	1		7.00E-03	NA 4 20E 102		
Beryllium	1 427 05	1 1	5.00E-06	4.30E+03	4.76E-03	
Cadmium	1.43E-07	1	3.00E-05 NA	NA NA	4.70E-03	
Calcium Chromium			2.50E-04	NA NA		
Cobalt		1 1	NA	NA NA		
Copper			2.00E-02	NA NA		
Iron			NA	NA NA		
Lead		1 1	NA	NA		
Magnesium		1	NA	NA		
Manganese			5.00E-03	NA		
Mercury		1 1	4.50E-05	NA		
Nickel		1 1	1.00E-03	NA		
Potassium		1 1	NA	NA		
Selenium		1 1	3.00E-03	NA		
Sodium			NA	NA		
Thallium		1 1	7.00E-05	NA		
Vanadium			7.00E-03	NA NA		
Zinc			1.50E-01	NA		1
Totals - HQ & CR	1	1 1			4.76E-03	

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor
Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

Page 1 of 2

CALCULATION OF INTAKE FROM THE INCESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child Intake (Nc)		EPC Sediment	Child Ingestion Rate (mg cod/day)	Conv. Factor	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	ging ee s)
	(mg/kg-day)	(mg/kg-day)	(SuSiii)	(in parametrial)	(G 6u)					Nc	Car
olatile Organics								95			
cotone	7.88E-09 4.38E-09		1.44E-02 8.00E-03	200	1.0E-06 1.0E-06		25	w w	25	1,825	25,550
emivolatile Organics											
4 Dimethylphanol	1 75E-08		3.20E-02	200	1.0E-06	-	25	2	25	1,825	25,550
4-Dinitrotolnene	1.72E-07		3.14E-01	200	1.0E-06	-	25	8	25	1,825	25,550
Jonas (alanthracene		9.78E-10	2.50E-02	200	1.0E-06	-	25	9	52	578,1	25,530
enzo(a)nyrene		1.17E-09	3.00E-02	200	1.0E-06	-	25	9	25	1,825	25,550
3enzo(h)fluoranthene		1.68E-09	4.30E-02	200	1.0E-06	-	25	n 1	0 8	1,625	25,550
Jenzo(g h i)pervlene			3.10E-02	200	1.0E-06	-	25	n 1	2 2	1,625	25,550
Benzo(k)fluoranthene		1.29E-09	3.30E-02	200	1.0E-06	-	52	n '	9 %	20,1	25,550
hrysene		1.88E-09	4.80E-02	200	1.0E-06	-	23	n (9 %	2001	25,550
Inocanthene	3.84E-08		7.00E-02	200	1.0E-06	-	25	0 '	9 2	500.	055.55
ndeno(1.2 3-cd)nyrene	A STANDARD S	9.39E-10	2.40E-02	200	1.0E-06	-	25	2	52	1,825	25,330
hannathrane			3.50E-02	200	1.0E-06	-	25	2	25	1,825	25,550
Person	2.58E-08		4.70E-02	200	1.0E-06	-	25	S	25	1,825	25,550
bis(2-Ethylhexyl)phthalate	4.22E-08	3.01E-09	7.70E-02	200	1.0E-06	-	25	s	2	1,825	055,52
Pesticides											
	3 54F-09	2 53F-10	6 46E-03	10.00	1.0E-06	-	25	9	25	1,825	25,550
4.4-DDE			4.82E-02	eers.	1.0E-06	,-	25	2	25	1,825	25,550
+,+-DDE	2 KRF-00	1 97F-10	4 90E-03		1.0E-06	-	25	2	25	1,825	25,550
4,4-001	1 700 00	1 275.10	1 26F-03		1.0E-06	_	25	2	25	1,825	25,550
Dieldrin	7 07 5 10		1 43E-03		1 0E-06	-	25	2	25	1,825	25,550
Endosultan I	01-770.7		3.05E-03	200	1.0E-06	-	25	8	25	1,825	25,550

TABLE 7-36

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE3 SEAD-17 Remedial Investigation Seneca Army Depot Activity

	Child Conv. Fraction Rate Factor Ingested Rate Factor Ingested Conv. Exactor Ingested Conv. Exactor Ingested Conv. C	Conv. Factor (kg/mg) (kg/mg) 1.0E-06 1.0E-06	Conv. Fraction Exposure E Factor Ingested Frequency I (kg/mg) (unitless) (days/year) [10E-06 1 25 10E-06 1 25 10E-06	Conv. Fraction Exposure Factor Ingested Frequency (kg/mg) (unitless) (days/year) 1.0E-06 1 25	Conv. Fraction Exposure Exposure Faction (kg/mg) (unitless) (days/year) (years) (real-note-of-of-of-of-of-of-of-of-of-of-of-of-of-
The state of the s		Fraction Ingested (unitless)	Fraction Exposure Ingested Frequency (unitless) (days/year) 1 25 1 25 1 25 1 25 1 25 1 25 1 25 1 2	Fraction Exposure Exposure Ingested Frequency Duration (days/year) (days/year) (vears)	Fraction Exposure Exposure Body Ingested Frequency Duration Weight Weight Weight Weight Measy Casts Casts

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SEDIMENT (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
olatile Organics						
Acetone	7.88E-09	27 27 5	1.00E-01	NA	7.88E-08	
Toluene	4,38E-09		2.00E-01	NA.	2.19E-08	
oldene						
Semivolatile Organics						
2.4-Dimethylphenol	1.75E-08		2.00E-02	NA	8.77E-07	1870
2.4-Dinitrotoluene	1.72E-07		2.00E-03	NA	8.61E-05	
Benzo(a)anthracene	10.000	9.78E-10	NA	7.30E-01		7.14E-10
		1.17E-09	NA	7.30E+00		8.57E-09
Benzo(a)pyrene		1.68E-09	NA	7.30E-01		1.23E-09
Benzo(b)fluoranthene		The car	NA	NA		50.0740.0000.0000.000
Benzo(g,h,i)perylene		1.29E-09	NA	7.30E-01		9.43E-10
Benzo(k)fluoranthene		1.88E-09	NA	7.30E-02		1.37E-10
Chrysene	3.84E-08	1.002.07	4.00E-02	NA	9.59E-07	
Fluoranthene	3.04E-08	9.39E-10	NA	7.30E-01		6.86E-10
indeno(1,2,3-cd)pyrene		9.352-10	NA	NA		
Phenanthrene	2.58E-08		3.00E-02	NA	8.58E-07	
Pyrene	4.22E-08	3.01E-09	2.00E-02	1.40E-02	2.11E-06	4.22E-11
bis(2-Ethylhexyl)phthalate	4.22E-08	3.012-09	2.002-02		1540-011/01/0	
Pesticides			Herein			
4,4'-DDD	3.54E-09	2.53E-10	5.00E-04	2.40E-01	7.08E-06	6.07E-11
4,4'-DDE			NA	NA	2000000000	4 COT 11
4,4'-DDT	2.68E-09	1.92E-10	5.00E-04	3.40E-01	5.37E-06	6.52E-11
Dieldrin	1.78E-09	1.27E-10	5.00E-05	1.60E+01	3.57E-05	2.04E-09
Endosulfan I	7.82E-10	5070700000	6.00E-03	NA	1.30E-07	
Endosulfan II			NA	NA		
Metals					133	10 10
			NA	NA		
Aluminum	3.01E-06	1	4.00E-04	NA	7.53E-03	
Antimony		2.39E-07	3.00E-04	1.75E+00	1.11E-02	4.17E-07
Arsenic	3.34E-06	2.39E-07	7.00E-02	NA	1.03E-03	WASHING AND
Barium	7.21E-05	2.99E-08	5.00E-03	4.30E+00	8.37E-05	1.29E-07
Beryllium	4.19E-07	2.99E-08	5.00E-04	NA NA	2.63E-03	
Cadmium	1.32E-06		NA NA	NA	DANCE:	1 9
Calcium			5.00E-03	NA.	2.70E-03	
Chromium	1.35E-05		NA NA	NA	2,,,,,	
Cobalt			4.00E-02	NA NA	1.83E-03	
Copper	7.31E-05			NA NA	1.052 05	
Iron			NA NA	NA NA		
Lead			150200	NA NA		
Magnesium			NA FOOT OF	NA NA	5.83E-02	
Manganese	2.92E-04		5.00E-03	NA NA	1.48E-04	
Mercury	4.44E-08		3.00E-04	NA NA	8.66E-04	
Nickel	1.73E-05		2.00E-02	NA NA	0,000	
Potassium	AUGUST STATE		NA COOP 03		1.39E-04	
Selenium	6.94E-07		5.00E-03	NA	1.59E-04	
Sodium			NA	NA	6.45E-03	
Thallium	4.51E-07		7.00E-05	NA	2.33E-03	
Vanadium	1.63E-05		7.00E-03	NA		
Zinc	1.03E-04		3.00E-01	NA	3.44E-04	
		1			9.57E-02	5.61E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

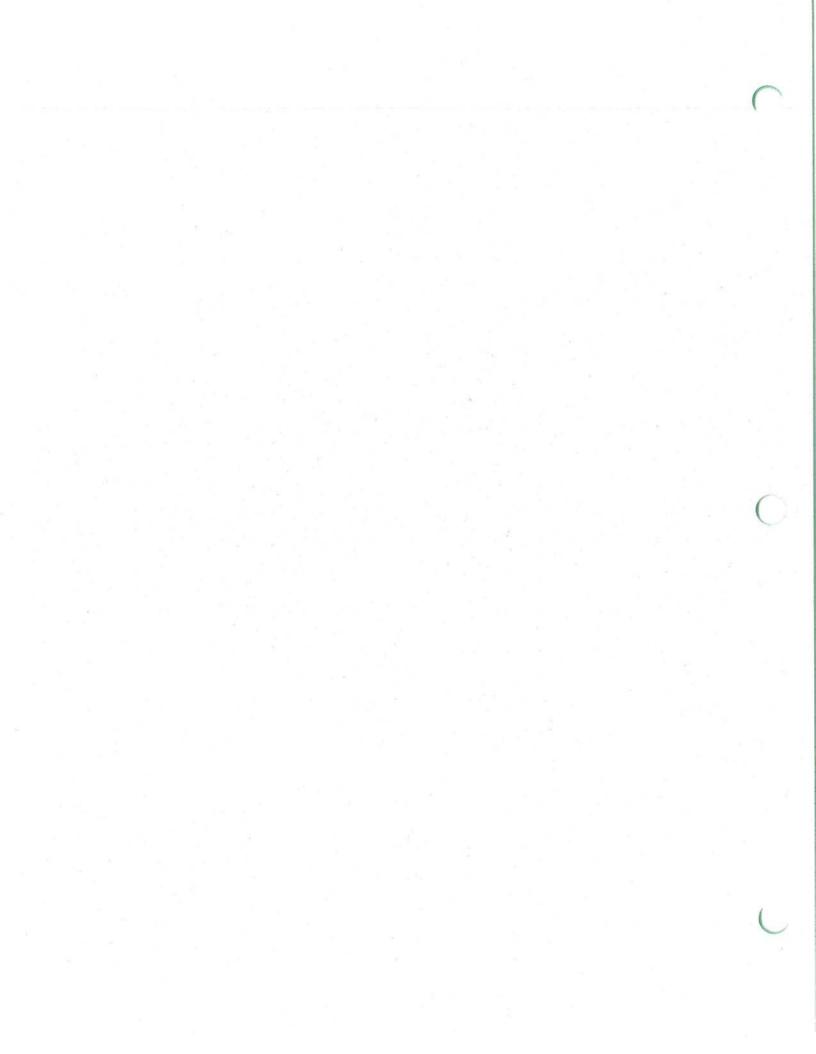


TABLE 7-20

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL
CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Nc) Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (d	Averaging Time (days)	
						er es		,		Nc	Car	
VOLATILE ORGANICS									3			
Acetone	3.31E-08		7.04E-03	480	1.00E-06		250		70	365	25,550	
Benzene		1.34E-10	2.00E-03	480	1.00E-06		250	1	70	365	25,550	
Methylene Chloride		0.00E+00	0.00E+00	480	1.00E-06	-	250		70	365	25,550	_
Toluene	3.11E-08	4.44E-10	6.62E-03	480	1.00E-06	-	250		70	365	25,550	
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene	1.34E-06		2.86E-01	480	1.00E-06	-	250	-	70	365	25.550	
2,6-Dinitrotoluene	0.00E+00		0.00E+00	480	1.00E-06		250	-	70	365	25,550	_
2-Methylnaphthalene			1.30E-01	480	1.00E-06		250	-	70	365	25,550	
2-Methylphenol	0.00E+00		0.00E+00	480	1.00E-06	_	250	-	70	365	25,550	_
3,3'-Dichlorobenzidine		1.69E-08	2.51E-01	480	1.00E-06	П	250		70	365	25,550	_
3-Nitroaniline			6.07E-01	480	1.00E-06	-	250		70	365	25,550	
4-Nitroaniline			6.07E-01	480	1.00E-06	-	250		70	365	25,550	
Acenaphthene	1.55E-07		3.30E-02	480	1.00E-06	-	250		70	365	25,550	_
Acenaphthylene	4.000 HOLD 0.0000		9.60E-02	480	1.00E-06	-	250	-	70	365	25,550	_
Anthracene	6.11E-07		1.30E-01	480	1.00E-06	-	250		70	365	25,550	_
Benzo(a)anthracene		2.40E-08	3.58E-01	480	1.00E-06	-	250	-	70	365	25,550	_
Benzo(a)pyrene		2.68E-08	3.99E-01	480	1.00E-06	-	250		70	365	25,550	_
Benzo(b)fluoranthene		2.62E-08	3.91E-01	480	1.00E-06	-	250		70	365	25,550	_
Benzo(g,h,i)perylene			3.17E-01	480	1.00E-06	_	250		70	365	25,550	_
Benzo(k)fluoranthene		2.04E-08	3.04E-01	480	1.00E-06	-	250	-	70	365	25,550	_
Butylbenzylphthalate	2.16E-07		4.60E-02	480	1.00E-06	-	250	-	70	365	25,550	_
Carbazole		1.75E-08	2.61E-01	480	1.00E-06	-	250		70	365	25,550	_
Chrysene	72475 244000 00	2.22E-08	3.31E-01	480	1.00E-06	-	250	1	70	365	25,550	_
Di-n-butylphthalate	1.42E-06	202	3.03E-01	480	1.00E-06	-	250	-	70	365	25,550	_

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-17 Remedial Investigation Seneca Army Depot Activity CASE 3

Analyte	Intake (Nc)	Intake (Car)	EPC Total Soils	Ingestion Rate (mg soil/dav)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
	(fing/vg/may)	(fun Sy/Siii)	(96)	((1)	0					Nc	Car
1 (- L) and because		1 96F-08	2 92F-01	480	1.00E-06		250	1	70	365	25,550
Olbenz(a,n)anunacene		2000	3 60F-02	480	1.00E-06		250	1	70	365	25,550
Dibenzoluran	1 575 06		3 34F-01	480	1 00E-06	-	250	-	70	365	25,550
Fluoranthene	1 70 日 07		3 80E-02	480	1 00F-06	-	250	_	70	365	25,550
Fluorene	1./0E-0/	3 205 08	3.47E-01	480	1 00F-06		250	-	70	365	25,550
Indeno(1,2,3-cd)pyrene		6 37E-00	0 SOF-02	480	1 00E-06		250	-	70	365	25,550
N-Nitrosodipnenyiamine (1)		0.375.0	3 70F-02	480	1.00E-06	-	250	1	70	365	25,550
Naphthalene	3 17E-06	4 54E-08	6.76F-01	480	1.00E-06	-	250		70	365	25,550
Pentachiorophenoi	2.17.700	2007	3 30F-01	480	1.00E-06	-	250	-	70	365	25,550
Prenantifiche	1 455-06		3 08F-01	480	1.00E-06	,-	250		70	365	25,550
l'yrene	1.045.06		2.05E 01	480	1 00F-06	_	250	-	70	365	25,550
bis(2-Chlorotsopropyl) effect	1.04E-06	2 17E-08	3.23E-01	480	1.00E-06	-	250	1	70	365	25,550
ois(z-Eurymexyr)phunarate	00-770	2									
PESTICIDES/PCB											
4. PDD	1 45F-08	2 08E-10	3.09E-03	480	1.00E-06	1	250	-	70	365	25,550
4. DDF			6.21F-03	480	1.00E-06		250	-	70	365	25,550
4,4-DDE	1 70E-08	2 43E-10	3 63F-03	480	1 00E-06	-	250	-	70	365	25,550
4,4-DD1	6 57E-00	0.31E-11	1 39F-03	480	1 00E-06	-	250	-	70	365	25,550
Aldrin	0.02500	0.005+00	0.00E+00	480	1 00E-06	-	250	-	70	365	25,550
Arocior-1234	0.005	1 77F-09	2 63E-02	480	1.00E-06	-	250	-	70	365	25,550
Alocioi-1200	2 12E-08	3 03F-10	4 51E-03	480	1.00E-06		250	-	70	365	25,550
Cleium Gadoculfan I	2 08F-08		4.43E-03	480	1.00E-06		250		70	365	25,550
Cindosulfan culfate	1.25F-08		2.66E-03	480	1.00E-06	-	250	-	70	365	25,550
Endosuman suman	1 53F-08		3.26E-03	480	1.00E-06	1	250	-	70	365	25,550
Endrin Lotone	2000		3 59E-03	480	1.00E-06	-	250	-	70	365	25,550
Lingtochlor enovide	0 00E+00	0 00F+00	0.00E+00	480	1.00E-06		250	-	70	365	25,550
Inchamilia operation	\$ 00F-09	7.14E-11	1.06E-03	480	1.00E-06	1	250	-	70	365	25,550
arpina-Cinorumic		1.04E-10	1.55E-03	480	1.00E-06	-	250	-	70	365	25,550
delte BIIC			1.40E-03	480	1.00E-06	-	250	-	70	365	25,550

Page 2 of 2

TABLE 7-20

CALCULATION OF INTAKE FROM INGESTION OF SURFACE & SUBSURFACE SOIL
CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
METALS										Nc	Car
Antimony	3.66E-05		7.79E+00	480	1.00E-06	; = =0	250		70	365	25,550
Arsenic	2.59E-05 5.90E-04	3.69E-07	5.51E+00 1.26E+02	480	1.00E-06	-	250		0 2 0 5	365	25,550
Cadmium	9.60E-06		2.04E+00	480	1.00E-06		250		20.	365	25,550
Copper	2.93E-04		6.25E+01 4.96E+02	480	1.00E-06	-	250	-110	07 0	365	25,550
Mercury	5.50E-07		1.17E-01	480	1.00E-06	-	250		70	365	25,550
Selenium	5.87E-06 3.47E-06		1.25E+00 7.38E-01	480	1.00E-06 1.00E-06		250		0 5	365	25,550
Zinc	7.31E-04		1.56E+02	480	1.00E-06		250		70	365	25,550
HERBICIDES											
MCPA	2.91E-05		6.20E+00	480	1.00E-06	-	250	П	70	365	25,550
EQUATION:	Intake (mg/kg-day) =	;-day) =	CS x IR x CE x F BW x AT	CSxIRxCFxFIxEFxED BWxAT							
	Variables:					Assumptions:	, sar				
	CS = Chemical Concen IR = Ingestion Rate (m) CF = Conversion Facto FI = Fraction Ingested EF = Exposure Freque ED = Exposure Duratic BW = Bodyweight (kg) AT = Averaging Time (CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FT = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	n in Soil (mg dday) 6 kg/mg) ess) days/years) ars)	soil/kg)		EPC - Soil Data (RME) 480 (RME Construction 10-6 11 (All Receptors) 250 (RME Construction 11 (Upper bound limit for 70 (Adult male) 1 x 365 (No. 70 x 365 (No. 10 x 365 (N	EPC - Soil Data (RME) 10-6 10 (All Receptors) 250 (RME Construction Worker) 1 (Upper bound limit for Constru 70 (Adult male) 1 x 365 (Nc) 70 x 365 (Car)	EPC - Soil Data (RME) 480 (RME Construction Worker) 10-6 11 (All Receptors) 250 (RME Construction Worker) 1 (Upper bound limit for Construction Worker) 70 (Adult male) 1 x 365 (Nc) 70 x 365 (Car)	rker)		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
• cxyalosovy	3.31E-08		1.00E-01	NA	3.31E-07	
Acetone	3.31L-00	1.34E-10	NA	2.90E-02		3.89E-12
Benzene		0.00E+00	NA	2.90E-02		0.00E+00
Methylene Chloride Toluene	3.11E-08	4.44E-10	6.00E-02	7.50E-03	5.19E-07	3.33E-12
SEMIVOLATILE ORGANICS						
2.4 Dinitratelyana	1.34E-06		2.00E-03	NA	6.71E-04	
2,4-Dinitrotoluene	0.00E+00	11.00	1.00E-03	NA	0.00E+00	
2,6-Dinitrotoluene	0.002700		NA	NA		
2-Methylnaphthalene	0.00E+00		5.00E-02	NA	0.00E+00	
2-Methylphenol	0.00E+00	1.69E-08	NA	4.50E-01	80.707.002 Cell	7.58E-09
3,3'-Dichlorobenzidine		1.09E*00	NA NA	NA NA		
3-Nitroaniline			NA NA	NA NA		
4-Nitroaniline	1.55E-07	+ 1-17	6.00E-02	NA NA	2.58E-06	
Acenaphthene	1.55E-07		NA	NA NA		
Acenaphthylene	C 11E 07		3.00E-01	NA NA	2.04E-06	
Anthracene	6.11E-07	2 405 08	NA	7.30E-01	2.0.12.00	1.76E-08
Benzo(a)anthracene		2.40E-08	NA NA	7.30E+00		1.95E-07
Benzo(a)pyrene		2.68E-08	NA NA	7.30E-00 7.30E-01		1.91E-08
Benzo(b)fluoranthene		2.62E-08		7.30E-01 NA		1.512.50
Benzo(g,h,i)perylene		0.045.00	NA NA	7.30E-01		1.49E-08
Benzo(k)fluoranthene		2.04E-08	NA 2 00F+00	7.30E-01 NA	1.08E-07	1.4715-00
Butylbenzylphthalate	2.16E-07		2.00E+00		1.000-07	3.50E-10
Carbazole		1.75E-08	NA	2.00E-02 7.30E-02		1.62E-09
Chrysene		2.22E-08	NA 1 00F 01	7.30E-02 NA	1.42E-05	1.0215-09
Di-n-butylphthalate	1.42E-06	2 2 2 2 2 2 2 2 2	1.00E-01		1.42E-03	1.43E-07
Dibenz(a,h)anthracene		1.96E-08	NA	7.30E+00		1.45E-07
Dibenzofuran		7	NA 1 cop oo	NA	3.92E-05	
Fluoranthene	1.57E-06		4.00E-02	NA		
Fluorene	1.78E-07	No. No. Market Marketon	4.00E-02	NA T 20T 01	4.46E-06	1.67E-08
Indeno(1,2,3-cd)pyrene		2.29E-08	NA	7.30E-01		3.12E-11
N-Nitrosodiphenylamine (1)		6.37E-09	NA	4.90E-03		3.12E-11
Naphthalene			NA	NA	1.000.04	5.44E-09
Pentachlorophenol	3.17E-06	4.54E-08	3.00E-02	1.20E-01	1.06E-04	5.44E-09
Phenanthrene			NA	NA	4 007 05	
Pyrene	1.45E-06		3.00E-02	NA	4.82E-05	
bis(2-Chloroisopropyl) ether	1.04E-06		1.00E-03	NA	1.04E-03	2.040.10
bis(2-Ethylhexyl)phthalate	1.52E-06	2.17E-08	2.00E-02	1.40E-02	7.60E-05	3.04E-10

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

(mg/kg-day) (mg/kg-day) (mg/kg-day) PESTICIDES/PCB	2.40E-01 NA 3.40E-01 1.70E+01 2.00E+00 7.70E+00 1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00 NA	2.91E-05 3.41E-05 2.17E-04 0.00E+00 4.24E-04 3.47E-06 2.50E-04 5.11E-05 0.00E+00 8.33E-05	4.98E-11 8.27E-11 1.58E-09 0.00E+00 1.36E-08 4.84E-09 0.00E+00 9.28E-11 1.88E-10
A,4'-DDE	NA 3.40E-01 1.70E+01 2.00E+00 7.70E+00 1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00	3.41E-05 2.17E-04 0.00E+00 4.24E-04 3.47E-06 2.50E-04 5.11E-05	8.27E-11 1.58E-09 0.00E+00 1.36E-08 4.84E-09 0.00E+00 9.28E-11
A,4'-DDE	NA 3.40E-01 1.70E+01 2.00E+00 7.70E+00 1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00	3.41E-05 2.17E-04 0.00E+00 4.24E-04 3.47E-06 2.50E-04 5.11E-05	8.27E-11 1.58E-09 0.00E+00 1.36E-08 4.84E-09 0.00E+00 9.28E-11
1.70E-08	3.40E-01 1.70E+01 2.00E+00 7.70E+00 1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00	2.17E-04 0.00E+00 4.24E-04 3.47E-06 2.50E-04 5.11E-05	1.58E-09 0.00E+00 1.36E-08 4.84E-09 0.00E+00 9.28E-11
Aldrin Aldrin Aroclor-1254 Aroclor-1260 Dieldrin Endosulfan I Endosulfan sulfate Endrin Endrin Endrin Endosulfan Seric Endrin Endosulfan Seric Endrin Endosulfan Seric Endrin End	1.70E+01 2.00E+00 7.70E+00 1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00	2.17E-04 0.00E+00 4.24E-04 3.47E-06 2.50E-04 5.11E-05	1.58E-09 0.00E+00 1.36E-08 4.84E-09 0.00E+00 9.28E-11
Aroclor-1254 Aroclor-1260 Dieldrin Diel	2.00E+00 7.70E+00 1.60E+01 NA NA NA 9.10E+00 1.30E+00 1.80E+00	0.00E+00 4.24E-04 3.47E-06 2.50E-04 5.11E-05 0.00E+00	0.00E+00 1.36E-08 4.84E-09 0.00E+00 9.28E-11
Aroclor-1260 Dieldrin	7.70E+00 1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00	4.24E-04 3.47E-06 2.50E-04 5.11E-05	1.36E-08 4.84E-09 0.00E+00 9.28E-11
Dieldrin 2.12E-08 3.03E-10 5.00E-05	1.60E+01 NA NA NA NA 9.10E+00 1.30E+00 1.80E+00	3.47E-06 2.50E-04 5.11E-05 0.00E+00	4.84E-09 0.00E+00 9.28E-11
Endosulfan I	NA NA NA 9.10E+00 1.30E+00 1.80E+00	3.47E-06 2.50E-04 5.11E-05 0.00E+00	0.00E+00 9.28E-11
Endosulfan sulfate 1.25E-08 1.53E-08 3.00E-05 3.00E-04 NA Endrin ketone 0.00E+00 0.00E+00 1.30E-05 alpha-Chlordane beta-BHC 0.00E-09 7.14E-11 1.04E-10 NA METALS 1.66E-05 1.04E-10 NA METALS 1.66E-05 1.69E-07 3.00E-04 7.00E-02 Cadmium 9.60E-06 5.00E-04 4.00E-02 Cadmium 9.60E-06 Copper 2.93E-04 4.00E-02	NA NA NA 9.10E+00 1.30E+00 1.80E+00	2.50E-04 5.11E-05 0.00E+00	9.28E-11
Endrin	NA NA 9.10E+00 1.30E+00 1.80E+00	5.11E-05 0.00E+00	9.28E-11
Endrin ketone Heptachlor epoxide alpha-Chlordane beta-BHC delta-BHC Antimony Arsenic Barium Cadmium Copper Endrin ketone 0.00E+00 0.00E+00 0.00E+00 1.30E-05 6.00E-05 1.04E-10 NA NA NA NA 4.00E-04 7.00E-02 5.00E-04 5.00E-06 5.00E-04 4.00E-04 4.00E-02	NA 9.10E+00 1.30E+00 1.80E+00	0.00E+00	9.28E-11
Heptachlor epoxide	9.10E+00 1.30E+00 1.80E+00	Control of the Contro	9.28E-11
Alpha-Chlordane	1.30E+00 1.80E+00	Control of the Contro	9.28E-11
beta-BHC 1.04E-10 NA METALS 3.66E-05 4.00E-04 Antimony 2.59E-05 3.69E-07 3.00E-04 Barium 5.90E-04 7.00E-02 Cadmium 9.60E-06 5.00E-04 Copper 2.93E-04 4.00E-02	1.80E+00	8.33E-05	
METALS Antimony Arsenic Barium 5.90E-04 Copper 3.66E-05 3.69E-07 3.00E-04 7.00E-02 5.00E-04 5.00E-04 2.93E-04 4.00E-02			1.88E-10
Antimony 3.66E-05 4.00E-04 Arsenic 2.59E-05 3.69E-07 3.00E-04 Barium 5.90E-04 7.00E-02 Cadmium 9.60E-06 5.00E-04 Copper 2.93E-04 4.00E-02	NA		
Antimony 3.66E-05 4.00E-04 Arsenic 2.59E-05 3.69E-07 3.00E-04 Barium 5.90E-04 7.00E-02 Cadmium 9.60E-06 5.00E-04 Copper 2.93E-04 4.00E-02			
Arsenic 2.59E-05 3.69E-07 3.00E-04 Barium 5.90E-04 7.00E-02 Cadmium 9.60E-06 5.00E-04 Copper 2.93E-04 4.00E-02			
Arsenic 2.59E-05 3.69E-07 3.00E-04 Barium 5.90E-04 7.00E-02 Cadmium 9.60E-06 5.00E-04 Copper 2.93E-04 4.00E-02	NA	9.15E-02	
Cadmium 9.60E-06 5.00E-04 Copper 2.93E-04 4.00E-02	1.75E+00	8.62E-02	6.47E-07
Copper 2.93E-04 4.00E-02	NA	8.42E-03	
Copper 2.93E-04 4.00E-02	NA	1.92E-02	
	NA	7.34E-03	
Lead NA	NA	20724574578	
Mercury 5.50E-07 3.00E-04	NA	1.83E-03	
Selenium 5.87E-06 5.00E-03	NA NA	1.17E-03	
Silver 3.47E-06 5.00E-03	NA NA	6.93E-04	
Zinc 7.31E-04 3.00E-01	NA	2.44E-03	
HERBICIDES			
MCPA 2.91E-05 5.00E-04	NA	5.83E-02	
Totals - HQ & CR		2.80E-01	1.09E-06

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (d	Averaging Time (days)
	(11000	(6.6.)							000000	Nc	Car
VOLATILE ORGANICS												
Acetone			7.04E-03	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzene			2.00E-03	1.00E-06	5,800	1.0		250	_	70	365	25,550
Methylene Chloride Toluene			6.62E-03	1.00E-06 1.00E-06	5,800	1.0		250		70	365	25,550
SEMIVOLATILE ORGANICS					1							
2 4 Dinitrateduana			2.86E-01	1.00E-06	5.800	1.0		250	1	70	365	25,550
2,4-Dimitotoliuma			-	1.00E-06	5.800	1.0		250	1	70	365	25,550
2,0-Dimuotoluciae			1.30E-01	1.00E-06	5.800	1.0		250	-	70	365	25,550
2-Methylphenol				1.00E-06	5,800	1.0		250	-	70	365	25,550
3 3'-Dichlorobenzidine			2.51E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
3-Nitroaniline			6.07E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
4-Nitroaniline			6.07E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Acenaphthylene			9.60E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Anthracene			1.30E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzo(a)anthracene		1	3.58E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzo(a)nyrene			3.99E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzo(h)fluoranthene			3.91E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Benzola h i)nervlene			3.17E-01	1.00E-06	5.800	1.0		250	-	70	365	25,550
Benzo(k)fluoranthene			3.04E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Butylbenzylphthalate			4.60E-02	1.00E-06	5,800	1.0		250	-	70	365	25,550
Carbazole			2.61E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Chrysene			3.31E-01	1.00E-06	5,800	1.0		250	-	70	365	25,550
Di-n-hydrohydrate			3 03E-01	1.00E-06	5 800	10		250	-	70	365	25,550

TABLE 7-28

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

ging ne (s)	Car	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550
Averaging Time (days)	Nc	365	365	365	365	365	365	365	365	365	365	365	365		365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Body Weight (kg)		10	70	70	70	70	70	70	07	70	70	70	70		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Exposure Duration (years)		-	-	_	_	-	-	-	-	-	-	_	-		-	-	-	-	-	-	-	-	-	-	-	-		-	-
Exposure Frequency (days/year)		250	250	250	250	250	250	250	250	250	250	250	250		250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Absorption Factor (unitless)																				90.0									
Adherence Factor (mg soil/cm²)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Skin Surface Area Contact (cm²)		5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800		5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800	5,800
Conv. Factor (kg/mg)	i	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
EPC Total Soils (mg/kg)))	2.92E-01	3.60E-02	3.34E-01	3.80E-02	3.42E-01	9.50E-02	3.70E-02	6.76E-01	3.30E-01	3.08E-01	2.21E-01	3.23E-01		3.09E-03	6.21E-03	3.63E-03	1.39E-03		2.63E-02	4.51E-03	4.43E-03	2.66E-03	3.26E-03	3.59E-03		1.06E-03	1.55E-03	1.40E-03
Dose (Car) (mg/kg-day)																				1.281E-09									
Dose (Nc) (mg/kg-day)																				8.964E-08									
Analyte		Dibenz(a.h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	N-Nitrosodiphenylamine (1)	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	bis(2-Chloroisopropyl) ether	bis(2-Ethylhexyl)phthalate	PESTICIDES/PCB	4.4'-DDD	4.4-DDE	4.4DDT	Aldrin	Aroclor-1254	Aroclor-1260	Dieldrin	Endosulfan I	Endosulfan sulfate	Endrin	Endrin ketone	Heptachlor epoxide	alpha-Chlordane	heta-BHC	delta-BHC

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Dose (Nc)	Dose (Car)	EPC Total Soils	Conv. Factor	Skin Surface Area Contact	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/vear)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	eraging Time (days)
	(mg/kg-day)	(mg/ng-uay)	(mg/kg)	(NE/IIIE)	(cm)	(aros 9)	(coamm)	(()		ò	Nc	Car
METALS												
Andimonia			7.79E+00	1.00E-06	5,800	1.0		250	-	70	365	25,550
Arsenic			5.51E+00	1.00E-06	5,800	1.0		250		0,0	365	25,550
Barium			1.26E+02	1.00E-06	5,800	0.1		250		70	365	25,550
Cadmium			2.04E+00	1.00E-06	5,800	0.1		250		70	365	25,550
Copper			4.96E+02	1.00E-06	5,800	1.0		250		70	365	25,550
Mercury			1.17E-01	1.00E-06	5,800	1.0		250		70	365	25,550
Selenium			1.25E+00	1.00E-06	5,800	0.1		250		9 6	365	25,550
Silver			7.38E-01 1.56E+02	1.00E-06	5,800	0.1		250		02	365	25,550
HERBICIDES												
MCBA			6.20E+00	1.00E-06	5,800	1.0		250	1	70	365	25,550
MCFA												
FOITATION:												
	Absorbed Do	Absorbed Dose (mg/kg-day) = CSxCExSAxAExABSxEExED BW xAT	CSxCFxSAx	AF X ABS X E BW X AT	ExED							
Variables:			Assumptions:				Variables:		8	Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg)	il (mg soil/kg)		EPC - Soil Data (RME)	(RME)			EF = Exposur	EF = Exposure Frequency (days/year)	ys/year)	250 (RME Construction Worker)	struction Work	er)
CF = Conversion Factor (10-6 kg/mg)	(B)		9-01				ED = Exposur	ED = Exposure Duration (years)	s)	1 (Upper bound limit for CW)	limit for CW)	
SA = Surface Area Contact (cm²)		3.5	5,800 (RME Adult Worker)	luit Worker)			BW = Bodyweight (kg)	iignt (kg)		1 v 365 (Nc) 70 v 365 (Car)	x 365 (Car)	
AF =Soil to Skin Adherence Factor (mg/cm²)	(mg/cm2)		1.0 (RME - All Receptors)	Keceptors)	701 100	-	Al = Averagi	A1 = Averaging Lime (uays)		or (avi) coc v t	A 202 (Cat)	
ABS = Absorption Factor (unitless)			Applicable for	PCBs and Cad	Applicable for PCBs and Cadmium (EPA, 1992b)	(97,						

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS					F 1 25	
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			5.00E-02	NA		
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA		
Dibenz(a,h)anthracene			NA	1.46E+01		
Dibenzofuran			NA	NA		
Fluoranthene			4.00E-02	NA	-	
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE & SUBSURFACE SOIL CONSTRUCTION WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
PESTICIDES/PCB						
			5.00E-04	2.40E-01		
4,4'-DDD			NA	NA NA		
4,4'-DDE				3.40E-01		
4,4'-DDT			5.00E-04	1.70E+01		
Aldrin	100000		3.00E-05	2.11E+00		70
Aroclor-1254	1000010004000 0400000		1.90E-05	8.11E+00		1.04E-08
Aroclor-1260	8.96E-08	1.28E-09	NA			1.04L-00
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA NA		
Endosulfan sulfate	1.00		5.00E-05	NA		
Endrin			3.00E-04	NA		100
Endrin ketone			NA	NA		
Heptachlor epoxide	1000		1.30E-05	9.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC	100		NA	1.80E+00		
delta-BHC	15		NA	NA		
METALS						1
A			4.00E-04	NA		lied.
Antimony Arsenic	1.6		2.94E-04	1.79E+00		
Barium	ASS.		7.00E-03	NA		
Cadmium			3.00E-05	NA		
			2.00E-02	NA		
Copper	In the state of the		NA	NA		
Lead	100		4.50E-05	NA		
Mercury	A.		3.00E-03	NA		
Selenium	1 1001		5.00E-03	NA		
Silver			1.50E-01	NA		
Zinc			*********			
HERBICIDES						
MCPA			5.00E-04	NA		
				177		
	I STATE OF					1.04E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SURFACE WATER FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	2.74E-07	1.96E-08	2.00E-02	1.40E-02	1.37E-05	2.74E-10
ois(2 Daily mexy 1)phalacate	2.712 07	11302 00	2.002.02	11.02.02		
METALS						
Antimony	3.03E-06		4.00E-04	NA	7.57E-03	
Arsenic	5.84E-07	4.17E-08	3.00E-04	1.75E+00	1.95E-03	7.30E-08
Barium	9.89E-06	***************************************	7.00E-02	NA	1.41E-04	
Cadmium	1.07E-07		5.00E-04	NA	2.14E-04	
Calcium			NA	NA		
Chromium	8.64E-08		5.00E-03	NA	1.73E-05	
Copper	2.64E-06		4.00E-02	NA	6.59E-05	
Iron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	1.64E-06		5.00E-03	NA	3.28E-04	
Nickel	1.42E-07		2.00E-02	NA	7.08E-06	
Potassium			NA	NA		
Selenium	4.42E-07		5.00E-03	NA	8.84E-05	
Sodium			NA	NA		
Vanadium	1.23E-07		7.00E-03	NA	1.76E-05	
Zinc	4.97E-06		3.00E-01	NA	1.66E-05	
Totals - HQ & CR					1.04E-02	7.33E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

3.3E-02 1 1.0E-03 1 1.0E-04 1 1.0E-03 1 1.0E-0	Table to the state of the state	tact	Coefficient Time Free	Exposure Exposure Frequency Duration	Volumetric Conv. Factor	B (unitless)	Tau (hours)	Body Weight	Averaging Time (days)	ging e ()
1.64E-07	(many magni)	(cm/nr)			1	(committee)	(1)		Child (Nc)	Car
1.64E-07 1.17E-08 8.36E-04 2.00E-03 2,170 3.3E-02 1 1.31E-10 2.21E-05 2.21E-02 2,170 1.0E-03 1 2.54E-11 1.81E-12 7.22E-05 7.22E-02 2,170 1.0E-03 1 4.56E-12 4.56E-03 7.22E-02 2,170 1.0E-03 1 1.50E-11 1.26E-06 4.26E-03 2,170 1.0E-03 1 1.50E-11 2.21E-05 7.22E-07 2,170 1.0E-03 1 1.50E-11 1.26E-06 6.31E-04 2,170 1.0E-03 1 1.50E-11 1.03E-07 1.03E-01 2,170 1.0E-03 1 1.92E-11 1.00E-07 1.03E-03 2,170 1.0E-03 1 2.35E-03 3.3E-03 3.2E+00 2,170 1.0E-03 1 3.35E-03 3.25E+00 2,170 1.0E-03 1 3.35E-03 3.25E+00 2,170 1.0E-03 1 3.35E-03 3.35E-03 3.35E-03 2,170 1.0E-03 1 3.35E-03 3.35E-03 3.37E-03 2,170 1.0E-03 1 3.35E-03 3.35E-03 3.370 1.0E-03 1 3.35E-03 3.35E-03 3.30E-03 3.30E-03 1 3.35E-03 3.35E-03 3.30E-03 3.30E-03 1	AND						-1			
1.31E-10 2.21E-05 2.21E-02 2.170 1.0E-03 1.0E-03 4.29E-10 1.30E-11 1.30E-11 1.30E-11 1.30E-11 1.30E-11 1.31E-12 1.31E-10 1.32E-10 1.33E-02 2.170 1.0E-03	8.36E-04		-	25 5	1.0E-03	1.30E+01	2.10E+01	25	1,825	25,550
1.31E-10										
1.50E-11 1.81E-12 4.26E-06 4.26E-03 2,170 1.0E-03 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	989		1	25 5	1.0E-03	NA	NA	25	1,825	25,550
Mariables: A 4.29E-10	4.26E-06	Variety Carrety	-	25 5	1.0E-03	NA.	Y.	25	1,825	25,550
Mariables: A.65E-12				25 5	1.0E-03	A X	A N	2 %	1,825	055,550
1.50E-11					1.0E-03	N AN	NA	25	1.825	25,550
1.93E-02 1.93E-02 2.170 NA 1				25 5	1.0E-03	NA	N'A	25	1,825	25,550
ium 7.12E-11 1.93E-04 1.93E-01 2,170 1.0E-03 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			-		1.0E-03	NA	NA	25	1,825	25,550
tum 7.12E-11 8.90E-07 3.71E-02 2,170 4.0E-06 1 6.14E-07 6.14E-07 2,170 4.0E-06 1 1.0E-03 1 1.0E-	_		-		1.0E-03	NA	NA	25	1,825	25,550
Same Carrell Same	-		-		1.0E-03	NA	NA VA	25	1,825	25,550
7.12E-11			-	1	1.0E-03	NA	NA	25	1,825	25,550
Column C	-		-		1.0E-03	NA	NA	25	1,825	25,550
TION: Absorbed Dose (mg/kg-day) = DAxSAxKpxETxEExEDxCE Wm 1.92E-11 3.52E-63 3.52E+00 2,170 1.0E-03 1.0E			-	25 5	1.0E-03	ZA	NA	25	1,825	25,550
ON: 1.92E-11 2.32E-06 3.23E-03 7.03E-03 7.03E-03 7.05E-01 7.05E-11 2.18E-05 9.00E-04 2.170 1.0E-03 1.0E-04 1.0E-03 1.0E-03 1.0E-04 1.0E-03		_	-		1.0E-03	N'A	NA VA	25	1,825	25,550
In 2.13E+00 2,170 1.0E-03 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			-	25 5	1.0E-03	AN	NA	25	1,825	25,550
TION: Absorbed Dose (mg/kg-day) = DAxSAxKpxETxEExEDxCE Wariables: 9,00E-04 2,170 1.0E-03 1 2,18E-05 3,63E-02 2,170 6,0E-04 1 EWyAT Assumptions:	Ì		-	25 5	1.0E-03	AN	NA	25	1,825	25,550
7.76E-11			-	25 5	1.0E-03	A'A	NA	25	1,825	25,550
Absorbed Dose (mg/kg-day) = DAxSAxKpxETxEFxEDxCF BWxAT Variables:			-	25 5	1.0E-03	NA A	NA	25	1,825	25,550
Absorbed Dose (mg/kg-day) = DAxSAxKpxETxEFxEDxCF BWxAT Variables:										
BW x A I. Assumptions:	/kg-day) = DAxSAxKpxETxEFxEDxC	(E)								
Assumptions:	BW x A I									
	A	ssumptions:	Va	Variables:			Assumptions:	.005.		
A, 1992		alculated from EPA, 1992	EF	EF = Exposure Frequency (days/year)	ency (days/year)		25			
ME Child) nd Specific, EPA, 1992	n/hour)	170 (RME Child) ompound Specific, EPA, 19		ED = Exposure Duration (years) CF = Vol. Conv. Factor (1 L/1000 cm²)	ion (years) or (1 L/1000 cm³)		5 (RME) 0.001			
ET = Exposure Time (hours/day) 1 (RME) B Tan = 1 ser time (hours/day) Compound Specific, EPA, 1992 B		(RME) ompound Specific, EPA, 1		BW = Bodyweight (kg) B = Bunge Model Value	D ue		Compound	Compound Specific, EPA, 1992	PA, 1992	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SURFACE WATER (while Wading) FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg)	Child CDI (Car) (mg/kg)	Dermal RfD (mg/kg/day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	1.64E-07	1.17E-08	2.00E-02	1.40E-02	8.20E-06	2.30E-09
METALS						
Antimony	1.31E-10		4.00E-04	NA	3.28E-07	
Arsenic	2.54E-11	1.81E-12	2.94E-04	1.79E+00	8.62E-08	4.54E-11
Barium	4.29E-10		7.00E-03	NA	6.13E-08	
Cadmium	4.65E-12		3.00E-05	NA	1.55E-07	
Calcium			NA	NA		
Chromium	1.50E-11		2.50E-04	NA	6.00E-08	
Copper			2.00E-02	NA		
Iron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	7.12E-11		5.00E-03	NA	1.42E-08	
Nickel	6.14E-14		1.00E-03	NA	6.14E-11	
Potassium			NA	NA		
Selenium	1.92E-11		3.00E-03	NA	6.40E-09	
Sodium			NA	NA		
Vanadium	5.35E-12		7.00E-03	NA	7.64E-10	
Zinc	7.76E-11		1.50E-01	NA	5.17E-10	
Totals - HQ & CR					8.91E-06	2.34E-09

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SURFACE WATER (while Wading)
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

1.96E-08 2.00E-03 0.05 1 4.17E-08 4.26E-03 0.05 1 7.22E-02 0.05 1 7.22E-02 0.05 1 7.22E-04 0.05 1 7.22E-04 0.05 1 7.22E-04 0.05 1 6.31E-04 0.05 1 1.93E-01 0.05 1 1.93E-01 0.05 1 1.93E-01 0.05 1 1.93E-02 0.05 1 1.03E-00 0.05 1 1.03E	Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Surface W. (mg/L)	Contact Rate (L/hr)	Exposure Time (hr/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	ging re s)
2.74E-07 1.96E-08 2.00E-03 0.05 1 3.03E-06 3.88E-07 4.17E-08 4.26E-03 0.05 3.88E-07 4.17E-08 4.26E-03 0.05 1.07E-07 7.22E-02 0.05 1 3.64E-06 6.32E+01 0.05 1 2.64E-06 6.31E-04 0.05 1 1.93E-07 0.05 1 1.93E-07 0.05 1 1.93E-07 0.05 1 1.20E-07			-					XXXIII SAUVA		Child(Nc)	Car
3.03E-06 5.84E-07 6.32E-03 7.22E-02 7.22E-03 7.22E-04 7.22E-05 7.22E-04 7.22E-07 7.22E-07 7.23E-07 7.22E-07 7.2	SEMIVOLATILE ORGANICS			A.0 207				on He			
3.03E-06 5.84E-07 5.84E-07 7.21E-02 0.05 1.07E-07 7.22E-02 0.05 1.07E-07 8.64E-08 0.05 1.03E-04 0.05 1.04E-06 1.03E-07 0.05 1.03E-01 0.05 1.04E-06 1.03E-07 0.05 1.03E-07	bis(2-Ethylhexyl)phthalate	2.74E-07	1.96E-08	2.00E-03	0.05	-	25	5	25	1,825	25,550
3.03E-06 5.84E-07 5.84E-07 7.22E-02 0.05 1.07E-07 1.07E-07 0.85E-04 0.05 1.07E-07 0.05 1.07E-07 0.05 1.03E-04 0.05 1.03E-04 0.05 1.03E-04 0.05 1.03E-04 0.05 1.03E-07 0.05 0.05 1.03E-07 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.	METALS									100	
5.84E-07 9.89E-06 1.07E-07 1.07E-07 1.07E-07 1.07E-07 1.07E-07 1.07E-04 1.07E-04 1.07E-04 1.07E-04 1.07E-04 1.07E-04 1.03E-04 1.03E-04 1.03E-04 1.03E-04 1.03E-03 1.03E-04 1.03E-03 1.03E-04 1.03E-03 1.0	Antimony	3.03E-06		2.21E-02	0.05	-	25	s	25	1,825	25,550
m 8.64E-08 7.32E-02 0.05 1 1.07E-07 7.32E-04 0.05 1 8.64E-08 6.31E-04 0.05 1 1.93E-01 0.05 1 1.93E-01 0.05 1 1.93E-01 0.05 1 1.93E-02 0.05 1 1.93E-01 0.05 1 1.93E-01 0.05 1 1.93E-07 8.90E+00 0.05 1 1.03E-07 0.05 1 2.03E-00 0.05 1 2.	Arsenic	5.84E-07	4.17E-08	4.26E-03	0.05	-	25	S	25	1,825	25,550
m 8.64E-08 6.31E-04 0.05 1 2.64E-06 1.93E-01 0.05 1 1.93E-07 0.05 1 1.03E-07 0.05 1 1.20E-07 0.05 1 1.20E-07 0.05 1 1.20E-07 0.05 1 1.20E-07 0.05 1 1.23E-07 0.05 1 2.34E-00 0.05 1 1.35E-07 0.05 1 2.35E-00 0.05 1 1.35E-07 0.05 1 2.35E-00 0.05 1 2.36E-00 0.05 1 2.3	Barium	9.89E-06		7.22E-02	0.05		25	s, s	25	1,825	25,550
m 8.64E-08 6.31E-04 0.05 1 2.64E-06 1.93E-02 0.05 1 see 1.64E-06 1.93E-01 0.05 1 see 1.64E-06 1.03E-02 0.05 1 1.64E-07 8.90E-00 0.05 1 1.03E-07 0.05 1 3.52E-00 0.05 1 1.23E-07 0.05 1 3.52E-00 0.05 1 1.23E-07 0.05 1 3.63E-02 0.05 1 1.23E-07 0.05 1 2.23E-00 0.05 1 3.63E-02 0.05 1 1.23E-07 0.05 1 2.24E-07 0.05 1 3.63E-02 0.05 1 BW xAT Variables: CS = Chemical Concentration in Surface Water (mg/L) CR = Contact Rate (Liters/hour) ET = Exposure Time (hours/day) ET = Exposure Time (hours/day) ET = Exposure Time (hours/day)	Cadmium	1.0/E-0/		6.32E+01	0.05		25	יא ה	22 23	1,825	25,550
um 1.64E-06 1.93E-02 1.93E-01 1.64E-06 1.64E-06 1.64E-07 1.64E-07 1.64E-07 1.65E-07 1.	Chromium	8.64E-08		6.31E-04	0.05	_	25	S	25	1,825	25,550
1.54E-06	Copper	2.64E-06		1.93E-02	0.05		25	v, v	25	1,825	25,550
1.64E-06	Iron			3.71E-02	0.05		25 23	מי ח	2 22	1,825	25,550
1.64E-06	Magnesium	4.0		8.90E+00	0.05	-	25	5	25	1,825	25,550
1.42E-07	Manganese	1.64E-06		1.20E-02	0.05	-	25	2	25	1,825	25,550
A 42E-07 3.52E+00 0.05 1 3.23E-03 0.05 1 1.23E-07 3.63E-02 0.05 1 4.97E-06 3.63E-02 0.05 1 Same	Nickel	1.42E-07		1.03E-03	0.05	-	25	5	25	1,825	25,550
ON: 4.42E-07	Potassium	100000000000000000000000000000000000000		3.52E+00	0.05	_	25	5	25	1,825	25,550
1.23E-07	Selenium	4.42E-07		3.23E-03	0.05		25	0 4	57	1,825	25,550
ATION: Labeles: Variables: CS = Chemical Concentration in Surface Water (mg/L) CR = Contact Rate (Liters/hour) ET = Exposure Frequency (days/year) ED = Exposure Frequency (days/year)	Sodium	1 73E 07		0.03E+00	0.03		25	۷ ر	25	1,825	25.550
Intake (mg/kg-day) = CSxCRxETxEFxED Wariables: CS = Chemical Concentration in Surface Water (mg/L) CR = Contact Rate (Liters/hour) ET = Exposure Time (hours/day) EF = Exposure Prequency (days/year) EF = Exposure Prequency (days/year)	Vanadium Zinc	4.97E-06		3.63E-02	0.05		25	٠٧	25	1,825	25,550
	EQUATION:		Intake (mg/k	g-day) =	CSXCRXE	Lx EF x ED			0		ul.
		Variables:					Assumptions				
year)		CS = Chemic	al Concentrati	on in Surface V	Vater (mg/L)		EPC - Surfac	e Water Data -	RME		
	División de	CR = Contac ET = Exposu	et Rate (Liters/l ire Time (hours	hour) (day)			0.05 (all recr 1 (RME - all	eators) recreators)			
		EF = Exposi ED = Exposi	ure Frequency ire Duration (y	(days/year) ears)			25 5 (RME)				
$BW = Bodyweight (kg)$ $AT = Averaging Time (flave)$ $5 \times 365 (Ne). 70 \times 365 (Car)$		BW = Bodyv	veight (kg)	-			25 (Child) 5 x 365 (Nc).	70 x 365 (Car)			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

Page 1 of 1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SURFACE WATER FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
SEMIVOLATILE ORGANICS						
bis(2-Ethylhexyl)phthalate	2.74E-07	1.96E-08	2.00E-02	1.40E-02	1.37E-05	2.74E-10
METALS						
Antimony	3.03E-06		4.00E-04	NA	7.57E-03	
Arsenic	5.84E-07	4.17E-08	3.00E-04	1.75E+00	1.95E-03	7.30E-08
Barium	9.89E-06		7.00E-02	NA	1.41E-04	
Cadmium	1.07E-07		5.00E-04	NA	2.14E-04	
Calcium			NA	NA		
Chromium	8.64E-08		5.00E-03	NA	1.73E-05	
alcium hromium opper	2.64E-06		4.00E-02	NA	6.59E-05	
Iron			NA	NA		
Lead			NA	NA		
Magnesium			NA	NA		
Manganese	1.64E-06		5.00E-03	NA	3.28E-04	
Nickel	1.42E-07		2.00E-02	NA	7.08E-06	
Potassium			NA	NA		
Selenium	4.42E-07	1	5.00E-03	NA	8.84E-05	
Sodium	Andrew Court		NA	NA		
Vanadium	1.23E-07	}	7.00E-03	NA	1.76E-05	
Zinc	4.97E-06		3.00E-01	NA	1.66E-05	
Totals - HQ & CR					1.04E-02	7.33E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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TABLE 7-22

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child Intake (Nc) (mg/kg-day)	Child Intake (Car) (mg/kg-dav)	EPC Soil (mg/kg)	Child Ingestion Rate (mg soil/dav)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Child Exposure Duration (vears)	Child Body Weight (kg)	Aver Ti (d¢	Averaging Time (days)
))		ò		10			ì	ò	Nc	Car
VOLATILE ORGANICS							6.5				
Acetone	7 71E-00		7 04E-03	200	1 0F-06	-	20	V	35	1 825	25
Benzene		1.57E-10	2.00E-03	200	1.0E-06		50	n vo	25	1,825	25,550
Methylene Chloride				200	1.0E-06	-	50	S	25	1,825	25,
Toluene	7.26E-09		6.62E-03	200	1.0E-06	-	20	5	25	1,825	25,
SEMIVOLATILE ORGANICS											
2,4-Dinitrotoluene	3.13E-07		2.86E-01	200	1.0E-06	-	20	\$	25	1,825	25,
2.6-Dinitrotoluene				200	1.0E-06	-	50	5	25	1.825	25.
2-Methylnaphthalene			1.30E-01	200	1.0E-06	-	50	S	25	1,825	25,550
2-Methylphenol				200	1.0E-06	-	20	2	25	1,825	25,550
3,3'-Dichlorobenzidine		1.97E-08	2.51E-01	200	1.0E-06	-	50	2	25	1,825	25,550
3-Nitroaniline			6.07E-01	200	1.0E-06	-	50	'n	25	1,825	25,
4-Nitroaniline			6.07E-01	200	1.0E-06	-	20	S	25	1,825	25,
Acenaphthene	3.62E-08		3.30E-02	200	1.0E-06	-	50	S	25	1,825	25.
Acenaphthylene			9.60E-02	200	1.0E-06	-	20	S	25	1,825	25,
Anthracene	1.42E-07		1.30E-01	200	1.0E-06	-	20	S	25	1,825	25,
Benzo(a)anthracene		2.81E-08	3.58E-01	200	1.0E-06	-	20	S	25	1,825	25,
Benzo(a)pyrene		3.12E-08	3.99E-01	200	1.0E-06	_	20	Y)	25	1,825	25,
Benzo(b)fluoranthene		3.06E-08	3.91E-01	200	1.0E-06	-	50	vo I	25	1,825	25,
Benzo(g,h,i)perylene			3.17E-01	200	1.0E-06		20	vo i	25	1,825	25,550
Benzo(k)fluoranthene		2.38E-08	3.04E-01	200	1.0E-06	-	20	'n	25	1,825	25,
Butylbenzylphthalate	5.04E-08		4.60E-02	200	1.0E-06	-	20	2	25	1,825	25,
Carbazole		2.04E-08	2.61E-01	200	1.0E-06	-	20	S	25	1,825	25
Chrysene		2.59E-08	3.31E-01	200	1.0E-06	-	20	'n	25	1,825	25,550
Di-n-butylphthalate	3.32E-07		3.03E-01	200	1.0E-06	-	20	\$	25	1,825	25
Dibenz(a,h)anthracene		2.29E-08	2.92E-01	200	1.0E-06	-	50	'n	25	1,825	25.
Dibenzofuran			3.60E-02	200	1.0E-06	-	20	S	25	1,825	25,
Fluoranthene	3.66E-07		3.34E-01	200	1.0E-06	-	20	'n	25	1,825	25,
Fluorene	4.16E-08		3.80E-02	200	1.0E-06	_	20	Ś	25	1,825	25,550
Indeno(1,2,3-cd)pvrene		2.68E-08	3.42E-01	200	1.0E-06	-	50	3	25	1.825	25.

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

	Child	Child		Child	- 6	1000		Child	Child		
	Intake	Intake	EPC	Ingestion	Conv.	Fraction	Exposure	Exposure	Body	Averaging	ging
Analyte	(Nc)	(Car)	Soil	Rate	Factor	Ingested	Frequency	Duration	Weight	Time	ne
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg soil/day)	(kg/mg)	(unitless)	(days/year)	(years)	(kg)	(days)	(s)
								0.00	7	Nc	Car
N-Nitrosodiphenvlamine (1)		7.44E-09	9.50E-02	200	1.0E-06	1	50	5	25	1,825	25,550
Naphthalene		- dr	3.70E-02	200	1.0E-06	П	50	5	25	1,825	25,550
Pentachlorophenol	7.41E-07	5.29E-08	6.76E-01	200	1.0E-06	-	20	S	25	1,825	25,550
Phenanthrene			3.30E-01	200	1.0E-06	-	20	5	25	1,825	25,550
Pyrene	3.37E-07		3.08E-01	200	1.0E-06	_	20	2	25	1,825	25,550
bis(2-Chloroisopropyl) ether	2.43E-07		2.21E-01	200	1.0E-06	_	50	2	25	1,825	25,550
bis(2-Ethylhexyl)phthalate	3.54E-07	2.53E-08	3.23E-01	200	1.0E-06	-	20	2	25	1,825	25,550
PESTICIDES/PCB											
4.4'-DDD	3.39E-09	2.42E-10	3.09E-03	200	1.0E-06	-	20	5	25	1,825	25,550
4.4'-DDE		A CONTROL OF THE CONT	6.21E-03	200	1.0E-06	-	20	2	25	1,825	25,550
4.4'-DDT	3.97E-09	2.84E-10	3.63E-03	200	1.0E-06	-	20	5	25	1,825	25,550
Aldrin	1.52E-09	1.09E-10	1.39E-03	200	1.0E-06	-	20	5	25	1,825	25,550
Aroclor-1260		2.06E-09	2.63E-02	200	1.0E-06	-	20	5	25	1,825	25,550
Dieldrin	4.94E-09	3.53E-10	4.51E-03	200	1.0E-06	-	20	5	25	1,825	25,550
Endosulfan I	4.86E-09		4.43E-03	200	1.0E-06		50	5	25	1,825	25,550
Endosulfan sulfate	2.92E-09		2.66E-03	200	1.0E-06	-	20	5	25	1,825	25,550
Endrin	3.58E-09		3.26E-03	200	1.0E-06	-	20	5	25	1,825	25,550
Endrin ketone			3.59E-03	200	1.0E-06	-	50	S	25	1,825	25,550
Heptachlor epoxide				200	1.0E-06	-	20	5	25	1,825	25,550
alpha-Chlordane	1.17E-09	8.33E-11	1.06E-03	200	1.0E-06	1	20	2	25	1,825	25,550
beta-BHC		1.22E-10	1.55E-03	200	1.0E-06	-	20	5	25	1,825	25,550
delta-BHC			1.40E-03	200	1.0E-06	-	20	S	25	1,825	25,550

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CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte		METALS	Arsenic	Barium	Conner	Lead	Mercury	Silver	Thallium	Zinc	HERBICIDES	MCPA	EQUATION:		
بو													Intake		
Child Intake (Nc) (mg/kg-day)			6.04E-06	1.38E-04	6.85E-05		1.28E-07	1.3/E-06 8.09E-07	7.19E-07	1.71E-04		6.80E-06	Intake (mg/kg-day) = CS x IR x CF x FI x EF x ED BW x AT	Variables:	CS = Chemical Concen IR = Ingestion Rate (m CF = Conversion Fact FI = Fraction Ingested EF = Exposure Freque ED = Exposure Durati BW = Bodyweight (kg) AT = Averaging Time
Child Intake (Car) (mg/kg-day)			4.31E-07										CS x IR x CF x F BW x AT		CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg) FT = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)
EPC Soil (mg/kg)	5		5.51E+00	1.26E+02	6.25E+01	4.96E+02	1.17E-01	7.38E-01	6.56E-01	1.56E+02		6.20E+00	X ELX EF X E AT		on in Soil (mg 1/day) 1-6 kg/mg) iess) (days/years) ears)
Child Ingestion Rate (mg soil/day)			200	200	200	200	200	700	200	200		200	Œ.		ş soil/kg)
Conv. Factor (kg/mg)	6		1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06		1.0E-06	la)		
Fraction Ingested (unitless)			-						-	-		_		Assumptions:	EPC Soil Data - RME 200 (RME Child) 10-6 1 50 (RME) 5 (RME) 25 (Child) 5 x 365 (Nc), 70 x 365
Exposure Frequency (days/year)			50	50	50	50	50	20	20	20		50			EPC Soil Data - RME 10-6 11-6 50 (RME) 50 (RME) 5 (RME) 5 x 365 (Nc), 70 x 365 (Car)
Exposure Duration (years)	,		5	5	n v	. 2	2	0 10	. 50	S		5			
Child Body Weight (kg))		25	25	25 25	25	25	52 52	25	25		25			
Averagi Time (days)	Nc		1,825	1,825	1,825	1,825	1,825	1,825	1,825	1,825		1,825			
Averaging Time (days)	Car		25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550		25,550			

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc)	Child CDI (Car)	RM	Oral Slope Factor	Child Hazard Quotient	Cancer Risk
853835K02-	(mg/kg-day)	(mg/kg-day)	(mg/kg-day)	(mg/kg-day)-1		
VOLATILE ORGANICS				-		
VOLATILE ORGANICS						
Acetone	7.71E-09	ATTION AND ADDRESS OF	1.00E-01	NA	7.71E-08	
Benzene		1.57E-10	NA	2.90E-02		4.54E-12
Methylene Chloride			6.00E-02	7.50E-03 NA	3.63E-08	
Toluene	7.26E-09		2.00E-01	NA.	3.03E-08	
SEMIVOLATILE ORGANICS						
SEMITOLATILE ORGANICS						
2,4-Dinitrotoluene	3.13E-07		2.00E-03	NA	1.57E-04	
2,6-Dinitrotoluene			1.00E-03	NA NA		
2-Methylnaphthalene			NA 5.00E-02	NA NA		
2-Methylphenol 3.3'-Dichlorobenzidine		1.97E-08	NA	4.50E-01		8.85E-09
3-Nitroaniline		1.572 00	NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene	3.62E-08		6.00E-02	NA	6.03E-07	
Acenaphthylene			NA 2 00F 01	NA NA	4.75E-07	
Anthracene	1.42E-07	2.81E-08	3.00E-01 NA	7.30E-01	4.756-07	2.05E-08
Benzo(a)anthracene Benzo(a)pyrene		3.12E-08	NA	7.30E+00		2.28E-07
Benzo(a)pyrene Benzo(b)fluoranthene		3.06E-08	NA	7.30E-01		2.23E-08
Benzo(g,h,i)perylene		F8562847	NA	NA		1.000.00
Benzo(k)fluoranthene	THE SELECTION TO	2.38E-08	NA	7.30E-01	2 52E-08	1.74E-08
Butylbenzylphthalate	5.04E-08	2 045 00	2.00E+00	NA 2.00E-02	2.52E-08	4.08E-10
Carbazole		2.04E-08 2.59E-08	NA NA	7.30E-02		1.89E-09
Chrysene Di-n-butylphthalate	3.32E-07	2.392-08	1.00E-01	NA NA	3.32E-06	1000
Dibenz(a,h)anthracene	J.J2L-07	2.29E-08	NA	7.30E+00		1.67E-07
Dibenzofuran	CONTROL SALE	1211/10/2016/24/E	NA	NA		100
Fluoranthene	3.66E-07		4.00E-02	NA	9.14E-06	
Fluorene	4.16E-08		4.00E-02	NA Table of	1.04E-06	1.95E-08
Indeno(1,2,3-cd)pyrene		2.68E-08 7.44E-09	NA NA	7.30E-01 4.90E-03		3.64E-11
N-Nitrosodiphenylamine (1) Naphthalene		7,44E-09	NA	NA NA		2.012
Pentachlorophenol	7.41E-07	5.29E-08	3.00E-02	1.20E-01	2.47E-05	6.35E-09
Phenanthrene			NA	NA		
Pyrene	3.37E-07		3.00E-02	NA	1.12E-05	
bis(2-Chloroisopropyl) ether	2.43E-07		1.00E-03	NA 1.40E-02	2.43E-04 1.77E-05	3.54E-10
bis(2-Ethylhexyl)phthalate	3.54E-07	2.53E-08	2.00E-02	1.40E-02	1.77E-03	3.54E-10
PESTICIDES/PCB	1 7					
LD TIOLD DOT OF	9 92-1			- 100000	2422722	500000
4,4'-DDD	3.39E-09	2.42E-10	5.00E-04	2.40E-01	6.78E-06	5.81E-11
4,4'-DDE		2015 10	NA COOF OA	NA 3.40E-01	7.95E-06	9.65E-11
4,4'-DDT	3.97E-09 1.52E-09	2.84E-10 1.09E-10	5.00E-04 3.00E-05	1.70E+01	5.07E-05	1.85E-09
Aldrin Aroclor-1260	1.52E-09	2.06E-09	NA	7.70E+00	3.072.03	1.59E-08
Dieldrin	4.94E-09	3.53E-10	5.00E-05	1.60E+01	9.88E-05	5.65E-09
Endosulfan I	4.86E-09		6.00E-03	NA	8.09E-07	
Endosulfan sulfate	2.92E-09		5.00E-05	NA	5.84E-05	
Endrin	3.58E-09		3.00E-04	NA	1.19E-05	
Endrin ketone			NA 1.30E-05	NA 9.10E+00		
Heptachlor epoxide alpha-Chlordane	1.17E-09	8.33E-11	6.00E-05	1.30E+00	1.94E-05	1.08E-10
aipna-Chiordane beta-BHC	1.172-09	1.22E-10	NA	1.80E+00		2.19E-10
delta-BHC			NA	NA		
METALS						
		4315.05	2.00F.04	1.755.00	2 OF 02	7.54E-07
Arsenic	6.04E-06	4.31E-07	3.00E-04 7.00E-02	1.75E+00 NA	2.01E-02 1.97E-03	7.34E-07
Barium Cadmium	1.38E-04 2.24E-06		5.00E-02	NA	4.48E-03	
Copper	6.85E-05		4.00E-02	NA	1.71E-03	
Lead	150000000000000000000000000000000000000		NA	NA	2000	
Mercury	1.28E-07		3.00E-04	NA NA	4.27E-04	
Selenium	1.37E-06		5.00E-03	NA NA	2.74E-04 1.62E-04	
Silver	8.09E-07 7.19E-07		5.00E-03 7.00E-05	NA NA	1.02E-04 1.03E-02	
Thallium Zinc	1.71E-04		3.00E-03	NA NA	5.69E-04	
Line			EMPRES EX			
HERBICIDES						
мсра	6.80E-06		5.00E-04	NA	1.36E-02	
TO A CE	2 1				5.43E-02	1.27E-06
Totals - HQ & CR					DITOK-UA	2.2727-00

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose
Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-30

CALCULATION OF ABSORBED BOSE FROM BERMAL CONTACT TO ONSITE SOIL
FUTURE TRESSPASSER (Child)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child Absorbed Dose (Nc) (mg/kg-day)	Child Absorbed Dose (Car) (mg/kg-day)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Child Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/vear)	Child Exposure Duration (vears)	Child Body Weight (kg)	Aver Ti (da	Averaging Time (days)
	(0 0 0		0	(00.)			(ò	Nc	Car
VOLATILE ORGANICS												
Acetone			7.04E-03	1.00E-06	2,300	0.1		20	50 V	25	1,825	25,550
Benzene Methylene Chloride			2.00E-03	1.00E-06	2,300	1.0		20 05	יא ני	3 23	1,825	25,550
Toluene			6.62E-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene			2.86E-01	1.00E-06	2,300	1.0		50	S	25	1,825	25,550
2,6-Dinitrotoluene			100000000000000000000000000000000000000	1.00E-06	2,300	1.0		50	2	25	1,825	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
2-Methylphenol				1.00E-06	2,300	1.0		20	2	25	1,825	25,550
,3'-Dichlorobenzidine			2.51E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
3-Nitroaniline			6.07E-01	1.00E-06	2,300	1.0		20	2	25	1,825	25,550
4-Nitroaniline			6.07E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Acenaphthene			3.30E-02	1.00E-06	2,300	0.1		20	5	25	1,825	25,550
Acenaphthylene			9.60E-02	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Anthracene			1.30E-01	1.00E-06	2,300	1.0		20	9	25	1,825	25,550
Benzo(a)anthracene			3.58E-01	1.00E-06	2,300	1.0		50	\$	25	1,825	25,550
Benzo(a)pyrene			3.99E-01	1.00E-06	2,300	0.1		20	v •	52	1,825	25,550
Benzo(b)Huoranmene			3.7E-01	1.00E-06	2,300	2.5		000) V	2 %	1,825	25,550
Benzo(k)fluoranthene			3.04E-01	1.00E-06	2.300	1.0		20	S	25	1.825	25,550
Butylbenzylphthalate			4.60E-02	1.00E-06	2,300	1.0		50	5	25	1,825	25,550
Carbazole			2.61E-01	1.00E-06	2,300	1.0		90	S	25	1,825	25,550
Chrysene			3.31E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550
Di-n-butylphthalate			3.03E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Dibenz(a,h)anthracene			2.92E-01	1.00E-06	2,300	1.0		50	S	25	1,825	25,550
Dibenzofuran			3.60E-02	1.00E-06	2,300	1.0		20	S	25	1,825	25,550
Fluoranthene			3.34E-01	1.00E-06	2,300	1.0		20	8	25	1,825	25,550
Fluorene		ATTOCK CONTRACT	3.80E-02	1.00E-06	2,300	1.0		20	5	25	1,825	25,550

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child Absorbed	Child Absorbed	EPC	Conv.	Child Skin Surface	Adherence	Absorption	Exposure	Child	Child	Avera	ging	
	Dose (Nc)	Dose (Car)	Soil (ma/ka)	Factor (La/ma)	Area Contact	Factor (mo soil/cm²)	Factor (unitless)	Frequency (events/vear)	Duration (vears)	Weight (kg)	lime (days)	ie S)	
	(mg/ng-uay)	(iiig/ng-day)	(94,911)	(S8v)	(compression)	((000000)			ò	Nc	Car	-
ndeno(1.2 3_cd)nurene			3.42E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550	_
N-Nitrosodinhenvlamine (1)			9.50E-02	1.00E-06	2,300	1.0		50	5	25	1,825	25,550	_
Vanhthalene			3.70E-02	1.00E-06	2,300	1.0		50	5	25	1,825	25,550	_
Pentachlorophenol			6.76E-01	1.00E-06	2,300	1.0		50	5	25	1,825	25,550	_
Phenanthrene			3.30E-01	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	_
Pyrene			3.08E-01	1.00E-06	2,300	1.0		20	S	25	1,825	25,550	_
bis(2-Chloroisopropyl) ether			2.21E-01	1.00E-06	2,300	1.0		20	\$	25	1,825	25,550	_
bis(2-Ethylhexyl)phthalate			3.23E-01	1.00E-06	2,300	1.0		90	\$	25	1,825	25,550	
													_
PESTICIDES/PCB													_
4: PBD			3.09E-03	1.00E-06	2.300	1.0		20	S	25	1,825	25,550	
4'-DDE			6.21E-03	1.00E-06	2,300	1.0		20	2	25	1,825	25,550	
A'-DDT			3.63E-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	_
Aldrin			1 39E-03	1 00E-06	2,300	1.0		50	5	25	1,825	25,550	_
Aroclor-1260		1 422E-09	2.63E-02	1.00E-06	2,300	1.0	90.0	50	5	25	1,825	25,550	_
Dieldrin			4.51E-03	1.00E-06	2,300	1.0		50	5	25	1,825	25,550	
Endosulfan I			4.43E-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	
Endosulfan sulfate			2.66E-03	1.00E-06	2,300	1.0		50	S	25	1,825	25,550	
Findrin			3.26E-03	1.00E-06	2,300	1.0		20	2	25	1,825	25,550	
Endrin ketone			3.59E-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	
Hentschlor enoxide				1.00E-06	2,300	1.0		20	8	25	1,825	25,550	
slpha-Chlordane			1.06E-03	1.00E-06	2,300	1.0		20	5	25	1,825	25,550	
heta-BHC			1.55E-03	1.00E-06	2,300	1.0		20	2	25	1,825	25,550	
delta-BHC			1.40E-03	1.00E-06	2,300	1.0		20	\$	25	1,825	25,550	

TABLE 7-30

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-17 Remedial Investigation Seneca Army Depot Activity

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene			2.00E-03	NA		
2,6-Dinitrotoluene			1.00E-03	NA		
2-Methylnaphthalene			NA	NA		
2-Methylphenol			5.00E-02	NA		
3,3'-Dichlorobenzidine	1		NA	4.50E-01		
3-Nitroaniline			NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene	1		6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		
Benzo(a)anthracene		1	NA	1.46E+00		1.34
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		3.3
Benzo(g,h,i)perylene			NA	NA LACTION		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA 2 00F 02		
Carbazole			NA	2.00E-02		
Chrysene		1 3	NA 0.50F.02	1.46E-01		
Di-n-butylphthalate			8.50E-02	NA 1.46E+01		
Dibenz(a,h)anthracene			NA	NA		
Dibenzofuran			NA 4 OOF OO	NA NA		
Fluoranthene			4.00E-02 4.00E-02	NA NA		
Fluorene			4,00E-02 NA	1.46E+00		
Indeno(1,2,3-cd)pyrene			NA NA	4.90E-03		
N-Nitrosodiphenylamine (1)			NA NA	NA NA		
Naphthalene			3.00E-02	1.20E-01		
Pentachlorophenol			NA	NA NA		
Phenanthrene			3.00E-02	NA		
Pyrene bis(2-Chloroisopropyl) ether			1.00E-03	NA NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB						
4.4! DDD			5.00E-04	2.40E-01		
4,4'-DDD			NA NA	NA NA		
4,4'-DDE 4,4'-DDT			5.00E-04	3.40E-01		
4,4-DD1 Aldrin			3.00E-05	1.70E+01		V.11-2-1-1-1-1
Aroclor-1260		1.42E-09	NA	8.11E+00		1.15E-08
Dieldrin			5.00E-05	1.60E+01		mme/microscopie
Endosulfan I			6.00E-03	NA		
Endosulfan sulfate			5.00E-05	NA		
Endosultan surface Endrin			3.00E-04	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL FUTURE TRESSPASSER (Child) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Child CDI (Nc) (mg/kg-day)	Child CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Child Hazard Quotient	Cancer Risk
METALS				`		
Arsenic Barium			2.94E-04 7.00E-03	1.79E+00 NA		
Cadmium	2.57E-07		3.00E-05	NA	8.58E-03	
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium Silver			3.00E-03	NA NA		
Thallium			5.00E-03 7.00E-05	NA NA		
Zinc			2.00E-02	NA NA		
HERBICIDES						
МСРА			5.00E-04	NA		
Totals - HQ & CR					8.58E-03	1.15E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

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TABLE 7-16

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	Soil (ma/kg)	Ingestion Rate	Conv. Factor	Fraction Ingested	Exposure Frequency	Exposure Duration	Body Weight	Aver Ti	Averaging Time (davs)
	(IIIg/kg-day)	(IIIg/ng-day)	(Sv.Siii)	(iiig som day)	(Sm/Sv)	(ccannin)	(m) or Jean)	(comp.)	(Gu)	Nc	Car
VOLATILE ORGANICS											
Acetone	5.51E-10		7.04E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Benzene		5.59E-11	2.00E-03	100	1.00E-06	_	20	25	70	9,125	25,550
Methylene Chloride Toluene	0.00E+00 5.19E-10	0.00E+00	0.00E+00 6.62E-03	1000	1.00E-06 1.00E-06		20	25 23	20 02	9,125	25,550
SEMIVOLATILE ORGANICS											
2 4-Dinitrotoluene	2.24E-08		2.86E-01	100	1.00E-06	-	20	25	70	9,125	25,550
2 6-Dinitrotoluene	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	100	1.00E-06	-	20	25	70	9,125	25,550
2-Methylphenol	0.00E+00		0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
3.3'-Dichlorobenzidine		7.02E-09	2.51E-01	100	1.00E-06	_	20	25	70	9,125	25,550
3-Nitroaniline			6.07E-01	100	1.00E-06	-	20	25	70	9,125	25,550
4-Nitroaniline			6.07E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Acenaphthene	2.58E-09		3.30E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Acenaphthylene			9.60E-02	100	1.00E-06	-	20	25	02	9,125	25,550
Anthracene	1.02E-08		1.30E-01	100	1.00E-06		20	25	70	9,125	25,550
Benzo(a)anthracene		1.00E-08	3.58E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(a)pyrene		1.11E-08	3.99E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(b)fluoranthene		1.09E-08	3.91E-01	100	1.00E-06	-	20	25	20	9,125	25,550
Benzo(g,h,i)perylene			3.17E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Benzo(k)fluoranthene		8.49E-09	3.04E-01	100	1.00E-06	-	20	25	20	9,125	25,550
Butylbenzylphthalate	3.60E-09		4.60E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Carbazole		7.29E-09	2.61E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Chrysene		9.24E-09	3.31E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Di-n-butylphthalate	2.37E-08		3.03E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenz(a,h)anthracene		8.17E-09	2.92E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Dibenzofuran			3.60E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Fluoranthene	2.61E-08		3.34E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Fluorene	2 075 00		2 80E 03	100	1 000	-	000	30	100	300	022.00

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TABLE 7-16

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME)

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
										Nc	Car
Indeno(1,2,3-cd)pyrene		9.56E-09	3.42E-01	100	1.00E-06	-	20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)		2.66E-09	9.50E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Naphthalene		2000 THE SECOND	3.70E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Pentachlorophenol	5.29E-08	1.89E-08	6.76E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Phenanthrene			3.30E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Pyrene	2.41E-08		3.08E-01	100	1.00E-06	-	20	25	70	9,125	25,550
bis(2-Chloroisopropyl) ether	1.73E-08		2.21E-01	100	1.00E-06	-	20	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate	2.53E-08	9.04E-09	3.23E-01	100	1.00E-06	-	20	25	20	9,125	25,550
PESTICIDES/PCB											
4,4'-DDD	2.42E-10	8.65E-11	3.09E-03	100	1.00E-06	-	20	25	70	9,125	25,550
4,4'-DDE			6.21E-03	100	1.00E-06	_	20	25	70	9,125	25,550
4,4'-DDT	2.84E-10	1.01E-10	3.63E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Aldrin	1.09E-10	3.88E-11	1.39E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Aroclor-1260		7.36E-10	2.63E-02	100	1.00E-06	-	20	25	70	9,125	25,550
Dieldrin	3.53E-10	1.26E-10	4.51E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endosulfan I	3.47E-10		4.43E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endosulfan sulfate	2.09E-10		2.66E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endrin	2.55E-10		3.26E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Endrin ketone			3.59E-03	100	1.00E-06	-	20	25	70	9,125	25,550
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06	-	20	25	70	9,125	25,550
alpha-Chlordane	8.33E-11	2.97E-11	1.06E-03	100	1.00E-06	-	20	25	70	9,125	25,550
beta-BHC		4.35E-11	1.55E-03	100	1.00E-06	-	20	25	70	9,125	25,550
delta-BHC			1.40E-03	100	1.00E-06	-	20	25	70	9,125	25,550

CALCULATION OF INTAKE FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc) (mg/kg-day)	Intake (Car) (mg/kg-day)	EPC Soil (mg/kg)	Ingestion Rate (mg soil/day)	Conv. Factor (kg/mg)	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Aver Ti (da	Averaging Time (days)
0.000										Nc	Car
METALS											
Arsenic	4.31E-07	1.54E-07	5.51E+00	100	1.00E-06	1	20	25	70	9,125	25,550
Barium	9.83E-06		1.26E+02	100	1.00E-06	_	20	25	70	9,125	25,550
Cadmium	1.60E-07		2.04E+00	100	1.00E-06	-	20	25	0/	9,125	25,550
Copper	4.89E-06		6.25E+01	100	1.00E-06	-	20	25	70	9,125	25,550
Lead			4.96E+02	100	1.00E-06	-	20	25	70	9,125	25,550
Mercury	9.16E-09		1.17E-01	100	1.00E-06	-	20	25	20	9,125	25,550
Selenium	9.78E-08		1.25E+00	100	1.00E-06	-	20	25	20	9,125	25,550
Silver	5.78E-08		7.38E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Thallium	5.14E-08		6.56E-01	100	1.00E-06	-	20	25	70	9,125	25,550
Zinc	1.22E-05		1.56E+02	100	1.00E-06	_	20	25	70	9,125	25,550
HERBICIDES											
					20 400 .		6	36	5	301.0	25 550
MCPA	4.86E-07		6.20E+00	001	1.00E-06	-	07	g	0	67,163	055,52
EQUATION:		Intake $(mg/kg-day) = CSxIRxCFxFIxEFxED$ BWxAT	CSxIRxCExF BWxAT	X EL X EE X ED							
	Variables:					Assumptions:					
	CS = Chemical Concentration in S	CS = Chemical Concentration in Soil (mg soil/kg)	mg soil/kg)			EPC Soil Data - RME 100 (RMF Site Worker)	- RME Worker)				
	CF = Conversion	CF = Conversion Factor (10-6 kg/mg)				10-6					
	FI = Fraction Ingested (unitless)	ested (unitless)				1 (All Receptors)	rs)				
	EF = Exposure Frequency (days ED = Exposure Duration (years)	EF = Exposure Frequency (days/years) ED = Exposure Duration (years)	S			25 (RME Site Worker)	Worker)				
	BW = Bodyweight (kg)	t (kg)				70 (Adult male)	(5)				
	A LANGRAGINA	imp (dove)				1301 505 7 57	1 200 X 11/				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone	5.51E-10		1.00E-01	NA	5.51E-09	
Benzene	2000	5.59E-11	NA	2.90E-02		1.62E-12
Methylene Chloride	0.00E+00	0.00E+00	6.00E-02	7.50E-03	0.00E+00	0.00E+00
Toluene	5.19E-10		2.00E-01	NA	2.59E-09	
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene	2.24E-08		2.00E-03	NA	1.12E-05	
2,6-Dinitrotoluene	0.00E+00		1.00E-03	NA	0.00E+00	
2-Methylnaphthalene	0.0000000000000000000000000000000000000		NA	NA	- No. 000 1 000 000	
2-Methylphenol	0.00E+00		5.00E-02	NA	0.00E+00	
3,3'-Dichlorobenzidine	1800/1807/17 - 1707	7.02E-09	NA	4.50E-01		3.16E-09
3-Nitroaniline			NA	NA		- 0.4 STPRESSO
4-Nitroaniline			NA	NA		
Acenaphthene	2.58E-09		6.00E-02	NA	4.31E-08	
Acenaphthylene	V-715.7-7507.50		NA	NA	1	
Anthracene	1.02E-08		3.00E-01	NA	3.39E-08	
Benzo(a)anthracene		1.00E-08	NA	7.30E-01		7.31E-09
Benzo(a)pyrene		1.11E-08	NA	7.30E+00		8.14E-08
Benzo(b)fluoranthene		1.09E-08	NA	7.30E-01		7.97E-09
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene		8.49E-09	NA	7.30E-01		6.20E-09
Butylbenzylphthalate	3.60E-09		2.00E+00	NA	1.80E-09	Contract Actual Contract Contr
Carbazole		7.29E-09	NA	2.00E-02		1.46E-10
Chrysene		9.24E-09	NA	7.30E-02		6.75E-10
Di-n-butylphthalate	2.37E-08	7.2.12.07	1.00E-01	NA	2.37E-07	1 514.55
Dibenz(a,h)anthracene	2.572 00	8.17E-09	NA NA	7.30E+00	2.5.2.5.	5.97E-08
Dibenzofuran		1375130.00	NA	NA		- W/ACA 59.5
Fluoranthene	2.61E-08		4.00E-02	NA	6.53E-07	
Fluorene	2.97E-09		4.00E-02	NA	7.44E-08	
Indeno(1,2,3-cd)pyrene	3730 A.T. CO	9.56E-09	NA	7.30E-01		6.98E-09
N-Nitrosodiphenylamine (1)		2.66E-09	NA	4.90E-03		1.30E-11
Naphthalene			NA	NA		
Pentachlorophenol	5.29E-08	1.89E-08	3.00E-02	1.20E-01	1.76E-06	2.27E-09
Phenanthrene	2011 TO TO THE	DESCRIPTION OF THE PARTY OF THE	NA	NA	1. ATRIBUTAS/15/20091	
Pyrene	2.41E-08		3.00E-02	NA	8.03E-07	
bis(2-Chloroisopropyl) ether	1.73E-08		1.00E-03	NA	1.73E-05	
bis(2-Ethylhexyl)phthalate	2.53E-08	9.04E-09	2.00E-02	1.40E-02	1.27E-06	1.27E-10
PESTICIDES/PCB						
4,4'-DDD	2.42E-10	8.65E-11	5.00E-04	2.40E-01	4.84E-07	2.08E-11
4,4'-DDE			NA	NA	32.000.000.000	(S 10500050170
4,4'-DDT	2.84E-10	1.01E-10	5.00E-04	3.40E-01	5.68E-07	3.45E-11
Aldrin	1.09E-10	3.88E-11	3.00E-05	1.70E+01	3.62E-06	6.59E-10
Aroclor-1260	13,572, 053,41	7.36E-10	NA	7.70E+00	100000000000000000000000000000000000000	5.67E-09
Dieldrin	3.53E-10	1.26E-10	5.00E-05	1.60E+01	7.06E-06	2.02E-09
Endosulfan I	3.47E-10		6.00E-03	NA	5.78E-08	
Endosulfan sulfate	2.09E-10		5.00E-05	NA	4.17E-06	
Endrin	2.55E-10		3.00E-04	NA	8.51E-07	
Endrin ketone			NA	NA		
Heptachlor epoxide	0.00E+00	0.00E+00	1.30E-05	9.10E+00	0.00E+00	0.00E+0
alpha-Chlordane	8.33E-11	2.97E-11	6.00E-05	1.30E+00	1.39E-06	3.87E-11
beta-BHC		4.35E-11	NA	1.80E+00		7.82E-1
delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM THE INGESTION OF ONSITE SOILS SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-l	Hazard Quotient	Cancer Risk
METALS						
Arsenic	4.31E-07	1.54E-07	3.00E-04	1.75E+00	1.44E-03	2.69E-07
Barium	9.83E-06		7.00E-02	NA	1.40E-04	
Cadmium	1.60E-07		5.00E-04	NA	3.20E-04	-
Copper	4.89E-06		4.00E-02	NA	1.22E-04	
Lead	1,072 00		NA	NA	7 SWACOCAL TSULY	
Mercury	9.16E-09		3.00E-04	NA	3.05E-05	
Selenium	9.78E-08		5.00E-03	NA	1.96E-05	100.00
Silver	5.78E-08		5.00E-03	NA	1.16E-05	
Thallium	5.14E-08		7.00E-05	NA	7.34E-04	0.00
Zinc	1.22E-05		3.00E-01	NA	4.06E-05	
HERBICIDES	71					
МСРА	4.86E-07	-	5.00E-04	NA	9.71E-04	
Totals - HQ & CR					3.88E-03	4.54E-07

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL
SITE WORKER EXPOSURE (CURRENT LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Dose (Nc)	Dose (Car)	EPC	Conv. Factor	Skin Surface Area Contact	Adherence Factor	Absorption Factor	Exposure Frequency	Exposure Duration	Body Weight	Aver	Averaging Time
172	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	(cm²/event)	(mg soil/cm²)	(unitless)	(events/year)	(years)	(kg)	Nc (dż	(days) Car
VOLATILE ORGANICS												
Acetone Benzene			7.04E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Methylene Chloride Toluene			6.62E-03	1.00E-06 1.00E-06	5,800	1.0		20 20	22 52	07	9,125	25,550
SEMIVOLATILE ORGANICS												
2,4-Dinitrotoluene			2.86E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2,6-Dinitrotoluene				1.00E-06	5,800	1.0		20	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	0.0		20	. 25	70	9,125	25,550
3,3'-Dichlorobenzidine	1		2.51E-01	1.00E-06	5,800	1.0		20	25	70	9.125	25.550
3-Nitroaniline			6.07E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
4-Nitroaniline			6.07E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Anthracene			9.60E-02	1.00E-06	5,800	0.0		20	25	70	9,125	25,550
Benzo(a)anthracene			3.58E-01	1.00E-06	5,800	1.0		20	25	0,0	9,125	25,550
Benzo(a)pyrene			3.99E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(b)fluoranthene			3.91E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Benzo(g,h,1)perylene			3.17E-01	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Buttelhannelphylota			3.04E-01	1.00E-06	5,800	0.1		20	25	70	9,125	25,550
Carhazole			2,61E-01	1.00E-06	5,800	2.0		200	2 %	0,0	0,125	25,530
Chrysene			3.31E-01	1.00E-06	5.800	1.0		20	25	70	9.125	25,550
Di-n-butylphthalate			3.03E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Dibenz(a,h)anthracene			2.92E-01	1.00E-06	5,800	1.0	34-	20	25	70	9,125	25,550
Dibenzofuran			3.60E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Fluoranthene			3.34E-01	1.00E-06	2,800	1.0		20	25	70	9,125	25,550
Fluorene			3.80E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550

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CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL
SITE WORKER EXPOSURE (CURRENT LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-dav)	EPC Soil (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²/event)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (events/year)	Exposure Duration (years)	Body Weight (kg)	Aven Ti (dz	Averaging Time (days)
			ò	6							Nc	Car
ndeno(1 2 3-cd)nvrene			3.42E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			9.50E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Naphthalene			3.70E-02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Pentachlorophenol			6.76E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Phenanthrene			3.30E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
vrene			3.08E-01	1.00E-06	5,800	1.0		20	25	20	9,125	25,550
bis(2-Chloroisopropyl) ether			2.21E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate			3.23E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
PESTICIDES/PCB								ļú,				
4ppp			3.09E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
4 4'-DDE			6.21E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
4'-DDT			3.63E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Aldrin			1.39E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Aroclor-1260		2.56E-09	2.63E-02	1.00E-06	5,800	1.0	90.0	20	25	70	9,125	25,550
Dieldrin			4.51E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Endosulfan I			4.43E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Endosulfan sulfate			2.66E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Endrin			3.26E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Endrin ketone			3.59E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Hentachlor epoxide				1.00E-06	5,800	1.0		20	25	70	9,125	25,550
alpha-Chlordane			1.06E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
beta-BHC			1.55E-03	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
delta-BHC			1.40E-03	1.00E-06	5.800	1.0		20	25	70	9,125	25,550

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TABLE 7-24

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO ONSITE SOIL
SITE WORKER EXPOSURE (CURRENT LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

			EPC	Conv.	Skin Surface	Adherence	Absorption	Exposure	Exposure	Body	Avera	Averaging
Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	Soil (mg/kg)	Factor (kg/mg)	Area Contact (cm²/event)	(mg soil/cm ²)	Factor (unitless)	Frequency (events/year)	(years)	Weight (kg)	l ime (days)	Lime (days)
											Nc	Car
METALS												
Arsenic			5.51E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Barium			1.26E+02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Cadmium	9.28E-08		2.04E+00	1.00E-06	5,800	1.0	0.01	20	25	70	9,125	25,550
Copper			6.25E+01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Lead			4.96E+02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Mercury			1.17E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Selenium			1.25E+00	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Silver			7.38E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Thallium			6.56E-01	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
Zinc			1.56E+02	1.00E-06	5,800	1.0		20	25	70	9,125	25,550
HERBICIDES												
1			0013009	1 000 06	9	o.		00	36	70	2010	25 550
MCFA			0.205+00	1.005-00	2,800	1.0		07	3	0	2,142	000,02
EQUATION:	Absorbed dose (mg/kg-day) =	(mg/kg-day) =		CSxCFxSA	CSxCFxSAxAFxABSxEFxED BWxAT	XED						
Variables:			Assumptions:			Variables:				Assumptions:		
CS = Chemical Concentration in Soil (mg soil/kg) CF = Conversion Factor (10-6 kg/mg) SA = Surface Area Contact (cm²) AF = Soil to Skin Adherence Factor (mg/cm²) A PS = A boomsion Factor (mg/cm²)	mg soil/kg) g/cm²)		EPC Soil Data - RME 10-6 5,800 cm² (RME Site Worker) 1.0 (RME all receptors) Commonnel Saccific for PCRe and Cd	E Site Worker)	5	EF = Exposure Frequency (e ED = Exposure Duration (ye BW = Bodyweight (kg) AT = Averaging Time (days)	EF = Exposure Frequency (events/year) ED = Exposure Duration (years) BW = Bodyweight (kg) AT = Averaging Time (days)	ents/year) s)		20 (RME Site Worker) 25 (RME Site Worker) 70 (Adult Male) 25 x 365 (Nc) 70 x 365 Adult (Car)	Vorker) Vorker) 0 x 365 Adult (0	Car)
Abs = Absorption Factor (univess)			EPA, 1992b (Default Assumption 0% = 0.0)	efault Assumpt	ion 0% = 0.0)							

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS			4574	30		
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
24 Bi-i	4		2.00E-03	NA		
2,4-Dinitrotoluene			1.00E-03	NA		
2,6-Dinitrotoluene			NA NA	NA		
2-Methylnaphthalene			5.00E-02	NA		
2-Methylphenol			NA	4.50E-01		
3,3'-Dichlorobenzidine			NA NA	NA NA		
3-Nitroaniline			G13000	NA NA		1 1
4-Nitroaniline			NA COOF 02	100 CONT.		
Acenaphthene			6.00E-02	NA		
Acenaphthylene			NA	NA		1.5
Anthracene			3.00E-01	NA		
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene	100		NA	1.46E+01		TREE
Benzo(b)fluoranthene			NA	1.46E+00		1777
Benzo(g,h,i)perylene			NA	NA		1
Benzo(k)fluoranthene			NA	1.46E+00		
			2.00E+00	NA		
Butylbenzylphthalate			NA	2.00E-02		7 7 7 7
Carbazole			NA NA	1.46E-01		
Chrysene			8.50E-02	NA NA		
Di-n-butylphthalate			NA	1.46E+01		
Dibenz(a,h)anthracene			1,50,000	NA NA		
Dibenzofuran			NA 1 00F 02	4.14.7		1
Fluoranthene			4.00E-02	NA		
Fluorene			4.00E-02	NA		
Indeno(1,2,3-cd)pyrene			NA	1.46E+00		
N-Nitrosodiphenylamine (1)			NA	4.90E-03		
Naphthalene			NA	NA		
Pentachlorophenol			3.00E-02	1,20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB						
			5.00E-04	2.40E-01		
4,4'-DDD			NA NA	NA NA		
4,4'-DDE			5.00E-04	3.40E-01		
4,4'-DDT			3.00E-04 3.00E-05	1.70E+01		
Aldrin		2.5(5.00	1917 (1918) (1918) (1918) (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918) (1918 (1918) (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1918 (1	270000000000000000000000000000000000000		2.08E-08
Aroclor-1260		2.56E-09	NA 5 00F 05	8.11E+00		2.0015-00
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin ketone			NA	NA		P.
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
beta-BHC			NA	1.80E+00		
DOM-DITC			NA	NA		1

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO SOIL SITE WORKER EXPOSURE (CURRENT LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic			2.94E-04	1.79E+00		
Barium			7.00E-03	NA		
Cadmium	9.28E-08		3.00E-05	NA	3.09E-03	
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA		
HERBICIDES						
МСРА	u		5.00E-04	NA		
Totals - HQ & CR					3.09E-03	2.08E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC Total Soils	Ingestion Rate	Conv. Factor	Fraction Ingested	Exposure Frequency	Exposure Duration	Body Weight	Aver	Averaging Time
	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(mg soll/day)	(Kg/mg)	(ssaniun)	(days/year)	(years)	(RB)	No.	(udys)
										110	Cal
VOLATILE ORGANICS											
Acetone	2.20E-09		7.04E-03	100	1.00E-06	-	80	25	70	9,125	25,550
Benzene		2.24E-10	2.00E-03	100	1.00E-06	-	80	25	70	9,125	25,550
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	100	1.00E-06	- -	80	25	9 2	9,125	25,550
Toluene	2.0/E-09		6.62E-U3	901	1.00E-00	-	90	67	0	2,123	000,07
SEMIVOLATILE ORGANICS									H		
2 4-Dinitrotoluene	8.95E-08		2.86E-01	100	1.00E-06	-	80	25	70	9,125	25,550
2.6-Dinitrotoluene	0.00E+00		0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
2-Methylnaphthalene			1.30E-01	100	1.00E-06	-	80	25	70	9,125	25,550
2-Methylphenol	0.00E+00		0.00E+00	100	1.00E-06	-	80	25	70	9,125	25,550
3.3'-Dichlorobenzidine		2.81E-08	2.51E-01	100	1.00E-06	-	80	25	70	9,125	25,550
3-Nitroaniline			6.07E-01	100	1.00E-06	1	80	25	70	9,125	25,550
4-Nitroaniline			6.07E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Acenaphthene	1.03E-08		3.30E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Acenaphthylene			9.60E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Anthracene	4.07E-08		1.30E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Benzo(a)anthracene		4.01E-08	3.58E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Benzo(a)pyrene		4.46E-08	3.99E-01	100	1.00E-06		80	25	70	9,125	25,550
Benzo(b)fluoranthene		4.37E-08	3.91E-01	100	1.00E-06		80	25	70	9,125	25,550
Benzo(g,h,i)perylene			3.17E-01	100	1.00E-06	۰.	80	25	70	9,125	25,550
Benzo(k)fluoranthene	100	3.40E-08	3.04E-01	100	1.00E-06	٠,	80	5 5	0 2	9,125	25,550
Butylbenzylphthalate	1.44E-08		4.60E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Carbazole		2.92E-08	2.61E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Chrysene		3.70E-08	3.31E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Di-n-butylphthalate	9.50E-08		3.03E-01	100	1.00E-06	_	80	25	70	9,125	25,550
Dibenz(a,h)anthracene		3.27E-08	2.92E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Dibenzofuran			3.60E-02	100	1.00E-06	-	80	25	70	9,125	25,550
Fluoranthene	1.05E-07		3.34E-01	100	1.00E-06	-	08	25	70	9,125	25,550
Fluorene	1.19E-08		3.80E-02	100	1.00E-06	-	80	25	20	0 175	25 550

TABLE 7-18

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3 SEAD-17 Remedial Investigation Seneca Army Depot Activity

The C	1	Car	,550	1,550	5,550	5,550	25,550	5,550	1,550	5,550		,550	5,550	5,550	5,550	5.550	5,550	5,550	1,550	5,550	5,550	5,550	5,550	25,550	25,550
Averaging Time			25	25	25	25	25	25	25	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25
Av		NC	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125		9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125	9,125
Body Weight	(PS)		70	70	70	70	70	70	70	70		20	70	70	70	70	70	70	70	70	70	70	70	70	70
Exposure Duration	(Semas)		25	25	25	25	25	25	25	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25
Exposure Frequency	(days/year)		80	80	80	80	80	80	80	80		80	80	80	80	80	80	80	80	80	80	80	80	80	80
Fraction Ingested	(ceaning)		_	-	-	-	_	_	_	-		_	-	_	-	_	_	_	-	_	_	_	-	-	
Conv. Factor	(SIII/SV)		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Ingestion Rate	(ing som day)	1111	100	100	100	100	100	100	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
EPC Total Soils	(SV AIII)		3.42E-01	9.50E-02	3.70E-02	6.76E-01	3.30E-01	3.08E-01	2.21E-01	3.23E-01		3.09E-03	6.21E-03	3.63E-03	1.39E-03	2.63E-02	4.51E-03	4.43E-03	2.66E-03	3.26E-03	3.59E-03	0.00E+00	1.06E-03	1.55E-03	1.40E-03
Intake (Car)	(mp.guenn)		3.82E-08	1.06E-08		7.56E-08				3.62E-08		3.46E-10		4.05E-10	1.55E-10	2.94E-09	5.04E-10					0.00E+00	1.19E-10	1.74E-10	
Intake (Nc)	(me/sugm)					2.12E-07		9.64E-08	6.93E-08	1.01E-07		9.68E-10		1.14E-09	4.34E-10		1.41E-09	1.39E-09	8.34E-10	1.02E-09		0.00E+00	3.33E-10		
Analyte			Indeno(1,2,3-cd)pyrene	N-Nitrosodiphenylamine (1)	Naphthalene	Pentachlorophenol	Phenanthrene	Pyrene	bis(2-Chloroisopropyl) ether	bis(2-Ethylhexyl)phthalate	PESTICIDES/PCB	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Aroclor-1260	Dieldrin	Endosulfan I	Endosulfan sulfate	Endrin	Endrin ketone	Heptachlor epoxide	alpha-Chlordane	beta-BHC	delta-BHC

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TABLE 7-18

CALCULATION OF INTAKE FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Intake (Nc)	Intake (Car)	EPC Total Soils	Ingestion Rate (mg soil/dav)	Conv. Factor	Fraction Ingested (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Averaging Time (days)	ging ne vs)
	(0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(0)		ò	Ì			ò	Nc	Car
METALS											
Arsenic	1.72E-06	6.16E-07	5.51E+00	100	1.00E-06	-	80	25	70	9.125	25.550
Barium	3.93E-05		1.26E+02	100	1.00E-06	-	80	25	70	9,125	25,550
Cadmium	6.40E-07		2.04E+00	100	1.00E-06	-	80	25	70	9,125	25,550
Copper	1.96E-05		6.25E+01	100	1.00E-06	-	80	25	70	9,125	25,550
Lead			4.96E+02	100	1.00E-06	-	80	25	70	9,125	25,550
Mercury	3.66E-08		1.17E-01	100	1.00E-06	-	80	25	70	9,125	25,550
Selenium	3.91E-07		1.25E+00	100	1.00E-06	1	80	25	70	9,125	25,550
Silver	2.31E-07	9	7.38E-01	100	1.00E-06	_	80	25	70	9,125	25,550
Thallium	2.05E-07		6.56E-01	100	1.00E-06	_	80	25	70	9,125	25,550
Zinc	4.87E-05		1.56E+02	100	1.00E-06	-	80	25	70	9,125	25,550
HERBICIDES											
MCPA	1.94E-06		6.20E+00	100	1.00E-06	-	80	25	70	9,125	25,550
EQUATION:	Intake (mg/kg-day) =	y) =	CSxIRxCExElxEExED BWxAT	ELX EFX ED							
	Variables:					Assumptions:	:3				
	CS = Chemical C IR = Ingestion R CF = Conversion	CS = Chemical Concentration in Soil (mg soil/kg) IR = Ingestion Rate (mg soil/day) CF = Conversion Factor (10-6 kg/mg)	il (mg soil/kg)			EPC - Soil Data (RME) 100 (RME Adult Work 10-6	EPC - Soil Data (RME) 100 (RME Adult Worker) 10-6				
	FI = Fraction Ingested (unitless) EF = Exposure Frequency (days) ED = Exposure Duration (years) BW = Bodyweight (kg)	FI = Fraction Ingested (unitless) EF = Exposure Frequency (days/years) ED = Exposure Duration (years) BW = Bodyweight (kg)	ars)			1 (All Receptors) 80 (RME Adult Indust) 25 (Upper bound limit) 70 (Adult male)	1 (All Receptors) 80 (RME Adult Industrial Worker) 25 (Upper bound limit) 70 (Adult male)	Worker)			
	AT = Averaging Time (davs)	Time (davs)				25 x 365 (No	25 x 365 (Nc) 70 x 365 (Car)	ī			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone	2.20E-09		1.00E-01	NA	2.20E-08	
Benzene		2.24E-10	NA	2.90E-02		6.49E-12
Methylene Chloride	0.00E+00	0.00E+00	6.00E-02	7.50E-03	0.00E+00	0.00E+0
Γoluene	2.07E-09	090000000000000000000000000000000000000	2.00E-01	NA	1.04E-08	1
SEMIVOLATILE ORGANICS						
2,4-Dinitrotoluene	8.95E-08		2.00E-03	NA	4.47E-05	
2,6-Dinitrotoluene	0.00E+00		1.00E-03	NA	0.00E+00	
2-Methylnaphthalene	S.Or C. C. C. C.		NA	NA	- Sendicate and a send of	
2-Methylphenol	0.00E+00	Charles an order	5.00E-02	NA	0.00E+00	- v.v.euveurven
3,3'-Dichlorobenzidine		2.81E-08	NA	4.50E-01		1.26E-0
3-Nitroaniline			NA	NA		
4-Nitroaniline	phypolenamical and a		NA	NA	17/07/3/8/8/4/5/20	
Acenaphthene	1.03E-08		6.00E-02	NA	1.72E-07	
Acenaphthylene			NA	NA		
Anthracene	4.07E-08	Violente de como	3.00E-01	NA	1.36E-07	165-00-00-00-00
Benzo(a)anthracene		4.01E-08	NA	7.30E-01		2.93E-0
Benzo(a)pyrene		4.46E-08	NA	7.30E+00		3.25E-0
Benzo(b)fluoranthene		4.37E-08	NA	7.30E-01		3.19E-0
Benzo(g,h,i)perylene		2 0/2 22	NA	NA		
Benzo(k)fluoranthene	7.7.7.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	3.40E-08	NA	7.30E-01		2.48E-0
Butylbenzylphthalate	1.44E-08	1200002020	2.00E+00	NA	7.20E-09	
Carbazole		2.92E-08	NA	2.00E-02		5.83E-1
Chrysene		3.70E-08	NA	7.30E-02	0.500.05	2.70E-0
Di-n-butylphthalate	9.50E-08	2 200 20	1.00E-01	NA	9.50E-07	2 205 0
Dibenz(a,h)anthracene		3.27E-08	NA	7.30E+00		2.39E-0
Dibenzofuran		1	NA 1 cop co	NA	0.615.06	
Fluoranthene	1.05E-07		4.00E-02	NA	2.61E-06	
Fluorene	1.19E-08	2.025.00	4.00E-02	NA 7.20F.01	2.97E-07	2.705.0
Indeno(1,2,3-cd)pyrene		3.82E-08	NA	7.30E-01		2.79E-0
N-Nitrosodiphenylamine (1)		1.06E-08	NA	4.90E-03 NA		5.21E-1
Naphthalene	2.12E-07	7.56E-08	NA 3.00E-02	1.20E-01	7.05E-06	9.07E-0
Pentachlorophenol	2.12E-07	7.50E-08	NA	NA	7.03E-00	9.07E-0
Phenanthrene Pyrene	0.645.00		3.00E-02	NA NA	3.21E-06	
N # (1) 4 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1)	9.64E-08		1.00E-02	NA NA	6.93E-05	
bis(2-Chloroisopropyl) ether	6.93E-08 1.01E-07	3.62E-08	2.00E-03	1.40E-02	5.06E-06	5.06E-10
bis(2-Ethylhexyl)phthalate	1.01E-07	3.02E-08	2.00E-02	1.4015-02	3.002-00	3.00E-10
PESTICIDES/PCB						
4,4'-DDD	9.68E-10	3.46E-10	5.00E-04	2.40E-01	1.94E-06	8.30E-1
4,4'-DDE	1,,,-	1055 10	NA 5 00F 04	NA 2 40F 01	2 225 24	1.005
4,4'-DDT	1.14E-09	4.05E-10	5.00E-04	3.40E-01	2.27E-06	1.38E-1
Aldrin	4.34E-10	1.55E-10	3.00E-05	1.70E+01	1.45E-05	2.64E-0
Aroclor-1260	1.415.00	2.94E-09	NA 5 OOF OF	7.70E+00	2 925 05	2.27E-0
Dieldrin	1.41E-09	5.04E-10	5.00E-05	1.60E+01	2.82E-05	8.07E-0
Endosulfan I	1.39E-09		6.00E-03	NA NA	2.31E-07	
Endosulfan sulfate	8.34E-10		5.00E-05	NA NA	1.67E-05	
Endrin	1.02E-09		3.00E-04	NA NA	3.41E-06	
Endrin ketone	0.005100	0.005100	NA 1.30E-05	NA 9.10E+00	0.00E+00	0.00E+0
Heptachlor epoxide	0.00E+00	0.00E+00	6.00E-05	1.30E+00	5.55E-06	1.55E-1
alpha-Chlordane	3.33E-10	1.19E-10	202330	1.80E+00	3.33E-00	3.13E-1
beta-BHC	1	1.74E-10	NA NA	1.80E+00 NA		3.13E-1
delta-BHC	1		INA	INA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM INGESTION OF ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	RfD (mg/kg-day)	Oral Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic	1.72E-06	6.16E-07	3.00E-04	1.75E+00	5.75E-03	1.08E-06
Barium	3.93E-05	314355170	7.00E-02	NA	5.62E-04	
Cadmium	6.40E-07	0	5.00E-04	NA	1.28E-03	
Copper	1.96E-05	1 S AT .	4.00E-02	NA	4.89E-04	
Lead	0.00 (NA	NA		
Mercury	3.66E-08		3.00E-04	NA	1.22E-04	100
Selenium	3.91E-07		5.00E-03	NA	7.83E-05	
Silver	2.31E-07		5.00E-03	NA	4.62E-05	
Thallium	2.05E-07		7.00E-05	NA	2.93E-03	
Zinc	4.87E-05		3.00E-01	NA	1.62E-04	
HERBICIDES						
МСРА	1.94E-06		5.00E-04	NA	3.88E-03	
Totals - HQ & CR					1.55E-02	1.82E-00

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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TABLE 7-26

CALCULATION OF ABSORBED DOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSUBE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

CASE 3 SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (vears)	Body Weight (kg)	Avera Tir (da	Averaging Time (davs)	
										3	Nc	Car	1
VOLATILE ORGANICS													
Acetone			7.04E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Benzene			2.00E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Methylene Chloride				1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Toluene			6.62E-03	1.00E-06	5,800	1.0		80	22	70	9,125	25,550	
SEMIVOLATILE ORGANICS													
2,4-Dinitrotoluene			2.86E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25.550	
2,6-Dinitrotoluene			6 - C - C - C - C - C - C - C - C - C -	1.00E-06	5.800	1.0		80	25	70	9,125	25.550	
2-Methylnaphthalene			1.30E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
2-Methylphenol			196000000000000000000000000000000000000	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
3,3'-Dichlorobenzidine			2.51E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
3-Nitroaniline			6.07E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
4-Nitroaniline			6.07E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Acenaphthene			3.30E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
Acenaphthylene			9.60E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Anthracene			1.30E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Benzo(a)anthracene			3.58E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
Benzo(a)pyrene			3.99E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Benzo(b)fluoranthene			3.91E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Benzo(g,h,i)perylene			3.17E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Benzo(k)fluoranthene			3.04E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Butylbenzylphthalate			4.60E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Carbazole			2.61E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
Chrysene			3.31E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
Di-n-butylphthalate			3.03E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Dibenz(a,h)anthracene			2.92E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
Dibenzofuran			3.60E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	_
Fluoranthene			3.34E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550	
Fluorene			3.80E-02	1.00E-06	5,800	1.0		80	25	70	9.125	25.550	_

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

distant.	Dogg (No.)	Does (Car)	EPC Total Sails	Conv.	Skin Surface	Adherence	Absorption	Exposure	Exposure	Body	Avera	Averaging
Analyte	(mg/kg-day)	(mg/kg-day)	(mg/kg)	(kg/mg)	Area Contact (cm²)	(mg soil/cm²)	(unitless)	(davs/vear)	(vears)	Weight (kg)	n (da	ne vs)
			ì	ì					,	ì	Nc	Car
Indeno(1,2,3-cd)pyrene			3.42E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
N-Nitrosodiphenylamine (1)			9.50E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Naphthalene			3.70E-02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Pentachlorophenol			6.76E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Phenanthrene			3.30E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Pyrene			3.08E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
bis(2-Chloroisopropyl) ether			2.21E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
bis(2-Ethylhexyl)phthalate			3.23E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
PESTICIDES/PCB												
44"-DDD			3 09F-03	1 00F-06	\$ 800	01		08	×	70	0 175	25 550
4.4'-DDE			6.21E-03	1.00E-06	5.800	1.0		80	25	20	9 175	25,550
4,4'-DDT			3.63E-03	1.00E-06	5,800	1.0		80	25	70	9.125	25.550
Aldrin			1.39E-03	1.00E-06	5,800	1.0		80	25	70	9.125	25.550
Aroclor-1260		1.02E-08	2.63E-02	1.00E-06	5,800	1.0	90'0	80	25	70	9,125	25.550
Dieldrin			4.51E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Endosulfan I			4.43E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Endosulfan sulfate			2.66E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Endrin			3.26E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Endrin ketone			3.59E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Heptachlor epoxide				1.00E-06	5,800	1.0		80	25	70	9,125	25,550
alpha-Chlordane			1.06E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
beta-BHC			1.55E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
delta-BHC			1.40E-03	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
											200000	

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TABLE 7-26

CALCULATION OF ABSORBED BOSE FROM DERMAL CONTACT TO SOIL INDUSTRAL WORKER EXPOSURE (FUTURE LAND USE)
REASONABLE MAXIMUM EXPOSURE (RME)
CASE 3
SEAD-17 Remedial Investigation
Seneca Army Depot Activity

	Dose (Nc) (mg/kg-day)	Dose (Car) (mg/kg-day)	EPC Total Soils (mg/kg)	Conv. Factor (kg/mg)	Skin Surface Area Contact (cm²)	Adherence Factor (mg soil/cm²)	Absorption Factor (unitless)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	ging ne rs)
											Nc	Car
METALS												
Arsenic			5.51E+00	1.00E-06	5,800	1.0		80	25	02	9,125	25,550
Barium			1.26E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Cadmium	3.710E-07		2.04E+00	1.00E-06	5,800	1.0	0.01	80	25	70	9,125	25,550
Copper			6.25E+01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Lead			4.96E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Mercury			1.17E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Selenium			1.25E+00	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Silver			7.38E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Thallium			6.56E-01	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
Zinc			1.56E+02	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
HERBICIDES												
MCPA			6.20E+00	1.00E-06	5,800	1.0		80	25	70	9,125	25,550
EQUATION:	Absorbed Dos	se (mg/kg-day) = 🤇	Absorbed Dose (mg/kg-day) = CSxCExSAxAExABSxEExED BWxAT	ABS x EF x ED BW x AT								
Variables:		43	Assumptions:			Variables:			Assumptions:			
CS = Chemical Concentration in Soil (mg soil/kg)	mg soil/kg)	·M	EPC - Soil Data (RME)	E)	,	EF = Exposure Frequency (days/year)	requency (days/s	rear)	80 (RME Indu	80 (RME Industrial Worker)	(L	
CF = Conversion Factor (10-6 kg/mg)		-	10-6		£.	ED = Exposure Duration (years)	Juration (years)	p	25 (RME Ind	25 (RME Industrial Worker)	(L)	
SA = Surface Area Contact (cm²)	,	4) F	5,800 (RME Adult Worker)	'orker)		BW = Bodyweight (kg)	nt (kg)		70 (Adult Male)	le)		
Ar =5011 to 5kin Adnerence ractor (mg/cm²) ARS = Absorption Factor (unitless)	g/cm²)	. •	1.0 (Kivik - All Receptors) Applicable for PCBs and (1.0 (KME - All Receptors) Applicable for PCBs and Cadmium (FPA 1992b)	19075)	A1 = Averaging 1 ime (days)	I ime (days)		72 x 365 (NC)	25 x 365 (Nc), 70 x 365 (Car)	ır)	

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	CDI (Nc) (mg/kg-day)	CDI (Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
VOLATILE ORGANICS						
Acetone			1.00E-01	NA		
Benzene			NA	2.90E-02		
Methylene Chloride			6.00E-02	6.00E-02		
Toluene			1.20E-01	NA		
SEMIVOLATILE ORGANICS						
			2.00E-03	NA		
2,4-Dinitrotoluene				NA		
2,6-Dinitrotoluene			1.00E-03	2010		
2-Methylnaphthalene			NA Toop or	NA		
2-Methylphenol			5.00E-02	NA 4 SOF OI	1 74	
3,3'-Dichlorobenzidine			NA	4.50E-01		
3-Nitroaniline		*	NA	NA		
4-Nitroaniline			NA	NA		
Acenaphthene		8	6.00E-02	NA		
Acenaphthylene			NA	NA		
Anthracene			3.00E-01	NA		11.5
Benzo(a)anthracene			NA	1.46E+00		
Benzo(a)pyrene			NA	1.46E+01		
Benzo(b)fluoranthene			NA	1.46E+00		
Benzo(g,h,i)perylene			NA	NA		
Benzo(k)fluoranthene			NA	1.46E+00		
Butylbenzylphthalate			2.00E+00	NA		
Carbazole			NA	2.00E-02		
Chrysene			NA	1.46E-01		
			8.50E-02	NA		
Di-n-butylphthalate			NA NA	1.46E+01		
Dibenz(a,h)anthracene			NA NA	NA		
Dibenzofuran			4.00E-02	NA		
Fluoranthene			4.00E-02 4.00E-02	NA		
Fluorene			The second distriction of the second	1.46E+00		
Indeno(1,2,3-cd)pyrene			NA	4.90E-03		
N-Nitrosodiphenylamine (1)			NA NA			
Naphthalene			NA .	NA 1 20F 01		
Pentachlorophenol			3.00E-02	1.20E-01		
Phenanthrene			NA	NA		
Pyrene			3.00E-02	NA		
bis(2-Chloroisopropyl) ether			1.00E-03	NA		
bis(2-Ethylhexyl)phthalate			2.00E-02	1.40E-02		
PESTICIDES/PCB						
4,4'-DDD			5.00E-04	2.40E-01		
4,4'-DDE			NA	NA		
4,4'-DDT			5.00E-04	3.40E-01		
Aldrin			3.00E-05	1.70E+01		0.2502000000
Aroclor-1260		1.02E-08	NA	8.11E+00		8.31E-0
Dieldrin			5.00E-05	1.60E+01		
Endosulfan I			6.00E-03	NA		
Endosulfan sulfate			5.00E-05	NA		
Endrin			3.00E-04	NA		
Endrin ketone			NA	NA		
Heptachlor epoxide			1.30E-05	9.10E+00		
alpha-Chlordane			6.00E-05	1.30E+00		
			NA NA	1.80E+00		
beta-BHC delta-BHC			NA	NA		

CALCULATION OF NONCARCINOGENIC AND CARCINOGENIC RISKS FROM DERMAL CONTACT TO ONSITE SOIL INDUSTRIAL WORKER EXPOSURE (FUTURE LAND USE) REASONABLE MAXIMUM EXPOSURE (RME) CASE 3

SEAD-17 Remedial Investigation Seneca Army Depot Activity

Analyte	(Nc) (mg/kg-day)	(Car) (mg/kg-day)	Dermal RfD (mg/kg-day)	Dermal Slope Factor (mg/kg-day)-1	Hazard Quotient	Cancer Risk
METALS						
Arsenic			2.94E-04	1.79E+00		
Barium			7.00E-03	NA	1	
Cadmium	3.71E-07		3.00E-05	NA	1.24E-02	
Copper			2.00E-02	NA		
Lead			NA	NA		
Mercury			4.50E-05	NA		
Selenium			3.00E-03	NA		
Silver			5.00E-03	NA		
Thallium			7.00E-05	NA		
Zinc			2.00E-02	NA		
HERBICIDES						
МСРА			5.00E-04	NA		
72						
Totals - HQ & CR					1.24E-02	8.31E-08

Hazard Quotient = Chronic Daily Intake (Noncarcinogenic)/ Reference Dose

Cancer Risk = Chronic Daily Intake (Carcinogenic) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

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APPENDIX C

COST ESTIMATES

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Seneca Army Depot SEAD 16 & 17 RIFS Cost Estimates Table of Contents

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Section 3	Detailed Cost Estimate
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Section 4	Figures
Fig Fig Fig Fig Fig	ure 1 On-site monofill details and quantity take offs ure 2 Preliminary remediation system layout/site plan ure 3 SEAD 16 estimated soil over 2000 ppm lead ure 4 SEAD 17 estimated soil over 2000 ppm lead ure 5 SEAD 16 estimated total volume of soil/sediment to be excavated ure 6 SEAD 17 estimated total volume of soil/sediment to be excavated ure 7 Soil washing- estimated volume reduction calculation
Section 5	Quotations Earthwatch quote dated November 12,1997 for disposal of hazardous and non-hazardous soils Seneca Meadows Landfill telephone memorandum dated November 10,1997 for the disposal of non-hazardous soils

Section 6 Comparative Cost-Estimate

Alternative 1: Excavate/Stabilize/Off-site Disposal

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section 1 Summary scope of work including assumptions made Pg 1-4



Seneca Army Depot SEAD 16 & 17 RIFS Cost estimates

Introduction

The cost for the following remediation alternatives (4,5 and 6) have been developed:

- · excavate / off-site disposal
- excavate/stabilize-solidify/on-site disposal
- excavate/soil washing/ off site disposal

The cost estimate was developed based on the scope of work as outlined below. The costs were based on quantity take off from the attached drawings and unit prices taken from the ECHOS estimating library. Some of the more important unit prices, such as landfill disposal costs, were updated with vendor quotation. These vendor quotes are attached to the detailed estimate for reference. The costs developed in the ECHOS detailed summary include the WBS numbers for each line item. Note that the WBS numbering system that is used by ECHOS is a different than the numbering system used in MCACES and the DOE HTRW RAW BS. ECHOS summarizes cost by task and the task is not assigned a WBS number. Summary tables have been provided that follow the WBS numbering system from MCACES. The cost developed by ECHOS for each task was assigned to the appropriate WBS number in the summary tables.

General Assumed Scope

In all three of the alternatives the first task is screening by a UXB team for unexploded ordinances. The site will then be surveyed to lay out the areas to be excavated and then the soils and sediments will be excavated. The screened soils will be placed into piles for sampling while the material removed during the screening process will be disposed of off-site. The material removed during the screening operation may include shell casing, bullets, rocks, and roots.

The second task is a sampling and analysis event. Both the piles and the excavations will be sampled. Each soil pile will be 150 cubic yards. One composite soil sample will be taken from each soil pile and analyzed to determine whether it is classified as a characteristic hazardous waste. It is estimated that about 2000 yards of material will be excavated, which will constitute about 13 piles that will need to be sampled. At the same time that the piles are sampled, the excavations will be sampled. The excavations will be analyzed to confirm that the remediation goals have been reached. In this case the remediation goals are to remove soils that have total lead levels above 500 ppm, and

sediments that have lead levels greater than 31 ppm. Therefore these confimatory samples will be analyzed for the TAL metals and the lead levels from the analysis will be compared to the targets. If the lead level in a sample is above the targets then additional soils/sediments in that area will be excavated and another confirmatory sample taken. The estimated number of the confirmatory samples is based on the following criteria. It is assumed for the cost estimate that two samples will be taken from each trench, one at each end, and five soil samples will be taken from SEAD 16, and five soil samples will be taken from SEAD 17. In addition the sampling event will include a trip blank and a duplicate.

For alternative 6 (soil washing) only the excavation will be sampled during this first sampling event because all the soil will be washed and replaced in piles. Once all the washing is done there will be another sampling event to demonstrate that a large fraction of soils can be backfilled (non hazardous and lead less than the clean up standard) and the fines will be analyzed (characteristic hazardous waste) to determine if the fines, which will be disposed of off-site, need to be transported as a non-hazardous or hazardous waste. Also in alternative 5 the stabilized material will also have to be tested to demonstrate that the stabilized material is not a characteristic hazardous waste. The estimate allows one TCLP RCRA sample per 150 cubic yards of stabilized material.

Detailed Scope

The **first alternative** in the cost estimate corresponds to alternative 4 as described in section 3.0 and 5.0 of the FS. It includes excavating the soils and sediments and placing them into piles. The piles will be sampled and the samples will be tested to determine whether they have TCLP levels that are below the regulatory limits for a characteristic hazardous waste. If the pile samples are not classified as hazardous then the pile will be disposed of off-site at a Subtitle D landfill. Piles of soils/sediments that had samples with TCLP levels over the regulatory limit for a characteristic hazardous waste will be transported as a hazardous waste to a facility off-site where the soils/sediments will be stabilized and disposed in a Subtitle d landfill.

The second alternative in the cost estimate corresponds to alternative 5 as described in section 3.0 and 5.0 of the FS. In this alternative the soils and sediments would be excavated and placed in piles and the piles would be sampled the same as in the first alternative. In this alternative all the soils and sediments would be disposed on-site in a new on-site landfill instead of off-site at an existing landfill. The new on-site landfill would have to meet the requirements of the New York State regulations for an industrial waste monofill per 6 NYCRR 360-2.14. These requirements include both construction requirements as well as O&M requirements. The construction requirements include the following features which have been included in the estimate:

• A bottom composite liner system with a two foot clay layer and a 60 mil HDPE liner

- A leachate collection layer with two feet of sand and 4 in. PVC collection pipes spaced at 20 ft.
- A filter layer consisting of a filter fabric to keep the leachate collection layer clean
- A top containment liner system consisting of a 6 in sand layer with a 60 mil HDPE liner with a two foot layer of soil on top of the membrane and 6 inches of topsoil.

Soils that are classified as non-hazardous would be placed directly into the new on-site landfill while soils that are classified as hazardous waste will be solidified on-site before being placed in the new on-site landfill. The solidification process used in this estimate consists of a batch treatment process. The soils are loaded into a batch mixer along with cement (other mixtures may be used depending on pilot testing that will be done later.) The mixture is dumped into a wooden one cubic yard box and the mixture is allowed to solidify like concrete. The wooden box is then removed and the solidified block is then disposed off-site at the new on-site industrial waste monofill.

The third alternative corresponds to alternative 6 as described inspection 3.0 and 5.0 of the FS. It includes soil washing as a way of reducing the volume of soils that will require stabilization-solidification and disposal. In this alternative the soils and sediments will be excavated, screened and placed into one pile. The pile will not be sampled, instead all the soils will be washed and physically separated. One fraction will consist of the silt and clay portion of the soils while a second fraction would consist of the sand and gravel portion of the soils. The silt and clay portion (the smaller fraction) of the soils will contain the majority of the lead. All the washed material will be placed into 150 cubic yard piles which will be sampled. These samples will be analyzed to determine whether the soil is a characteristic hazardous waste and the samples will be analyzed for TAL metals. Those piles containing soil that is classified as hazardous waste will be disposed off-site at a facility that will stabilize the soils and then place them in a Subtitle D landfill. Those piles that are not classified as hazardous waste but have total lead levels over 500 ppm will be disposed off-site as non-hazardous waste at a Subtitle D landfill. Those piles classified as non-hazardous but containing lead levels over 31 ppm will also be disposed off-site at a Subtitle D landfill. Those piles with soil that is not classified as a characteristic hazardous waste and have total lead levels below 500 will be backfilled into the areas excavated.

Assumptions

The following assumptions were used in developing the cost estimates:

1. The amount of soil/sediments that will require stabilization/solidification in alternative 1 and 2 was calculated based on the estimated volume of soils and sediments that have total lead concentrations higher than 2000 ppm. Based on past experience at this site it is

expected that soils with total lead levels less than 2000 ppm will have TCLP lead levels below the regulatory limit (5 ppm) set for a characteristic hazardous waste.

- 2. The on-site landfill requires a 5 foot clearance between the groundwater and the bottom layer of the landfill. Since the groundwater in the excavated areas is only 5 to 10 feet deep it is assumed that a suitable location can be found on-site that meets the requirements for an industrial waste monofill.
- 3. It is assumed that the lead contamination is contained in the silt/clay fraction of the soils. It is also assumed that the silt/clay fraction will be classified as a characteristic hazardous waste and that the sand/gravel fraction will be clean enough to be used as backfill. Volumes of washed soils that need to be stabilized and solidified are estimated based on the available grain size analysis from the site. Based on this data it is estimated that the silt/clay fraction of the soil represents about one third of the total volume of the soil/sediments.
- 4. The volumes of soil and sediments are based on the contoured areas shown on figures 3, 4, 5 and 6 which attempt to delineate areas by lead concentration. Soil volumes were estimated by measuring the areas with a planimeter and then multiplying by the soil depth. The sediment volumes were estimated by multiplying the length of the trench by the width (assumed to be 3 feet) by the depth of the sediment (assumed to be 3 feet). The remediation project will include a confirmatory sampling plan to analyze samples at the edge of the excavation to assure that the clean up standard is met. If the lead levels in the confirmatory samples do not meet the clean up standard then additional soils will be excavated and treated.
- 5. It is assumed that the existing railroad tracks next to the building at SEAD 16 will not be removed. During the RI, the samples in this area were taken from the drainage swales around the track, but no samples were taken from the ballast around the train tracks. Based on this it is assumed that the remediation around the train tracks will involve excavating soils from the drainage swales only.
- 6. The building at SEAD 16 is inactive. It is assumed that this building will be cleaned of any materials that contribute to elevated lead levels in the indoor air. The building will not be demolished as part of this remediation. Soils and debris will be removed from the building and the building will receive a good cleaning only. Soils from the building will be placed in piles similar to the soils and sediments and will be handled in the same manner. It is estimated that the building has about 100 cubic yards of soil in it.
- 7. O & M costs only include the sampling and analysis of monitoring wells. The estimate assumes that 4 wells will be monitored on a quarterly basis at SEAD 16 & 17

and that 4 monitoring wells will be monitored at the new on-site industrial waste monofill.

8. The cost for UXB clearance is not included in the estimate. However allowances have been made for the excavation of the soils and sediments which will probably be done by the UXB team. The UXB team will also be responsible for screening the soils for the removal of unexploded ordanances, the cost for the screening has not been included in the estimate nor has the cost for disposal of the screened material.

Contingency

A large contingency should be used on this project since the volumes of sediment and soil that will require excavation could increase significantly if the confirmatory samples have lead levels over the remediation goals of 500 ppm for soil and 31 ppm for sediment.

Paul Messelaar PE.

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section 2 Tables

- Table no. 1 Alternative no. 1 excavate/off-site disposal Cost estimate summary
- Table no. 2 Alternative no. 2 excavate/stabilize/on-site disposal Cost estimate summary
- Table no. 3 Alternative no. 3 excavate/soil washing/ off-site disposal Cost estimate summary

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SENECA ARMY DEPOT SEAD 16 & 17 RIFS COST ESTIMATE SUMMARY ALTERNATIVE NO 1 EXCAVATE/OFF-SITE DISPOSAL

WBS number	description	cost
32xxx	design and treatability study (estimated at 10% of construction cost)	\$30,709
331xx01	mobilization and preparatory work (includes decontamination facilities and fencing)	\$7,621
331xx02	monitoring, sampling,testing,and analysis (includes soil sampling analysis)	\$54,312
331xx03	site work (includes access roads, cleanup and landscaping, clear and grub)	\$6,598
331xx06	groundwater collection and control (includes groundwater monitoring wells)	\$11,372
331xx08	solids collection and containment (Excavation, buried waste)	\$49,644
331xx19	disposal commercial (Includes landfill disposal)	\$135,682
331xx22	general requirements (includes contractor costs/ General Conditions)	\$28,520
332xx	engineering during construction (includes professional Labor)	\$13,345
333xx	construction management	\$10,000
	SUBTOTAL ESTIMATED CONSTRUCTION COST location multiplier 0.85 escalation 10% overhead and profit 13% contingencies 20% TOTAL ESTIMATED CONSTRUCTION COST	\$337,803 \$287,132 28,713 \$37,327 \$57,426 \$410,598
342XXX	operation and maintenance (post construction) (includes o&m costs)	\$10,422 per sampling event
	Present worth at 30 years and i = 5%	\$570,784

SENECA ARMY DEPOT SEAD 16 & 17 RIFS COST ESTIMATE SUMMARY ALTERNATIVE NO 2 EXCAVATE/STABILIZE/ON-SITE DISPOSAL

WBS number	description		cost
32xxx	design and treatability study (estimated at 15% of construction cost)		\$86,118
331xx01	mobilization and preparatory work (includes decontamination facilities and fencing)		\$15,787
331xx02	monitoring, sampling,testing,and analysis (includes soil sampling analysis)		\$64,968
331xx03	site work (includes access roads, cleanup and landscaping, clear and grub)		\$8,208
331xx06	groundwater collection and control (includes groundwater monitoring wells)		\$25,408
331xx08	solids collection and containment (Excavation, buried waste and capping)		\$166,440
331xx15	stabilization/fixation/encapsulation (includes solidification/stabilization)		\$199,385
331xx22	general requirements (includes contractor costs/ General Conditions)		\$48,800
332xx	engineering during construction (includes professional Labor)		\$25,128
333xx	construction management		\$20,000
	SUBTOTAL ESTIMATED CONSTRUCTION COST location multiplier 0.85 escalation 10% overhead and profit 13% contingencies 20% TOTAL ESTIMATED CONSTRUCTION COST		\$660,242 \$561,206 \$56,120 \$72,956 \$112,241 \$802,523
342XXX	operation and maintenance (post construction) (includes o&m costs)		\$20,422 per sampling event
	Present worth based on 30 years and i = 5%	i	\$1,116,409

SENECA ARMY DEPOT SEAD 16 & 17 RIFS COST ESTIMATE SUMMARY ALTERNATIVE NO 3 EXCAVATE/SOIL WASHING/OFF-SITE DISPOSAL

WBS number	description	cost
32xxx	design and treatability study (estimated at 15% of construction cost)	\$89,211
331xx01	mobilization and preparatory work (includes decontamination facilities and fencing)	\$7,621
331xx02	monitoring, sampling,testing,and analysis (includes soil sampling analysis)	\$58,900
331xx03	site work (includes access roads, cleanup and landscaping, clear and grub)	\$6,727
331xx06	groundwater collection and control (includes groundwater monitoring wells)	\$10,600
331xx08	solids collection and containment (Excavation, buried waste)	\$43,863
331xx13	physical treatment (includes soil washing)	\$278,532
331xx19	disposal commercial (Includes landfill disposal)	\$104,925
331xx22	general requirements (includes contractor costs/ General Conditions)	\$46,941
332xx	engineering during construction (includes professional Labor)	\$16,634
333xx	construction management	\$20,000
	CURTOTAL ESTIMATED CONSTRUCTION COST	\$C02.0E4
	SUBTOTAL ESTIMATED CONSTRUCTION COST location multiplier 0.85	\$683,954 \$581,361
	escalation 10%	\$58,136
	overhead and profit 13%	\$75,576
	contingencies 20%	\$116,272
	TOTAL ESTIMATED CONSTRUCTION COST	\$831,345
342XXX	operation and maintenance (post construction) (includes o&m costs)	\$10,422 per sampling event
	Present worth based on 30 years and i = 5%	\$991,531

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section 3 Detailed cost estimate

ECHOES detailed cost estimate Pg 1- 32

SEAD 16 & 17

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Professional Labor Sampling and Analysis Site Total

\$1,963.83 \$10,422.04 \$12,385.87

RA-4

Access Roads	\$3,544.80	
Analyses: Soil, Sludge, and Sediment	\$54,312.57	
Cleanup and Landscaping	\$1,397.83	
Clear and Grub	\$1,657.59	
Contractor Costs / General Conditions	\$28,520.02	
Decontamination Facilities	\$5,621.80	
Excavation, Buried Waste	\$49,644.12	
Fencing	\$2,000.25	
Groundwater Monitoring Wells	\$11,372.16	
Landfill Disposal	\$135,682.00	
Professional Labor	\$13,345.87	

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Access Roads	\$5,064.00
Analyses: Soil, Sludge, and Sediment	\$64,968.36
Capping	\$117,529.66
Cleanup and Landscaping	\$1,487.10
Clear and Grub	\$1,657.59
Contractor Costs / General Conditions	\$48,800.24
Decontamination Facilities	\$5,621.80
Excavation, Buried Waste	\$48,911.12
Fencing	\$10,166.04
Groundwater Monitoring Wells	\$25,408.13
Professional Labor	\$25,128.85
Solidification/Stabilization	\$199,385.92

RA-5

RA-6

Access Roads	\$3,544.80
Analyses: Soil, Sludge, and Sediment	\$58,900.88
Sleanup and Landscaping	\$1,526.82
Clear and Grub	\$1,657.59
Contractor Costs / General Conditions	\$46,941.06
Decontamination Facilities	\$5,621.80
Excavation, Buried Waste	\$43,863.09
encing	\$2,000.25
Sroundwater Monitoring Wells	\$10,600.34
andfill Disposal	\$104,925.00
Professional Labor	\$16,634.76
Soil Washing	\$278,532.76

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	Quantity/Unit	Safety Level	Labor	Equipment	Materials	Total
o&m cost Professional Labor						
Project Manager	4.00 HOUR	۵	\$197.06	\$0.00	\$0.00	\$197.06
Project Engineer	40.00 HOUR	۵	\$1,698.82	\$0.00	\$0.00	\$1,698.82
Word Processing/Clerical	4.00 HOUR	Ω	\$67.95	\$0.00	\$0.00	\$67.95
	Professional Labor Total	Total	\$1,963.83	\$0.00	\$0.00	\$1,963.83
Sampling and Analysis						
Van or Pickup Rental	2.00 DAY	۵	\$0.00	\$0.00	\$71.35	\$71.35
Mobilize Crew >= 500 Miles, per Person	2.00 EACH	Ω	\$0.00	\$0.00	\$2,378.34	\$2,378.34
Per Diem	4.00 DAY	۵	\$0.00	\$0.00	\$356.75	\$356.75
Prefiltering Liquids	4.00 EACH	Ω	\$0.00	\$0.00	\$59.46	\$59.46
Acid Diaestion	4.00 EACH	О	\$0.00	\$0.00	\$95.13	\$95.13
Repackage and Ship Sample	4.00 EACH	۵	\$0.00	\$0.00	\$142.70	\$142.70
Organic Vapor Analyzer Rental, per Day	2.00 DAY	۵	\$0.00	\$0.00	\$237.84	\$237.84
Disposable Materials per Sample	4.00 EACH	Ω	\$0.00	\$0.00	\$26.98	\$26.98
Decontamination Materials per Sample	4.00 EACH	Ω	\$0.00	\$0.00	\$24.97	\$24.97
Rinsate Analysis	1.00 EACH	۵	\$0.00	\$0.00	\$190.27	\$190.27
Pesticides/PCBs (EPA 608)	4.00 EACH	۵	\$0.00	\$0.00	\$713.50	\$713.50
Volatile Organic Analysis (EPA 624)	4.00 EACH	۵	\$0.00	\$0.00	\$1,070.25	\$1,070.25
Base Neutral & Acid Extractable Organics (EPA 625)	4.00 EACH	O	\$0.00	\$0.00	\$1,664.84	\$1,664.84
Target Analyte List Metals (EPA 6010/7000S), Soil	4.00 EACH	۵	\$0.00	\$0.00	\$975.12	\$975.12
1 liter 32 Oz. Clear Wide Mouth Jar. Case of 12	1.00 EACH	۵	\$0.00	\$0.00	\$44.80	\$44.80
40 ml Clear Vial Case of 72	1.00 EACH	Q	\$0.00	\$0.00	\$104.77	\$104.77
1 Liter. 32 oz. High-density Polyethylene Bottle, Case of 12	1.00 EACH	Ω	\$0.00	\$0.00	\$34.78	\$34.78
Custody Seals, Package of 10	1.00 EACH	Ω	\$0.00	\$0.00	\$1.34	\$1.34

1.00 EACH 50.00 \$0.00 \$16.71 4.00 EACH D \$0.00 \$0.00 \$16.71 25.00 LB D \$0.00 \$0.00 \$47.57 1.00 EACH D \$0.00 \$47.57 1.00 EACH D \$0.00 \$40.00 \$53.10 4.00 EACH D \$0.00 \$652.34 \$0.00 \$50.00 4.00 EACH D \$0.00 \$0.00 \$51.27 1.00 EACH D \$0.00 \$60.00 \$60.00 5.00 OFT D \$0.00 \$0.00 \$60.769.70 Access Roads Total \$1,547.00 \$1,997.80 \$0.00 \$0.769.70 Access Roads Total \$1,547.00 \$1,997.80 \$0.00 \$0.769.70 \$2.00 EACH D \$0.00 \$2,769.70 \$0.00 \$177.33 \$2.00 EACH D \$0.00 \$0.00 \$27,915.77 \$0.00 \$27,915.77 \$5.00 EACH D \$0.00 \$0.00 \$27,915.77 \$0.00 \$0.0		Quantity/Unit	Safety Level	Labor	Equipment	Materials	Total
State Stat	Safe Transport Can Filled with Vermiculite, 1 Gallon, Cas of 4		۵	\$0.00	\$0.00	\$16.71	\$16.71
Delivery, 21 - 50 Lb Package	Documentation Package for QA Verification, Data & Benchwork	4.00 EACH	٥	\$0.00	\$0.00	\$738.76	\$738.76
ce Chest 1.00 EACH 50.00 \$50.00 \$53.10 soft Peaks (Equivalent to 7 Lbs (ce) 32.00 HOUR 50.00 \$50.00 \$55.97 nier, 34" Outside Diameter x 1', 60 cc 4.00 EACH D \$60.00 \$50.00 \$55.70 no Cable, Teflon Coated 4.00 EACH D \$0.00 \$0.00 \$51.214 no Cable, Teflon Coated 5ampling and Analysis Total \$60.00 \$0.00 \$51.214 no Cable, Teflon Coated 5ampling and Analysis Total \$60.00 \$0.00 \$51.02.7 O&m coated 5ampling and Analysis Total \$60.00 \$0.00 \$51.02.7 Access Roads Total \$15.47.00 \$1.997.80 \$50.00 ser. Soil, Sludge, and Sediment \$1.547.00 \$1.997.80 \$50.00 ser. Soil, Sludge, Pental \$1.547.00 \$1.997.80 \$50.	Overnight Delivery, 21 - 50 Lb Package	25.00 LB	۵	\$0.00	\$0.00	\$47.57	\$47.57
Solution \$0.00 Solution \$0.00 Solution \$5.97 Indican 32.00 HOUR D \$60.234 \$0.00 \$5.97 Indican 4.00 EACH D \$60.00 \$610.214 on Cable, Teflon Coated 1.00 LeACH D \$60.00 \$610.27 ockm cost Sampling and Analysis Total \$662.34 \$0.00 \$610.27 ockm cost Sampling and Analysis Total \$662.34 \$0.00 \$610.27 ockm cost Sampling and Analysis Total \$662.34 \$0.00 \$6176.77 ockm cost Access Roads Total \$1.547.00 \$1.997.80 \$0.00 esc. Soil, Sludge, and Sediment Access Roads Total \$1.547.00 \$1.997.80 \$0.00 esc. Soil, Sludge, and Sediment 3.00 DAY C \$0.00 \$5.00 \$5.00 esc. Soil, Sludge, and Sediment 5.00 DAY C \$0.00 \$5.00 \$5.00 eard Ship Sample 5.00 DAY C \$0.00 \$0.00 \$5.00 EARA) (EPA 1311) 5.00 EACH D	60 Quart Ice Chest	1.00 EACH	Ω	\$0.00	\$0.00	\$53.10	\$53.10
Sampling and Analysis Total \$652.34 \$0.00 \$0.00 Iler, 34" Outside Diameter x 1", 60 cc \$4.00 EACH D \$6.00 Source \$0.00 \$6.00 Source \$0.00 \$0.00 \$6.02.27 Sampling and Analysis Total \$652.34 \$0.00 \$6.02.27 Sampling and Analysis Total \$6.00 \$0.00 Source \$0.00 Source \$0.00 Source \$0.00	Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	1.00 EACH	۵	\$0.00	\$0.00	\$5.97	\$5.97
lier, 3/4" Outside Diameter x 1, 60 cc 4.00 EACH D \$0.00 \$0.00 \$102.27 Sampling and Analysis Total \$652.34 \$0.00 \$102.27 \$102.27 \$0.00 \$102.27 \$102.2	Field Technician	32.00 HOUR	Ω	\$652.34	\$0.00	\$0.00	\$652.34
O&m Cable, Teflon Coated Sampling and Analysis Total \$0.00 \$0.00 \$10.27 O&m Cable, Teflon Coated Sampling and Analysis Total \$652.34 \$0.00 \$9.769.70 O&m Coated Sampling and Analysis Total \$2,616.17 \$0.00 \$9,769.70 Roads T,000.00 SY D \$1,547.00 \$1,997.80 \$0.00 Scil, Sludge, and Sediment Access Roads Total \$1,547.00 \$1,997.80 \$0.00 Scil, Sludge, and Sediment Access Roads Total \$1,547.00 \$1,997.80 \$0.00 Scil, Sludge, and Sediment Access Roads Total \$1,547.00 \$1,997.80 \$0.00 Scil, Sludge, and Sediment 3.00 DAY C \$0.00 \$0.00 \$0.00 Scil, Sludge, and Sediment 3.00 DAY C \$0.00 \$0.00 \$178.38 Reverse Emiliar per Person 2.00 EACH D \$0.00 \$0.00 \$178.38 App All Carrier April Description Supplies B.00 DAY C \$0.00 \$0.00 \$2.78.36 RAPA (EPA 1311) B.00 DAY C	Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc	4.00 EACH	۵	\$0.00	\$0.00	\$612.14	\$612.14
O&m cost Sampling and Analysis Total \$652.34 \$0.00 \$9,769.70 Roads 7,000.00 SY D \$1,547.00 \$1,997.80 \$0.00 ackup Rental Access Roads Total \$1,547.00 \$1,997.80 \$0.00 ackup Rental 3,000 DAY D \$1,547.00 \$1,997.80 \$0.00 ackup Rental 3,000 DAY D \$0.00 \$0.00 \$0.00 ser: Soil, Sludge, and Sediment 3,000 DAY D \$0.00 \$0.00 \$0.00 ckup Rental Bental Bental \$0.00 \$0.00 \$0.00 \$0.00 ser: Soil, Sludge, and Sediment 3,000 DAY C \$0.00 \$0.00 \$0.00 ckup Rental Bental Bental \$0.00 \$0.00 \$0.00 \$0.00 sea of Ship Sample 5,000 EACH D \$0.00 \$0.00 \$0.00 \$0.00 PAN (EPA 1311) 15,00 EACH D \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Suspension Cable, Teflon Coated	100.00 FT	۵	\$0.00	\$0.00	\$102.27	\$102.27
Noads Septem cost Septem cost Septem cost Septem cost Roads Access Roads Total \$1,547.00 \$1,997.80 \$0.00 ackup Rental 3.00 DAY D \$1,547.00 \$1,997.80 \$0.00 ackup Rental 3.00 DAY D \$1,547.00 \$1,997.80 \$0.00 ackup Rental 3.00 DAY D \$0.00 \$0.00 \$0.00 3.00 DAY C \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 4 Materials per Sample 5.00 EACH D \$0.00 <	S	ampling and Analysis	Total	\$652.34	\$0.00	\$9,769.70	\$10,422.04
ading, 14G, 1 Pass Access Roads Total S1,547.00 S1,997.80 S0.00 S1,997.80 S0.00 S1,997.80 S0.00 S1,097.80 S0.00 S0.00 S1,097.80 S0.00	Total o&m cost			\$2,616.17	\$0.00	\$9,769.70	\$12,385.87
ading, 14G, 1 Pass 7,000.00 SY D \$1,547.00 \$1,997.80 \$0.00 SS: Soil, Sludge, and Sediment 3.00 DAY D \$1,547.00 \$1,997.80 \$0.00 SS: Soil, Sludge, and Sediment 3.00 DAY D \$0.00 \$10.703 Ckw, >= 500 Miles, per Person 2.00 EACH D \$0.00 \$2,378.34 G.00 DAY C \$0.00 \$0.00 \$178.38 Stand Ship Sample 5.00 EACH D \$0.00 \$178.38 Stand Ship Sample 5.00 EACH D \$0.00 \$178.38 Stand Ship Sample 5.00 EACH D \$0.00 \$177.33 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$178.38 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$178.38 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$177.77 Standard EPA 8010/7000S), Soil 35.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 EACH D \$0.00 \$0.00 \$170.59 Stand Ship Sample 5.00 \$1.00 \$	0 4 4						
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e, and Sediment 3.00 DAY Per Person 3.00 DAY 6.00 DAY 6.00 DAY 6.00 DAY 7.00 EACH		Access Roads	Total	\$1,547.00	\$1,997.80	\$0.00	\$3,544.80
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6.00 DAY C \$0.00 \$0.00 \$55.13 5.00 EACH D \$0.00 \$0.00 \$178.38 3.00 DAY D \$0.00 \$178.38 4.00 EACH D \$0.00 \$337.24 5.00 EACH D \$0.00 \$337.24 5.00 EACH D \$0.00 \$312.16 15.00 EACH D \$0.00 \$27,915.77 15.00 EACH D \$0.00 \$27,915.77 5.00 EACH D \$0.00 \$223.30 5.00 EACH D \$0.00 \$50.00 \$223.30 5.00 EACH D \$0.00 \$50.00 \$223.30 5.00 EACH D \$0.00 \$50.00 \$50.00 \$50.00 \$50.53 6.00 EACH D \$0.00 \$50	Mobilize Crew, >= 500 Miles, per Person	2.00 EACH	٥	\$0.00	\$0.00	\$2,378.34	\$2,378.34
tal, per Day 3.00 EACH D \$0.00 \$178.38 and be so to tall per Day 3.00 DAY D \$0.00 \$0.00 \$178.38 and be so to tall per Day 50.00 EACH D \$0.00 \$337.24 and be so to tall per Day 50.00 \$27,915.77 and be so to tall per Day 50.00 \$20.00 \$223.98 and be so to tall per D \$0.00 \$0.00 \$170.59 and be so to tall per D \$0.00 \$0.00 \$170.59 and be so to tall per D \$0.00 \$0.00 \$170.59 and be so to tall per D \$0.00 \$0.00 \$170.59 and be so to tall per D \$0.00 \$0.00 \$170.59 and be so to tall per D \$0.00 \$0.00 \$170.59 and be so to tall per D \$0.00 \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so to tall per D \$0.00 \$170.59 and be so tall per D \$0.00 \$	Per Diem	6.00 DAY	O	\$0.00	\$0.00	\$535.13	\$535.13
tal, per Day 3.00 DAY D \$0.00 \$50.00 \$356.75 mple	Repackage and Ship Sample	5.00 EACH	۵	\$0.00	\$0.00	\$178.38	\$178.38
er Sample	Organic Vapor Analyzer Rental, per Day	3.00 DAY	۵	\$0.00	\$0.00	\$356.75	\$356.75
er Sample 50.00 EACH D \$0.00 \$12.16 15.00 EACH D \$0.00 \$27,915.77 15.00 EACH D \$0.00 \$27,915.77 35.00 EACH D \$0.00 \$223.30 18 outh Jar, Case of 12 5.00 EACH D \$0.00 \$170.59 2.00 EACH D \$0.00 \$170.59 2.00 EACH D \$0.00 \$0.00 \$170.59 2.00 EACH D \$0.00 \$0.00 \$209.53	Disposable Materials per Sample	50.00 EACH	۵	\$0.00	\$0.00	\$337.24	\$337.24
15.00 EACH D \$0.00 \$27,915.77 15.00 EACH D \$0.00 \$227,915.77 35.00 EACH D \$0.00 \$8,532.30 1 Bottle, Case of 12 5.00 EACH D \$0.00 \$170.59 2.00 EACH D \$0.00 \$209.53 5.00 EACH D \$0.00 \$0.00 \$209.53 6.00 EACH D \$0.00 \$0.00 \$209.53	Decontamination Materials per Sample	50.00 EACH	۵	\$0.00	\$0.00	\$312.16	\$312.16
## Strong Achieves Achieve	TCLP (RCRA) (EPA 1311)	15.00 EACH	۵	\$0.00	\$0.00	\$27,915.77	\$27,915.77
Outh Jar, Case of 12 5.00 EACH D \$0.00 \$0.00 I Bottle, Case of 12 5.00 EACH D \$0.00 \$0.00 2.00 EACH D \$0.00 \$0.00 6.00 EACH D \$0.00 \$0.00	Target Analyte List Metals (EPA 6010/7000S), Soil	35.00 EACH	۵	\$0.00	\$0.00	\$8,532.30	\$8,532.30
1 Bottle, Case of 12 5.00 EACH D \$0.00 \$0.	1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12	5.00 EACH	۵	\$0.00	\$0.00	\$223.98	\$223.98
2.00 EACH D \$0.00	1 Liter, 32 Oz, Boston Round Bottle, Case of 12	5.00 EACH	۵	\$0.00	\$0.00	\$170.59	\$170.59
5.00 EACH D \$0.00	40 ml, Clear Vial, Case of 72	2.00 EACH	٥	\$0.00	\$0.00	\$209.53	\$209.53
CC C#	Custody Seals, Package of 10		۵	\$0.00	\$0.00	\$6.72	\$6.72
4.00 EACH D \$0.00 \$0.00	Safe Transport Can Filled with Vermiculite, 1 Gallon, Case	se 4.00 EACH	۵	\$0.00	\$0.00	\$66.83	\$66.83

		Safety				
	Quantity/Unit	Level	Labor	Equipment	Materials	Total
Documentation Package for QA Verification, Data & Benchwork	50.00 EACH	۵	\$0.00	\$0.00	\$9,234.51	\$9,234.51
Overnight Delivery, 21 - 50 Lb Package	200.00 LB	O	\$0.00	\$0.00	\$380.54	\$380.54
60 Quart Ice Chest	5.00 EACH	Ω	\$0.00	\$0.00	\$265.48	\$265.48
Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	5.00 EACH	Ω	\$0.00	\$0.00	\$29.85	\$29.85
Project Manager	8.00 HOUR	۵	\$394.12	\$0.00	\$0.00	\$394.12
Project Engineer	40.00 HOUR	۵	\$1,698.82	\$0.00	\$0.00	\$1,698.82
Field Technician	48.00 HOUR	Ω	\$978.51	\$0.00	\$0.00	\$978.51
Analyses:	Soil, Sludge, and Sediment Total	Fotal	\$3,071.46	\$0.00	\$51,241.11	\$54,312.57
Cleanup and Landscaping						
General Area Cleanup	2.00 ACRE	۵	\$288.29	\$190.73	\$0.00	\$479.02
Area Preparation, 67% Level & 33% Slope	2.00 ACRE	Ω	\$41.44	\$61.12	\$0.00	\$102.56
Seeding, 67% Level & 33% Slope, Hydroseeding	2.00 ACRE	۵	\$114.16	\$131.28	\$570.80	\$816.25
	Cleanup and Landscaping Total	Fotal	\$443.89	\$383.14	\$570.80	\$1,397.83
Clear and Grub						
Light Brush without Grub, Chipping	2.00 ACRE	۵	\$954.32	\$703.26	\$0.00	\$1,657.59
	Clear and Grub Total	Fotal	\$954.32	\$703.26	\$0.00	\$1,657.59
Contractor Costs / General Conditions						
Van or Pickup Rental	60.00 DAY	۵	\$0.00	\$0.00	\$2,140.51	\$2,140.51
Mobilize Crew, >= 500 Miles, per Person	4.00 EACH	Ω	\$0.00	\$0.00	\$4,756.68	\$4,756.68
Per Diem	180.00 DAY	۵	\$0.00	\$0.00	\$16,053.80	\$16,053.80
Disposable Boot Covers (Tyvek)	180.00 PAIR	Ω	\$0.00	\$0.00	\$247.23	\$247.23
Disposable Gloves (Latex)	180.00 PAIR	D	\$0.00	\$0.00	\$40.97	\$40.97
Disposable Coveralls (Tyvek)	180.00 EACH	О	\$0.00	\$0.00	\$642.15	\$642.15
Temporary Office 20' x 8'	3.00 MONTH	۵	\$0.00	\$0.00	\$673.65	\$673.65
Portable Toilets - Chemical	3.00 MONTH	Ω	\$0.00	\$0.00	\$356.75	\$356.75
Construction Photographs	1.00 SET	Ω	\$509.64	\$0.00	\$0.00	\$509.64
Surveying - 2-man Crew	5.00 DAY	Ω	\$2,123.52	\$975.12	\$0.00	\$3,098.64
	Contractor Costs / General Conditions Total	Fotal	\$2,633.16	\$975.12	\$24,911.74	\$28,520.02

	:	Safety				-
	Quantity/Unit	Level	Labor	Equipment	Materials	lotai
Decontamination Facilities						
1,800 PSI Steam Cleaner Rental	3.00 MONTH	۵	\$0.00	\$0.00	\$3,506.86	\$3,506.86
8' x 36' Decontamination Trailer with 2 Showers, Fans	3.00 MONTH	O	\$0.00	\$0.00	\$1,605.38	\$1,605.38
DOT Steel Drum, 55 Gallon	10.00 EACH	۵	\$0.00	\$0.00	\$509.56	\$509.56
	Decontamination Facilities Total	Total	\$0.00	\$0.00	\$5,621.80	\$5,621.80
Excavation, Buried Waste						
D6 with A-blade Bulldozer	40.00 HOUR	Ω	\$1,165.39	\$1,731.43	\$0.00	\$2,896.82
Hand Excavation, Normal Soil	80.00 CY	O	\$2,446.83	\$20.49	\$0.00	\$2,467.32
950, 3.0 CY, Wheel Loader	160.00 HOUR	۵	\$4,626.22	\$6,518.56	\$0.00	\$11,144.78
Crawler-mounted, 1 CY, 215 Hydraulic Excavator	40.00 HOUR	Ω	\$1,440.57	\$1,686.72	\$0.00	\$3,127.29
12 CY DUMP TRUCK	160.00 HOUR	۵	\$2,850.29	\$4,710.40	\$0.00	\$7,560.69
Unclassified Fill, 6" Lifts, On-Site	1,500.00 CY	۵	\$2,199.86	\$5,050.65	\$356.70	\$7,607.21
Organic Vapor Analyzer Rental, per Month	3.00 MONTH	0	\$0.00	\$0.00	\$3,717.35	\$3,717.35
Plastic Laminate Waste Pile Cover	60,000.00 SF	۵	\$900.00	\$6.00	\$7,854.00	\$8,760.00
Sprayed Water Dust Suppressant	7,000.00 SY	O	\$29.00	\$32.20	\$0.00	\$61.20
Decontaminate Heavy Equipment	10.00 EACH	۵	\$2,046.39	\$255.08	\$0.00	\$2,301.47
	Excavation, Buried Waste Total	Total	\$17,704.55	\$20,011.53	\$11,928.05	\$49,644.12
Fencing						
6' Galvanized Chain-link Fence	800.00 LF	О	\$957.03	\$8.80	\$10,147.76	\$1,942.86
Hazardous Waste Signing	1.00 EACH	۵	\$26.76	\$0.23	\$30.40	\$57.40
	Fencing Total	Total	\$983.79	\$9.03	\$10,178.16	\$2,000.25
Groundwater Monitoring Wells						
Mobilization/Demobilization Drilling Rig & Crew	1.00 LS	Q	\$563.60	\$837.56	\$0.00	\$0.00
Organic Vapor Analyzer Rental, per Day	2.00 DAY	۵	\$0.00	\$0.00	\$237.84	\$237.84
Decontaminate Rig, Augers, Screen (Rental Equipment)	1.00 DAY	O	\$0.00	\$0.00	\$161.73	\$161.73
2" Stainless Steel, Well Casing	100.00 LF	۵	\$221.71	\$329.45	\$1,864.38	\$2,415.54
2" Stainless Steel, Well Screen	12.00 LF	۵	\$22.55	\$33.50	\$579.13	\$635.18
2" Stainless Steel, Well Plug	4.00 EACH	۵	\$22.55	\$33.50	\$120.65	\$176.70
2" Submersible Pump Rental, Day	1.00 DAY	O	\$0.00	\$0.00	\$59.46	\$59.46
Hollow-stem Auger, 8" Outside Diameter Borehole for 2"	100.00 LF	Ω	\$1,024.84	\$1,522.87	\$0.00	\$2,547.71
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Softbooks Detail by Treatm						Page 4

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		Safety				
	Quantity/Unit	Level	Labor	Equipment	Materials	Total
Split Spoon Sample, 2" x 24", During Drilling	50.00 EACH	Ω	\$0.00	\$0.00	\$1,486.47	\$1,486.47
Well Development Equipment Rental	1.00 WEEK	۵	\$39.28	\$0.44	\$452.56	\$492.28
Standby for Drilling	1.00 EACH	Ω	\$70.45	\$104.69	\$0.00	\$0.00
Move Rig/Equipment Around Site	4.00 EACH	Ω	\$70.45	\$104.69	\$0.00	\$175.14
Furnish 55 Gallon Drum for Drill Cuttings & Development Water	8.00 EACH	Ω	\$0.00	\$0.00	\$407.65	\$407.65
2" Screen, Filter Pack	80.00 LF	Ω	\$127.77	\$189.85	\$557.90	\$875.52
Surface Pad, Concrete, 4' x 4' x 4"	4.00 EACH	Ω	\$16.27	\$0.76	\$50.74	\$67.77
2" Well, Portland Cement Grout	4.00 LF	۵	\$0.00	\$0.00	\$4.28	\$4.28
2" Well, Bentonite Seal	4.00 EACH	Ω	\$25.36	\$37.69	\$68.93	\$131.98
5' Guard Posts, Cast Iron, Concrete Fill	12.00 EACH	۵	\$345.74	\$5.28	\$351.09	\$702.10
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc	4.00 EACH	۵	\$0.00	\$0.00	\$612.14	\$612.14
Suspension Cable, Teflon Coated	100.00 FT	Ω	\$0.00	\$0.00	\$102.27	\$102.27
Hand Reel	4.00 EACH	Ω	\$0.00	\$0.00	\$80.39	\$80.39
Groundwat	Groundwater Monitoring Wells Total	Total	\$2,550.58	\$3,200.28	\$7,197.60	\$11,372.16
Landfill Disposal						
Transport Bulk Solid non-Hazardous Waste, 22 tons per trip (quote Earthwatch)	59.00 trip	Ω	\$0.00	\$0.00	\$18,172.00	\$18,172.00
Transport Bulk Solid Hazardous Waste, 22 tons per trip (quote from Earthwatch)	23.00 trip	۵	\$0.00	\$0.00	\$37,950.00	\$37,950.00
Landfill Hazardous Solid Bulk Waste Requiring Stabilization (quote from Earthwatch)	805.00 TON	۵	\$0.00	\$0.00	\$60,375.00	\$60,375.00
Landfill Nonhazardous Solid Bulk Waste by ton (quote Earthwatch)	1,279.00 ton	Ω	\$0.00	\$0.00	\$19,185.00	\$19,185.00
	Landfill Disposal Total	Total	\$0.00	\$0.00	\$135,682.00	\$135,682.00
Professional Labor						
Project Manager	40.00 HOUR	Ω	\$1,970.62	\$0.00	\$0.00	\$1,970.62
QA/QC Officer	8.00 HOUR	Ω	\$231.04	\$0.00	\$0.00	\$231.04
Project Engineer	100.00 HOUR	Ω	\$4,247.04	\$0.00	\$0.00	\$4,247.04
Health & Safety Officer	8.00 HOUR	۵	\$203.86	\$0.00	\$0.00	\$203.86
Field Technician	320.00 HOUR	۵	\$6,523.43	\$0.00	\$0.00	\$6,523.43
Word Processing/Clerical	10.00 HOUR	۵	\$169.88	\$0.00	\$0.00	\$169.88
	Professional Labor Total	Total	\$13,345.87	\$0.00	\$0.00	\$13,345.87

	Quantity/Unit	Safety Level	Labor	Equipment	Materials	Total
Total RA-4			\$43,234.62	\$27,280.16	\$247,331.26	\$307,099.01
RA-5 Access Roads						
Rough Grading, 14G, 1 Pass	10,000.00 SY D Access Roads Total	D Total	\$2,210.00	\$2,854.00	\$0.00	\$5,064.00
Analyses: Soil, Sludge, and Sediment						
Van or Pickup Rental	3.00 DAY	٥	\$0.00	\$0.00	\$107.03	\$107.03
Mobilize Crew, >= 500 Miles, per Person	2.00 EACH	۵	\$0.00	\$0.00	\$2,378.34	\$2,378.34
Per Diem	6.00 DAY	٥	\$0.00	\$0.00	\$535.13	\$535.13
Organic Vapor Analyzer Rental, per Day	3.00 DAY	٥	\$0.00	\$0.00	\$356.75	\$356.75
Disposable Materials per Sample	55.00 EACH	۵	\$0.00	\$0.00	\$370.96	\$370.96
Decontamination Materials per Sample	55.00 EACH	٥	\$0.00	\$0.00	\$343.38	\$343.38
TCLP (RCRA) (EPA 1311)	20.00 EACH	O	\$0.00	\$0.00	\$37,221.02	\$37,221.02
Target Analyte List Metals (EPA 6010/7000S), Soil	35.00 EACH	۵	\$0.00	\$0.00	\$8,532.30	\$8,532.30
1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12	6.00 EACH	۵	\$0.00	\$0.00	\$268.78	\$268.78
1 Liter, 32 Oz, Boston Round Bottle, Case of 12	6.00 EACH	O	\$0.00	\$0.00	\$204.70	\$204.70
40 ml, Clear Vial, Case of 72	1.00 EACH	Ω	\$0.00	\$0.00	\$104.77	\$104.77
Custody Seals, Package of 10	6.00 EACH	D	\$0.00	\$0.00	\$8.06	\$8.06
Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of 4	5.00 EACH	٥	\$0.00	\$0.00	\$83.54	\$83.54
Documentation Package for QA Verification, Data & Benchwork	55.00 EACH	Ω	\$0.00	\$0.00	\$10,157.96	\$10,157.96
Overnight Delivery, 21 - 50 Lb Package	250.00 LB	۵	\$0.00	\$0.00	\$475.68	\$475.68
60 Quart Ice Chest	6.00 EACH	Ω	\$0.00	\$0.00	\$318.58	\$318.58
Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	6.00 EACH	۵	\$0.00	\$0.00	\$35.82	\$35.82
Project Manager	8.00 HOUR	۵	\$394.12	\$0.00	\$0.00	\$394.12
Project Engineer	40.00 HOUR	۵	\$1,698.82	\$0.00	\$0.00	\$1,698.82
Field Technician	64.00 HOUR	۵	\$1,304.69	\$0.00	\$0.00	\$1,304.69
Word Processing/Clerical	4.00 HOUR	۵	\$67.95	\$0.00	\$0.00	\$67.95
Analyses: Soil, Sluc	Soil, Sludge, and Sediment Total	t Total	\$3,465.58	\$0.00	\$61,502.78	\$64,968.36

		Safety				
	Quantity/Unit	Level	Labor	Equipment	Materials	Total
Capping						
950, 3.0 CY, Wheel Loader	160.00 HOUR	Ω	\$4,626.22	\$6,518.56	\$0.00	\$11,144.78
Crawler-mounted, 2 CY, 235 Hydraulic Excavator	160.00 HOUR	O	\$5,762.29	\$14,875.09	\$0.00	\$20,637.37
Sand, 6" Lifts, On-Site	1,100.00 CY	Q	\$1,614.17	\$3,560.15	\$261.58	\$5,435.90
Gravel, 6" Lifts	900.00 CY	O	\$2,061.90	\$1,427.13	\$10,113.84	\$13,602.87
Topsoil, 6" Lifts, Off-Site	225.00 CY	D	\$755.16	\$686.23	\$5,462.75	\$6,904.14
Seeding, Vegetative Cover	1.00 ACRE	O	\$51.37	\$57.25	\$1,654.73	\$1,763.34
Watering with 3,000-Gallon Tank Truck, Per Pass	1.00 ACRE	О	\$19.98	\$22.27	\$2.38	\$44.63
Mowing	1.00 ACRE	D	\$16.08	\$3.78	\$0.00	\$19.86
10' Wide Grass Drainage Swale	500.00 LF	O	\$363.43	\$402.15	\$1,153.70	\$1,919.28
Clay 10E-7, 6" Lifts, Off-Site	900.00 CY	O	\$3,578.01	\$3,662.64	\$4,174.02	\$11,414.67
60 Mil Polymeric Liner, High-density Polyethylene	23,125.00 SF	О	\$23,686.61	\$2,735.69	\$14,300.50	\$40,722.79
4" Slotted PVC Pipe	1,100.00 LF	۵	\$1,575.36	\$16.28	\$2,328.37	\$3,920.01
	Capping Total	Total	\$44,110.57	\$33,967.21	\$39,451.87	\$117,529.66
Cleanup and Landscaping						
General Area Cleanup	2.00 ACRE	۵	\$288.29	\$190.73	\$0.00	\$479.02
Area Preparation, 67% Level & 33% Slope	2.00 ACRE	۵	\$41.44	\$61.12	\$0.00	\$102.56
Seeding, 67% Level & 33% Slope, Hydroseeding	2.00 ACRE	۵	\$114.16	\$131.28	\$570.80	\$816.25
Watering with 3,000-Gallon Tank Truck, Per Pass	2.00 ACRE	Ω	\$39.96	\$44.55	\$4.76	\$89.27
	Cleanup and Landscaping Total	Total	\$483.85	\$427.69	\$575.56	\$1,487.10
Clear and Grub						
Light Brush without Grub, Chipping	2.00 ACRE	٥	\$954.32	\$703.26	\$0.00	\$1,657.59
	Clear and Grub Total	Total	\$954.32	\$703.26	\$0.00	\$1,657.59
Contractor Costs / General Conditions						
Van or Pickup Rental	90.00 DAY	Ω	\$0.00	\$0.00	\$3,210.76	\$3,210.76
Mobilize Crew, >= 500 Miles, per Person	4.00 EACH	Ω	\$0.00	\$0.00	\$4,756.68	\$4,756.68
Per Diem	360.00 DAY	Ω	\$0.00	\$0.00	\$32,107.61	\$32,107.61
Disposable Boot Covers (Tyvek)	360.00 PAIR	Δ	\$0.00	\$0.00	\$494.46	\$494.46
Disposable Gloves (Latex)	360.00 PAIR	۵	\$0.00	\$0.00	\$81.94	\$81.94
Disposable Coveralls (Tyvek)	360.00 EACH	۵	\$0.00	\$0.00	\$1,284.30	\$1,284.30

	Safety Quantity/Unit Level	ety el Labor	Equipment	Materials	Total
Temporary Office 20' x 8'	3.00 MONTH D	\$0.00	\$0.00	\$673.65	\$673.65
Temporary Storage Trailer 28' x 10'	3.00 MONTH	\$0.00	\$0.00	\$366.63	\$366.63
Portable Toilets - Chemical	3.00 MONTH	\$0.00	\$0.00	\$356.75	\$356.75
Construction Photographs	1.00 SET D	\$509.64	\$0.00	\$0.00	\$509.64
Surveying - 2-man Crew	8.00 DAY	\$3,397.63	\$1,560.19	\$0.00	\$4,957.82
	Contractor Costs / General Conditions Total	1 \$3,907.27	\$1,560.19	\$43,332.78	\$48,800.24
Decontamination Facilities					
1,800 PSI Steam Cleaner Rental	3.00 MONTH D	\$0.00	\$0.00	\$3,506.86	\$3,506.86
8' x 36' Decontamination Trailer with 2 Showers, Fans	3.00 MONTH D		\$0.00	\$1,605.38	\$1,605.38
DOT Steel Drum, 55 Gallon	10.00 EACH D	\$0.00	\$0.00	\$509.56	\$509.56
	Decontamination Facilities Total	11 \$0.00	\$0.00	\$5,621.80	\$5,621.80
Excavation, Buried Waste					
D4 with A-blade Bulldozer	40.00 HOUR	\$1,156.55	\$979.40	\$0.00	\$2,135.96
Hand Excavation, Normal Soil	80.00 CY	\$2,446.83	\$20.49	\$0.00	\$2,467.32
950, 3.0 CY, Wheel Loader	160.00 HOUR D		\$6,518.56	\$0.00	\$11,144.78
Crawler-mounted, 1 CY, 215 Hydraulic Excavator	40.00 HOUR D	\$1,440.57	\$1,686.72	\$0.00	\$3,127.29
12 CY, Dump Truck	160.00 HOUR D	\$2,851.31	\$4,711.01	\$0.00	\$7,562.32
Unclassified Fill, 6" Lifts, On-Site	1,500.00 CY D	\$2,199.86	\$5,050.65	\$356.70	\$7,607.21
Organic Vapor Analyzer Rental, per Month	3.00 MONTH D	\$0.00	\$0.00	\$3,717.35	\$3,717.35
Plastic Laminate Waste Pile Cover	60,000.00 SF D	\$300.00	\$6.00	\$7,854.00	\$8,760.00
Sprayed Water Dust Suppressant	10,000.00 SY D	\$41.43	\$46.00	\$0.00	\$87.43
Decontaminate Heavy Equipment	10.00 EACH D	\$2,046.39	\$255.08	\$0.00	\$2,301.47
Exca	Excavation, Buried Waste Total	11 \$17,709.17	\$19,273.91	\$11,928.05	\$48,911.12
Fencing					
The state of the s					
Silt Fencing	1,400.00 LF D	\$2,000.00	\$0.00	\$1,400.00	\$3,400.00
6' Galvanized Chain-link Fence	450.00 LF D	\$538.33	\$4.95	\$5,708.12	\$6,251.39
Swing Gates, Complete	1.00 EACH D	\$104.80	\$61.37	\$291.09	\$457.25
Hazardous Waste Signing	1.00 EACH D	\$26.76	\$0.23	\$30.40	\$57.40
	Fencing Total	\$2,669.89	\$66.55	\$7,429.60	\$10,166.04

	Quantity/Unit	Safety Level	Labor	Equipment	Materials	Total
Groundwater Monitoring Wells						
Mobilization/Demobilization Drilling Rig & Crew	1.00 LS	۵	\$563.60	\$837.56	\$0.00	\$1,401.15
Organic Vapor Analyzer Rental, per Day	4.00 DAY	Ω	\$0.00	\$0.00	\$475.67	\$475.67
2" Stainless Steel, Well Casing	250.00 LF	Ω	\$554.29	\$823.63	\$4,660.95	\$6,038.86
2" Stainless Steel, Well Screen	24.00 LF	Ω	\$45.09	\$67.01	\$1,158.27	\$1,270.37
2" Stainless Steel, Well Plug	8.00 EACH	Ω	\$45.09	\$67.01	\$241.31	\$353.41
2" Submersible Pump Rental, Day	1.00 DAY	۵	\$0.00	\$0.00	\$59.46	\$59.46
Hollow-stem Auger, 8" Outside Diameter Borehole for 2" Well	250.00 LF	۵	\$2,562.11	\$3,807.18	\$0.00	\$6,369.28
Split Spoon Sample, 2" x 24", During Drilling	125.00 EACH	۵	\$0.00	\$0.00	\$3,716.16	\$3,716.16
Well Development Equipment Rental	1.00 WEEK	Ω	\$39.28	\$0.44	\$452.56	\$492.28
Standby for Drilling	1.00 EACH	Ω	\$70.45	\$104.69	\$0.00	\$175.14
Move Rig/Equipment Around Site	8.00 EACH	۵	\$140.90	\$209.39	\$0.00	\$350.29
Furnish 55 Gallon Drum for Drill Cuttings & Development Water	16.00 EACH	۵	\$0.00	\$0.00	\$815.30	\$815.30
2" Screen, Filter Pack	40.00 LF	۵	\$63.89	\$94.92	\$278.95	\$437.76
Surface Pad, Concrete, 4' x 4' x 4"	8.00 EACH	Ω	\$32.55	\$1.51	\$101.48	\$135.54
2" Well, Portland Cement Grout	8.00 LF	Ω	\$0.00	\$0.00	\$8.56	\$8.56
2" Well, Bentonite Seal	8.00 EACH	Ω	\$50.73	\$75.38	\$137.86	\$263.97
5' Guard Posts, Cast Iron, Concrete Fill	24.00 EACH	۵	\$691.48	\$10.55	\$702.18	\$1,404.21
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc	8.00 EACH	۵	\$0.00	\$0.00	\$1,224.28	\$1,224.28
Suspension Cable, Teflon Coated	250.00 FT	۵	\$0.00	\$0.00	\$255.68	\$255.68
Hand Reel	8.00 EACH	۵	\$0.00	\$0.00	\$160.78	\$160.78
Groundwate	Groundwater Monitoring Wells Total	Total	\$4,859.45	\$6,099.26	\$14,449.42	\$25,408.13
Professional Labor						
Project Manager	80.00 HOUR	Q	\$3.941.25	\$0.00	\$0.00	\$3,941.25
OA/OC Officer	16.00 HOUR	Ω	\$462.08	\$0.00	\$0.00	\$462.08
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Word Processing/Clerical

Project Engineer Health & Safety Officer

Field Technician

\$339.76

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\$407.72

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16.00 HOUR 480.00 HOUR 20.00 HOUR

240.00 HOUR

\$339.76

\$25,128.85

Professional Labor Total

\$25,128.85

\$10,192.90 \$407.72 \$9,785.14

\$0.00

\$10,192.90

	Quantity/Unit	Safety Level	Labor	Equipment	Materials	Total
Solidification/Stabilization						
950, 3.0 CY. Wheel Loader	160.00 HOUR	Q	\$4,626.22	\$6,518.56	\$0.00	\$11,144.78
12 CY, Dump Truck	160.00 HOUR	۵	\$2,851.31	\$4,711.01	\$0.00	\$7,562.32
580K, 1CY, Backhoe with Front-end Loader	320.00 HOUR	O	\$9,475.34	\$4,448.48	\$0.00	\$13,923.82
4" Structural Slab on Grade	100.00 SF	D	\$198.40	\$16.77	\$184.64	\$399.81
550 Gallon, Stainless Steel Aboveground Wastewater Holding Tank, Rental	1.00 MONTH	ο +	\$0.00	\$0.00	\$356.75	\$356.75
Per Diem	360.00 DAY	Ω	\$0.00	\$0.00	\$32,107.61	\$32,107.61
Truck Scale Rental	2.00 MONTH	ط 1	\$0.00	\$0.00	\$8,324.19	\$8,324.19
R60 Rough Terrain Forklift, 6,000 Lb @ 24" LC	320.00 HOUR	٥	\$9,268.75	\$4,075.55	\$0.00	\$13,344.31
Portland Cement Type I (Bulk)	300.00 TON	0	\$0.00	\$0.00	\$25,329.33	\$25,329.33
Tank Truck Standby Time for Solidification/Stabilization	320.00 HOUR	۵	\$0.00	\$3,446.85	\$0.00	\$3,446.85
1 CY Plywood Boxes	100.00 EACH	٥	\$3,002.06	\$81.88	\$2,675.63	\$5,759.57
Operational Labor for Process Equipment	640.00 HOUR	۵	\$33,160.87	\$0.00	\$0.00	\$33,160.87
Bulk Chemical Transport (40,000 Lb Truckload)	15.00 EACH	٥	\$0.00	\$0.00	\$5,351.27	\$5,351.27
10 CY Mixing System	2.00 MONTH	0	\$0.00	\$0.00	\$9,930.76	\$9,930.76
Solidification/Stabilization Ancillary Equipment	1.00 EACH	۵	\$0.00	\$0.00	\$7,135.02	\$7,135.02
Mobilization/Demobilization of Solidification/Stabilization	1.00 LS	٥	\$16,839.50	\$0.00	\$0.00	\$16,839.50
	10.00 04	٥	00 00	00 00	\$500 56	\$500 5B
DOT Steel Drum, 55 Gallon	10.00 EACH	ם נ	\$0.00	\$0.00	\$209.00 \$00.00	4009.00 400.00
Diesel Fuel	2,000.00 GAL	2	\$0.00	\$0.00	\$2,806.40	\$2,806.40
Water	250.00 KGAL	۵	\$0.00	\$0.00	\$1,953.23	\$1,953.23
Solidifica	Solidification/Stabilization Total	Total	\$79,422.45	\$23,299.10	\$96,664.38	\$199,385.92
Total RA-5			\$184,921.40	\$88,251.18	\$280,956.24	\$554,128.81
RA-6						
Access Roads						
de de la constante de la const	Y2 00 000 5	C	\$1 547 00	\$1 997 80	\$0.00	\$3 544 80
	Access Roads Total	Total	\$1,547.00	\$1,997.80	\$0.00	\$3,544.80
Analyses: Soil, Sludge, and Sediment						
Van or Pickup Rental	4.00 DAY	Ω	\$0.00	\$0.00	\$142.70	\$142.70
Softbooks Detail by Treatm						Page 10

\$1,657.59	Page 11
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	ŀ	Iotal	\$4,756.68	\$713.50	\$475.67	\$411.43	\$380.84	\$24,193.66	\$11,701.44	\$268.78	\$204.70	\$104.77	\$8.06	\$83.54	\$11,266.10	\$428.11	\$265.48	\$29.85	\$394.12	\$1,698.82	\$1,304.69	\$67.95	\$58,900.88		\$479.02	\$102.56	\$816.25	\$89.27	\$39.72	\$1,526.82		\$1,657.59	\$1,657.59
		Materials	\$4,756.68	\$713.50	\$475.67	\$411.43	\$380.84	\$24,193.66	\$11,701.44	\$268.78	\$204.70	\$104.77	\$8.06	\$83.54	\$11,266.10	\$428.11	\$265.48	\$29.85	\$0.00	\$0.00	\$0.00	\$0.00	\$55,435.30		\$0.00	\$0.00	\$570.80	\$4.76	\$0.00	\$575.56		\$0.00	\$0.00
		Equipment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$190.73	\$61.12	\$131.28	\$44.55	\$7.56	\$435.25		\$703.26	\$703.26
		Labor	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$394.12	\$1,698.82	\$1,304.69	\$67.95	\$3,465.58		\$288.29	\$41.44	\$114.16	\$39.96	\$32.16	\$516.01		\$954.32	\$954.32
	Safety	Level	Ω	Ω	Ω	۵	۵	Ω	Ω	Ω	۵	۵	۵	Ω	۵	O	٥	۵	٥	Ω	۵	۵	Total		۵	۵	Q	О	Q	Total		Q	Fotal
		Quantity/Unit	4.00 EACH	8.00 DAY	4.00 DAY	61.00 EACH	61.00 EACH	13.00 EACH	48.00 EACH	6.00 EACH	6.00 EACH	1.00 EACH	6.00 EACH	5.00 EACH	61.00 EACH	225.00 LB	5.00 EACH	5.00 EACH	8.00 HOUR	40.00 HOUR	64.00 HOUR	4.00 HOUR	Soil, Sludge, and Sediment Total		2.00 ACRE	2.00 ACRE	2.00 ACRE	2.00 ACRE	2.00 ACRE	Cleanup and Landscaping Total		2.00 ACRE	Clear and Grub Total
			Mobilize Crew, >= 500 Miles, per Person	Per Diem	Organic Vapor Analyzer Rental, per Day	Disposable Materials per Sample	Decontamination Materials per Sample	TCLP (RCRA) (EPA 1311)	Target Analyte List Metals (EPA 6010/7000S), Soil	1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12	1 Liter, 32 Oz, Boston Round Bottle, Case of 12	40 ml, Clear Vial, Case of 72	Custody Seals, Package of 10	Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of 4	Documentation Package for QA Verification, Data & Benchwork	Overnight Delivery, 21 - 50 Lb Package	60 Quart Ice Chest	Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	Project Manager	Project Engineer	Field Technician	Word Processing/Clerical	Analyses: Soil, Slude	Cleanup and Landscaping	General Area Cleanup	Area Preparation, 67% Level & 33% Slope	Seeding, 67% Level & 33% Slope, Hydroseeding	Watering with 3,000-Gallon Tank Truck, Per Pass	Mowing	Cleanup	Clear and Grub	Light Brush without Grub, Chipping	

	Quantity/Unit	Safety Level	Labor	Equipment	Materials	Total
Contractor Costs / General Conditions						
Van or Pickup Rental	90.00 DAY	Q	\$0.00	\$0.00	\$3,210.76	\$3,210.76
Mobilize Crew, >= 500 Miles, per Person	4.00 EACH	٥	\$0.00	\$0.00	\$4,756.68	\$4,756.68
Per Diem	360.00 DAY	۵	\$0.00	\$0.00	\$32,107.61	\$32,107.61
Disposable Boot Covers (Tyvek)	360.00 PAIR	٥	\$0.00	\$0.00	\$494.46	\$494.46
Disposable Gloves (Latex)	360.00 PAIR	Q	\$0.00	\$0.00	\$81.94	\$81.94
Disposable Coveralls (Tyvek)	360.00 EACH	۵	\$0.00	\$0.00	\$1,284.30	\$1,284.30
Temporary Office 20' x 8'	3.00 MONTH	O	\$0.00	\$0.00	\$673.65	\$673.65
Temporary Storage Trailer 28' x 10'	3.00 MONTH	O	\$0.00	\$0.00	\$366.63	\$366.63
Portable Toilets - Chemical	3.00 MONTH	۵	\$0.00	\$0.00	\$356.75	\$356.75
Construction Photographs	1.00 SET	Q	\$509.64	\$0.00	\$0.00	\$509.64
Surveying - 2-man Crew	5.00 DAY	Ω	\$2,123.52	\$975.12	\$0.00	\$3,098.64
Contractor	Costs / General Conditions Total	Total	\$2,633.16	\$975.12	\$43,332.78	\$46,941.06
Decontamination Facilities						
1,800 PSI Steam Cleaner Rental	3.00 MONTH	O	\$0.00	\$0.00	\$3,506.86	\$3,506.86
8' x 36' Decontamination Trailer with 2 Showers, Fans	3.00 MONTH	۵	\$0.00	\$0.00	\$1,605.38	\$1,605.38
DOT Steel Drum, 55 Gallon	10.00 EACH	O	\$0.00	\$0.00	\$509.56	\$509.56
Decon	Decontamination Facilities Total	Total	\$0.00	\$0.00	\$5,621.80	\$5,621.80
Excavation, Buried Waste						
D5 with A-blade Bulldozer	40.00 HOUR	٥	\$1,156,55	\$1.486.46	\$0.00	\$2.643.02
Hand Excavation, Normal Soil	80.00 CY	٥	\$2,446.83	\$20.49	\$0.00	\$2,467.32
950, 3.0 CY, Wheel Loader	80.00 HOUR	D	\$2,313.11	\$3,259.28	\$0.00	\$5,572.39
Crawler-mounted, 1 CY, 215 Hydraulic Excavator	80.00 HOUR	O	\$2,881.14	\$3,373.44	\$0.00	\$6,254.58
12 CY, Dump Truck	160.00 HOUR	۵	\$2,851.31	\$4,711.01	\$0.00	\$7,562.32
Backfill with Excavated Material	1,500.00 CY	۵	\$2,931.64	\$1,235.10	\$356.70	\$4,523.44
Organic Vapor Analyzer Rental, per Month	3.00 MONTH	٥	\$0.00	\$0.00	\$3,717.35	\$3,717.35
Plastic Laminate Waste Pile Cover	60,000.00 SF	۵	\$900.00	\$6.00	\$7,854.00	\$8,760.00
Sprayed Water Dust Suppressant	7,000.00 SY	O	\$29.00	\$32.20	\$0.00	\$61.20
Decontaminate Heavy Equipment	10.00 EACH	O	\$2,046.39	\$255.08	\$0.00	\$2,301.47
Excan	Excavation, Buried Waste Total	Total	\$17,555.99	\$14,379.06	\$11,928.05	\$43,863.09

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		Safety	3			
	Quantity/Unit	Level	Labor	Equipment	Materials	Total
Fencing			ě.			
silt fencing	800.00 LF	Ω	\$1,142.86	\$0.00	\$800.00	\$1,942.86
Hazardous Waste Signing	1.00 EACH	۵	\$26.76	\$0.23	\$30.40	\$57.40
	Fencing Total	Total	\$1,169.62	\$0.23	\$830.40	\$2,000.25
Groundwater Monitoring Wells						
Mobilization/Demobilization Drilling Rig & Crew	1.00 LS	D	\$563.60	\$837.56	\$0.00	\$1,401.15
Organic Vapor Analyzer Rental, per Day	2.00 DAY	۵	\$0.00	\$0.00	\$237.84	\$237.84
Decontaminate Rig, Augers, Screen (Rental Equipment)	1.00 DAY	۵	\$0.00	\$0.00	\$161.73	\$161.73
2" Stainless Steel, Well Casing	100.00 LF	۵	\$221.71	\$329.45	\$1,864.38	\$2,415.54
2" Stainless Steel, Well Screen	12.00 LF	Ω	\$22.55	\$33.50	\$579.13	\$635.18
2" Stainless Steel, Well Plug	4.00 EACH	Ω	\$22.55	\$33.50	\$120.65	\$176.70
2" Submersible Pump Rental, Day	1.00 DAY	۵	\$0.00	\$0.00	\$59.46	\$59.46
Hollow-stem Auger, 8" Outside Diameter Borehole for 2" Well	100.00 LF	O	\$1,024.84	\$1,522.87	\$0.00	\$2,547.71
Well Development Equipment Rental	1.00 WEEK	Ω	\$39.28	\$0.44	\$452.56	\$492.28
Standby for Drilling	1.00 EACH	Ω	\$70.45	\$104.69	\$0.00	\$175.14
Move Rig/Equipment Around Site	4.00 EACH	Ω	\$70.45	\$104.69	\$0.00	\$175.14
Furnish 55 Gallon Drum for Drill Cuttings & Development Water	8.00 EACH	۵	\$0.00	\$0.00	\$407.65	\$0.00
2" Screen, Filter Pack	20.00 LF	Q	\$31.94	\$47.46	\$139.48	\$218.88
Surface Pad, Concrete, 4' x 4' x 4"	4.00 EACH	Ω	\$16.27	\$0.76	\$50.74	\$67.77
2" Well, Portland Cement Grout	4.00 LF	Ω	\$0.00	\$0.00	\$4.28	\$4.28
2" Well, Bentonite Seal	4.00 EACH	Ω	\$25.36	\$37.69	\$68.93	\$131.98
5' Guard Posts, Cast Iron, Concrete Fill	12.00 EACH	Ω	\$345.74	\$5.28	\$351.09	\$702.10
Teflon Bailer, 3/4" Outside Diameter x 3', 180 cc	4.00 EACH	Ω	\$0.00	\$0.00	\$814.77	\$814.77
Suspension Cable, Teflon Coated	100.00 FT	۵	\$0.00	\$0.00	\$102.27	\$102.27
Hand Reel	4.00 EACH	۵	\$0.00	\$0.00	\$80.39	\$80.39
Groundwater	Groundwater Monitoring Wells Total	Total	\$2,454.75	\$3,057.90	\$5,495.34	\$10,600.34
Landfill Disposal						
Transport Bulk Solid Hazardous Waste, 22 tons per trip (quote from earthwatch)	32.00 trip	۵	\$0.00	\$0.00	\$52,800.00	\$52,800.00

		Safety				
	Quantity/Unit	Level	Labor	Equipment	Materials	Total
Landfill Hazardous Solid Bulk Waste Requiring Stabilization (quote from Earthwatch)	695.00 tons	Ω	\$0.00	\$0.00	\$52,125.00	\$52,125.00
	Landfill Disposal Total	Total	\$0.00	\$0.00	\$104,925.00	\$104,925.00
Professional Labor						
Project Manager	80.00 HOUR	۵	\$3,941.25	\$0.00	\$0.00	\$3,941.25
QA/QC Officer	16.00 HOUR	٥	\$462.08	\$0.00	\$0.00	\$462.08
Project Hydrogeologist	40.00 HOUR	۵	\$1,698.82	\$0.00	\$0.00	\$1,698.82
Health & Safety Officer	16.00 HOUR	D	\$407.72	\$0.00	\$0.00	\$407.72
Field Technician	480.00 HOUR	O	\$9,785.14	\$0.00	\$0.00	\$9,785.14
Word Processing/Clerical	20.00 HOUR	٥	\$339.76	\$0.00	\$0.00	\$339.76
•	Professional Labor Total	Total	\$16,634.76	\$0.00	\$0.00	\$16,634.76
Soil Washing						
Treat 0 - 9,999 Tons of Soil, Including Residual Water	2,084.00 TON D	D Total	\$4,021.82 \$4,021.82	\$1,905.61	\$272,605.33 \$272,605.33	\$278,532.76 \$278,532.76
Total RA-6			\$50,953.02	\$23,454.23	\$500,749.56	\$574,749.16



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SEAD 16 & 17

parsons engineering science

Prudential Center

Boston, Massachusetts, 02199

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Paul Messelaar

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deactivation furnaces, one active and one inactive. Remediation alternatives includes; RA-1 no action; RA-4 excavate/off-site landfill; RA-5 excavate/solidify/ on-site landfill; and RA-6 excavate/soil washing/backfill clean soils/ off-site landfill dirty soils Soil and sediment remediation at two small arms munitions

Labor Safety Quantity/Unit Level

Equipment

Materials

Total

o&m cost

SEAD 16 & 17 groundwater monitoring prepare monitoring report groundwater monitoring groundwater/metals

Professional Labor

Project Manager	4.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
33220101	Q	70.00% \$197.06	100.00% \$0.00	\$0.00	\$197.06
Project Engineer 33220105	40.00 HOUR	\$29.7293 70.00% \$1,698.82	\$0.0000 100.00% \$0.00	\$0.0000	\$1,698.82
Word Processing/Clerical 33220119	4.00 HOUR D	\$11.8917 70.00% \$67.95	\$0.0000 100.00% \$0.00	\$0.0000	\$67.95
Sampling and Analysis	Professional Labor Total	\$1,963.83	\$0.00	\$0.00	\$1,963.83
Van or Pickup Rental	2.00 DAY	\$0.0000	\$0.0000	\$35.6751	

Van or Pickup Rental	2.00 DAY	\$0.0000	\$0.0000	\$35.6751	
33010102	٥	%00.07	100.00%		
		\$0.00	\$0.00	\$71.35	\$71.35
Mobilize Crew, >= 500 Miles, per Person	2.00 EACH	\$0.0000	\$0.0000	\$1,189.1700	
33010201	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$2,378.34	\$2,378.34

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Softbooks -- Full Detail

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בי ביים	4.00 DAY	\$0.0000	\$0.0000	\$89.1878	
33010202	0	70.00%	100.00%		
		\$0.00	\$0.00	\$356.75	\$356.75
Prefiltering Liquids	4.00 EACH	\$0.0000	\$0.0000	\$14.8646	
33020206	0	70.00%	100.00%		
		\$0.00	\$0.00	\$59.46	\$59.46
Acid Digestion	4.00 EACH	\$0.0000	\$0.0000	\$23.7834	
33020207	Q	%00.02	100.00%		
	By Control of the Con	\$0.00	\$0.00	\$95.13	\$95.13
Repackage and Ship Sample	4.00 EACH	\$0.0000	\$0.0000	\$35.6751	
33020225	Q	%00.07	100.00%		
		\$0.00	\$0.00	\$142.70	\$142.70
Organic Vapor Analyzer Rental, per Day	2.00 DAY	\$0.0000	\$0.0000	\$118.9178	
33020303	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$237.84	\$237.84
Disposable Materials per Sample	4.00 EACH	\$0.0000	\$0.0000	\$6.7448	
33020401	۵	%00.02	100.00%		
	A STANTON	\$0.00	\$0.00	\$26.98	\$26.98
Decontamination Materials per Sample	4.00 EACH	\$0.0000	\$0.0000	\$6.2432	
33020402	Q	%00.07	100.00%		
		\$0.00	\$0.00	\$24.97	\$24.97
Rinsate Analysis	1.00 EACH	\$0.0000	\$0.0000	\$190.2672	
33020512	Q	%00.02	100.00%		
		\$0.00	\$0.00	\$190.27	\$190.27
Pesticides/PCBs (EPA 608)	4.00 EACH	\$0.0000	\$0.0000	\$178.3755	
33021617	Δ	70.00%	100.00%		
The second secon		\$0.00	\$0.00	\$713.50	\$713.50
Volatile Organic Analysis (EPA 624)	4.00 EACH	\$0.0000	\$0.0000	\$267.5633	
33021618	Δ	%00.02	100.00%		
		0000	0000	-	1000

Total

Materials

Equipment

Labor

Safety Quantity/Unit Level

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Base Neutral & Acid Extractable Organics (EPA 625) 33021619	4.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$416.2095	\$1,664.84
Target Analyte List Metals (EPA 6010/7000S), Soil 33021709	4.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$243.7799	\$975.12
1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12 33022020	1.00 EACH D	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$44.7961	\$44.80
40 ml, Clear Vial, Case of 72 33022026	1.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$104.7659	\$104.77
1 Liter, 32 oz, High-density Polyethylene Bottle, Case of 12 33022030	1.00 EACH D	\$0.000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$34.7833 \$34.78	\$34.78
Custody Seals, Package of 10 33022034	1.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.3438	\$1.34
Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of 4 33022035	1.00 EACH D	\$0.000 70.00%	\$0.0000 100.00% \$0.00	\$16.7079	\$16.71
Documentation Package for QA Verification, Data & Benchwork 33022036	4.00 EACH	\$0.0000	\$0.0000 100.00% \$0.00	\$184.6901	\$738.76
Overnight Delivery, 21 - 50 Lb Package 33022042	25.00 LB D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.9027	\$47.57
60 Quart Ice Chest 33022046	1.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$53.0965	\$53.10

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	1.00 EACH	\$0.0000	\$0.0000	\$5.9696	
33022050	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$5.97	\$5.97
Field Technician	32.00 HOUR	\$14.2700	\$0.0000	\$0.0000	
33220117	۵	70.00%	100.00%		
		\$652.34	\$0.00	\$0.00	\$652.34
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc	4.00 EACH	\$0.0000	\$0.0000	\$153.0344	
33232401	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$612.14	\$612.14
Suspension Cable, Teflon Coated	100.00 FT	\$0.0000	\$0.0000	\$1.0227	
33232422	0	70.00%	100.00%		
		\$0.00	\$0.00	\$102.27	\$102.27
	Sampling and Analysis Total	\$652.34	\$0.00	\$9,769.70	\$10,422.04
Site Total		\$2,616.17	\$0.00	\$9,769.70	\$12,385.87

RA-4

SEAD 16 has an inactive deactivation fumace that was used to destroy small arms munitions. Sead 17 is ajacent to SEAD 16 and has an active deactivation fumace that is used for the destruction of small arms munitions.

The primary media of concern are soils and sediments. THe primary cintaininants of concern are metals such as lead and copper.

excavate/off-site lanfill disposal

groundwater monitoring

Access Roads

Rough Grading, 14G, 1 Pass	7,000.00 SY	\$0.1547	\$0.2854	\$0.0000	
17030103	O	%00.02	100.00%		
		\$1,547.00	\$1,997.80	\$0.00	\$3,544.80
	Access Roads Total	\$1,547.00	\$1,997.80	\$0.00	\$3,544.80
Analyses: Soil, Sludge, and Sediment					

33010102		\$0.000 \$0.000	\$0.0000	\$35.6751	
	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$107.03	\$107.03

Softbooks -- Full Detail

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Mobilize Crew, >= 500 Miles, per Person 33010201	2.00 EACH D	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$1,189.1700	\$2,378.34
Per Diem 33010202	6.00 DAY	\$0.0000	\$0.0000	\$89.1878	\$535.13
Repackage and Ship Sample 33020225	5.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$35.6751	\$178.38
Organic Vapor Analyzer Rental, per Day 33020303	3.00 DAY	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$118.9178	\$356.75
Disposable Materials per Sample 33020401	50.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$6.7448	\$337.24
Decontamination Materials per Sample 33020402	50.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$6.2432	\$312.16
TCLP (RCRA) (EPA 1311) 33021702	15.00 EACH D	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$1,861.0511	\$27,915.77
Target Analyte List Metals (EPA 6010/7000S), Soil 33021709	35.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$243.7799	\$8,532.30
1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12 33022020	5.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$44.7961	\$223.98
1 Liter, 32 Oz, Boston Round Bottle, Case of 12 33022024	5.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$34.1174	\$170.59

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
40 ml, Clear Vial, Case of 72 33022026	2.00 EACH D	\$0.0000	\$0.0000	\$104.7659	000
		\$0.00	\$0.00	\$209.53	\$209.53
Custody Seals, Package of 10	5.00 EACH	\$0.0000	\$0.0000	\$1.3438	
33022034	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$6.72	\$6.72
Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of	4.00 EACH	\$0.0000	\$0.0000	\$16.7079	
32020035	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$66.83	\$66.83
Documentation Package for QA Verification, Data & Benchwork	50.00 EACH	\$0.0000	\$0.0000	\$184.6901	
33022036	۵	%00.04 \$0.00	100.00% \$0.00	\$9,234.51	\$9,234.51
Overnight Delivery, 21 - 50 Lb Package	200.00 LB	\$0.0000	\$0.0000	\$1.9027	
33022042	0 0	\$0.00%	\$0.00%	\$380.54	\$380.54
60 Quart Ice Chest	5.00 EACH	\$0.0000	\$0.0000	\$53.0965	
33022046	٥	70.00% \$0.00	100.00% \$0.00	\$265.48	\$265.48
Diss to Soft Docks (Emission to 7 l he Ica)	5 OO FACH	\$0,000	\$0,000	\$5.9696	
33022050		70.00%	100.00%		
		\$0.00	\$0.00	\$29.85	\$29.85
Project Manager	8.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
33220101	۵	70.00%	100.00%	\$45.83.90 10.80.90	
Property of the party and the property of		\$394.12	\$0.00	\$0.00	\$394.12
Project Engineer	40.00 HOUR	\$29.7293	\$0.0000	\$0.0000	
33220105	0	%00.02	100.00%		
		\$1,698.82	\$0.00	\$0.00	\$1,698.82
Field Technician	48.00 HOUR	\$14.2700	\$0.0000	\$0.0000	
33220117	٥	70.00%	100.00%		
		\$978.51	\$0.00	\$0.00	\$978.51
Analyses: Soil, Sludge, and Sediment Total	and Sediment Total	\$3,071.46	\$0.00	\$51,241.11	\$54,312.57

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Cleanup and Landscaping					
General Area Cleanup 17040101	2.00 ACRE	\$100.9011 70.00% \$288.29	\$95.3650 100.00% \$190.73	\$0.0000	\$479.02
Area Preparation, 67% Level & 33% Slope 18050101	2.00 ACRE D	\$14.5041 70.00% \$41.44	\$30.5622 100.00% \$61.12	\$0.0000	\$102.56
Seeding, 67% Level & 33% Slope, Hydroseeding 18050401	2.00 ACRE D	\$39.9561 70.00% \$114.16 \$443.89	\$65.6422 100.00% \$131.28 \$383.14	\$285.4008 \$570.80 \$570.80	\$816.25 \$1,397.83
Clear and Grub					
Light Brush without Grub, Chipping 17010401	2.00 ACRE D Clear and Grub Total	\$334.0125 70.00% \$954.32 \$954.32	\$351.6323 100.00% \$703.26 \$703.26	\$0.000	\$1,657.59
Contractor Costs / General Conditions					
Van or Pickup Rental 33010102	60.00 DAY	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$35.6751	\$2,140.51
Mobilize Crew, >= 500 Miles, per Person 33010201	4.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1,189.1700	\$4,756.68
Per Diem 33010202	180.00 DAY	\$0.000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$89.1878	\$16,053.80
Disposable Boot Covers (Tyvek) 33010421	180.00 PAIR D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.3735	\$247.23

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Disposable Gloves (Latex) 33010423	Quantity/Unit Level	Labor	Eduipment	Materials	lotai
33010423	180.00 PAIR	\$0.0000	\$0.0000	\$0.2276	
District of the Control of the Contr	Q	70.00%	100.00%		
		\$0.00	\$0.00	\$40.97	\$40.97
Disposable Coveralls (Tyvek)	180.00 EACH	\$0.0000	\$0.0000	\$3.5675	
33010425	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$642.15	\$642.15
Temporary Office 20' x 8'	3.00 MONTH	\$0.0000	\$0.0000	\$224.5510	
99040101	٥	%00.02	100.00%		
The state of the s		\$0.00	\$0.00	\$673.65	\$673.65
Portable Toilets - Chemical	3.00 MONTH	\$0.0000	\$0.0000	\$118.9170	
99040501	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$356.75	\$356.75
Construction Photographs	1.00 SET	\$356.7510	\$0.0000	\$0.0000	
99041101	٥	%00.02	100.00%		
		\$509.64	\$0.00	\$0.00	\$509.64
Surveying - 2-man Crew	5.00 DAY	\$297.2925	\$195.0239	\$0.0000	
99041201	٥	70.00%	100.00%		
		\$2,123.52	\$975.12	\$0.00	\$3,098.64
Contractor Costs / General Conditions Total	ral Conditions Total	\$2,633.16	\$975.12	\$24,911.74	\$28,520.02

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1,800 PSI Steam Cleaner Rental 33170819	3.00 MONTH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1,168.9541	\$3,506.86
8' x 36' Decontamination Trailer with 2 Showers, Fans 33170822	3.00 MONTH D	\$0.000 70.00%	\$0.0000 100.00% \$0.00	\$535.1265	\$1,605.38
DOT Steel Drum, 55 Gallon 33199921 Decontamin	10.00 EACH D econtamination Facilities Total	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00 \$0.00	\$50.9560 \$509.56 \$5,621.80	\$509.56 \$5,621.80

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Excavation, Buried Waste					
D6 with A-blade Bulldozer 17030209	40.00 HOUR D	\$20.3943 70.00% \$1,165.39	\$43.2858 100.00% \$1,731.43	\$0.000	\$2,896.82
Hand Excavation, Normal Soil 17030211	80.00 CY	\$21.4098 70.00% \$2,446.83	\$0.2561 100.00% \$20.49	\$0.000	\$2,467.32
950, 3.0 CY, Wheel Loader 17030223	160.00 HOUR D	\$20.2397 70.00% \$4,626.22	\$40.7410 100.00% \$6,518.56	\$0.000	\$11,144.78
Crawler-mounted, 1 CY, 215 Hydraulic Excavator 17030230	40.00 HOUR	\$25.2100 70.00% \$1,440.57	\$42.1680 100.00% \$1,686.72	\$0.000	\$3,127.29
12 CY DUMP TRUCK 17030236	160.00 HOUR	\$12.4700 70.00% \$2,850.29	\$29.4400 100.00% \$4,710.40	\$0.000	\$7,560.69
Unclassified Fill, 6" Lifts, On-Site 17030422	1,500.00 CY	\$1.0266 70.00% \$2,199.86	\$3.3671 100.00% \$5,050.65	\$0.2378	\$7,607.21
Organic Vapor Analyzer Rental, per Month 33020302	3.00 MONTH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1,239.1151	\$3,717.35
Plastic Laminate Waste Pile Cover 33080584	60,000.00 SF D	\$0.0105 70.00% \$900.00	\$0.0001 100.00% \$6.00	\$0.1309	\$8,760.00
Sprayed Water Dust Suppressant 33080585	7,000.00 SY D	\$0.0029 70.00% \$29.00	\$0.0046 100.00% \$32.20	\$0.000	\$61.20
Decontaminate Heavy Equipment 33170803	10.00 EACH	\$143.2474 70.00% \$2,046.39	\$25.5078 100.00% \$255.08	\$0.000	\$2,301.47

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	Safety Quantity/Unit Level Excavation, Buried Waste Total	Labor \$17,704.55	Equipment \$20,011.53	Materials \$11,928.05	Total \$49,644.12
Fencing					
6' Galvanized Chain-link Fence	800.00 LF	\$0.8374	\$0.0110	\$12.6847	
18040107	٥	70.00% \$957.03	\$8.80 \$8.80	\$10,147.76	\$1,942.86
Hazardous Waste Signing	1.00 EACH	\$18.7336	\$0.2328	\$30.4015	
18040501	۵	70.00%	100.00%	\$30.40	\$57.40
	Fencing Total	\$983.79	\$9.03	\$10,178.16	\$2,000.25
Groundwater Monitoring Wells					
Mobilization/Demobilization Drilling Rig & Crew 33010101	1.00 LS D	\$394.5190	\$837.5562	\$0.0000	6
		\$563.60	\$837.56	\$0.00	\$0.00
Organic Vapor Analyzer Rental, per Day 33020303	2.00 DAY D	\$0.000 70.00%	\$0.0000 100.00% \$0.00	\$118.9178	\$237.84
Decontaminate Rig, Augers, Screen (Rental Equipment) 33170808	ipment) 1.00 DAY D	\$0.0000	\$0.0000	\$161.7271	\$161.73
	L - 00 007	0000	40 00 45	610 6130	
2" Stainless Steel, Well Casing 33230121	100.00 LF	\$1.5520 70.00% \$221.71	\$3.29.45 \$329.45	\$1,864.38	\$2,415.54
2" Stainless Steel, Well Screen 33230221	12.00 LF D	\$1.3152 70.00%	\$2.7920 100.00%	\$48.2611	\$635.18
i		117000	0110	4004600	
2" Stainless Steel, Well Plug 33230311	4.00 EACH D	70.00%	100.00%	\$30.1033	
		\$22.55	\$33.50	\$120.65	\$176.70

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
2" Submersible Pump Rental, Day 33230506	1.00 DAY	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$59.4585	\$59.46
Hollow-stem Auger, 8" Outside Diameter Borehole for 2" Well 33231101	100.00 LF D	\$7.1739 70.00% \$1,024.84	\$15.2287 100.00% \$1,522.87	\$0.000	\$2,547.71
Split Spoon Sample, 2" x 24", During Drilling 33231106	50.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$29.7293	\$1,486.47
Well Development Equipment Rental 33231111	1.00 WEEK	\$27.4970 70.00% \$39.28	\$0.4357 100.00% \$0.44	\$452.5599 \$452.56	\$492.28
Standby for Drilling 33231121	1.00 EACH	\$49.3149 70.00% \$70.45	\$104.6945 100.00% \$104.69	\$0.000	\$0.00
Move Rig/Equipment Around Site 33231122	4.00 EACH	\$12.3287 70.00% \$70.45	\$26.1737 100.00% \$104.69	\$0.0000	\$175.14
Furnish 55 Gallon Drum for Drill Cuttings & Development Water 33231126	8.00 EACH	\$0.000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$50.9560	\$407.65
2" Screen, Filter Pack 33231401	80.00 LF	\$1.1180 70.00% \$127.77	\$2.3731 100.00% \$189.85	\$6.9738	\$875.52
Surface Pad, Concrete, 4' x 4' x 4" 33231502	4.00 EACH	\$2.8481 70.00% \$16.27	\$0.1893 100.00% \$0.76	\$12.6844	\$67.77
2" Well, Portland Cement Grout 33231811	4.00 LF D	\$0.000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.0703	\$4.28

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
2" Well, Bentonite Seal 33232101	4.00 EACH	\$4.4388 70.00% \$25.36	\$9.4228 100.00% \$37.69	\$17.2319	\$131.98
5' Guard Posts, Cast Iron, Concrete Fill 33232301	12.00 EACH D	\$20.1681 70.00% \$345.74	\$0.4397 100.00% \$5.28	\$29.2574	\$702.10
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc 33232401	4.00 EACH D	\$0.0000 70.00% \$0.00	\$0.000 100.00% \$0.00	\$153.0344	\$612.14
Suspension Cable, Teflon Coated 33232422	100.00 FT D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.0227	\$102.27
Hand Reel 33232423	4.00 EACH D Groundwater Monitoring Wells Total	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00 \$3.200.28	\$20.0970	\$80.39

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Transport Bulk Solid non-Hazardous Waste, 22 tons per trip (quote Earthwatch)	59.00 trip	\$0.000	\$0.0000	\$308.0000	
33190205	Q	%00.02	100.00%		
1279 cy of non haz soil/sediments at one cy per ton	The second secon	\$0.00	\$0.00	\$18,172.00	\$18,172.00
Transport Bulk Solid Hazardous Waste, 22 tons per trip (quote from Earthwatch)	23.00 trip	\$0.0000	\$0.0000	\$1,650.0000	
33190206	Q	%00.02	100.00%		
	A STATE OF THE PARTY OF THE PAR	\$0.00	\$0.00	\$37,950.00	\$37,950.00
Landfill Hazardous Solid Bulk Waste Requiring Stabilization (quote from Earthwatch)	805.00 TON	\$0.0000	\$0.0000	\$75.0000	
33197265	D	%00.02	100.00%		
		\$0.00	\$0.00	\$60,375.00	\$60,375.00

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Landfill Nonhazardous Solid Bulk Waste by ton (quote Earthwatch)	1,279.00 ton	\$0.0000	\$0.000	\$15.0000	
33197270	۵	70.00%	100.00%		
		\$0.00	\$0.00	\$19,185.00	\$19,185.00
	Landfill Disposal Total	\$0.00	\$0.00	\$135,682.00	\$135,682.00
Professional Labor					
Project Manager	40.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
33220101	۵	70.00%	100.00%		
		\$1,970.62	\$0.00	\$0.00	\$1,970.62
QA/QC Officer	8.00 HOUR	\$20.2159	\$0.0000	\$0.0000	
33220104	۵	70.00%	100.00%		
		\$231.04	\$0.00	\$0.00	\$231.04
Project Engineer	100.00 HOUR	\$29.7293	\$0.0000	\$0.0000	
33220105	۵	%00.02	100.00%		
		\$4,247.04	\$0.00	\$0.00	\$4,247.04
Health & Safety Officer	8.00 HOUR	\$17.8376	\$0.0000	\$0.0000	
33220113	۵	%00.02	100.00%		
		\$203.86	\$0.00	\$0.00	\$203.86
Field Technician	320.00 HOUR	\$14.2700	\$0.0000	\$0.0000	
33220117	٥	%00.02	100.00%		
		\$6,523.43	\$0.00	\$0.00	\$6,523.43
Word Processing/Clerical	10.00 HOUR	\$11.8917	\$0.0000	\$0.0000	
33220119	۵	%00.02	100.00%		
		\$169.88	\$0.00	\$0.00	\$169.88
	Professional Labor Total	\$13,345.87	\$0.00	\$0.00	\$13,345.87
Site Total		\$43,234.62	\$27,280.16	\$247,331.26	\$307,099.01

	Total
	Materials
	Equipment
	Labor
Safety	Level
	Quantity/Unit

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SEAD 16 has an inactive deactivation fumace that was used to destroy small arms munitions. SEAD 17 is adjacent to SEAD 16 and has an active deactivation fumace that is used for the destruction of small arm munitions.

The primary media of concern are soils and sediments. The primary contaminants of concern are metals such as lead and copper.

excavate/solidify-stabilize/on-site landfill groundwafer monitoring

Access Roads

Rough Grading, 14G, 1 Pass	10,000.00 SY	\$0.1547	\$0.2854	\$0.0000	T Z Z
17030103	۵	70.00%	100.00%		
And Epiconomics of the second transfer of the		\$2,210.00	\$2,854.00	\$0.00	\$5,064.00
	Access Roads Total	\$2,210.00	\$2,854.00	\$0.00	\$5,064.00
Analyses: Soil, Sludge, and Sediment					
Van or Pickup Rental	3.00 DAY	\$0.0000	\$0.0000	\$35.6751	
33010102	Q	70.00%	100.00%		
		\$0.00	\$0.00	\$107.03	\$107.03
Mobilize Crew, >= 500 Miles, per Person	2.00 EACH	\$0.0000	\$0.0000	\$1,189.1700	
33010201	0	%00.02	100.00%		
		\$0.00	\$0.00	\$2,378.34	\$2,378.34
Per Diem	6.00 DAY	\$0.0000	\$0.0000	\$89.1878	
33010202	O	70.00%	100.00%		
		\$0.00	\$0.00	\$535.13	\$535.13
Organic Vapor Analyzer Rental, per Day	3.00 DAY	\$0.0000	\$0.0000	\$118.9178	
33020303	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$356.75	\$356.75
Disposable Materials per Sample	55.00 EACH	\$0.0000	\$0.0000	\$6.7448	
33020401	Q	%00.02	100.00%		
		\$0.00	\$0.00	\$370.96	\$370.96
Decontamination Materials per Sample	55.00 EACH	\$0.0000	\$0.0000	\$6.2432	
33020402	٥	%00.07	100.00%		
		\$0.00	\$0.00	\$343.38	\$343.38
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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
TCLP (RCRA) (EPA 1311) 33021702	20.00 EACH D	\$0.0000	\$0.0000	\$1,861.0511	\$37,221.02
Target Analyte List Metals (EPA 6010/7000S), Soil 33021709	35.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$243.7799 \$8,532.30	\$8,532.30
1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12 33022020	6.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$44.7961	\$268.78
1 Liter, 32 Oz, Boston Round Bottle, Case of 12 33022024	6.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$34.1174	\$204.70
40 ml, Clear Vial, Case of 72 33022026	1.00 EACH D	\$0.000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$104.7659	\$104.77
Custody Seals, Package of 10 33022034	6.00 EACH D	\$0.0000 70.00% \$0.00	\$0.000 100.00% \$0.00	\$1.3438	\$8.06
Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of 4 33022035	5.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$16.7079	\$83.54
Documentation Package for QA Verification, Data & Benchwork 33022036	55.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$184.6901	\$10,157.96
Overnight Delivery, 21 - 50 Lb Package 33022042	250.00 LB D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.9027	\$475.68
60 Quart Ice Chest 33022046	6.00 EACH	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$53.0965	\$318.58

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	6.00 EACH	\$0.0000	\$0.0000	\$5.9696	
33022050	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$35.82	\$35.82
Project Manager	8.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
33220101	Q	%00.02	100.00%		
		\$394.12	\$0.00	\$0.00	\$394.12
Project Engineer	40.00 HOUR	\$29.7293	\$0.0000	\$0.0000	
33220105	Q	%00.02	100.00%		
		\$1,698.82	\$0.00	\$0.00	\$1,698.82
Field Technician	64.00 HOUR	\$14.2700	\$0.0000	\$0.0000	
33220117	Ω	70.00%	100.00%		
		\$1,304.69	\$0.00	\$0.00	\$1,304.69
Word Processing/Clerical	4.00 HOUR	\$11.8917	\$0.0000	\$0.0000	
33220119	Q Pagha and a second of	%00.02	100.00%		
		\$67.95	\$0.00	\$0.00	\$67.95
Analyse	Analyses: Soil, Sludge, and Sediment Total	\$3,465.58	\$0.00	\$61,502.78	\$64,968.36
Capping					
950, 3.0 CY, Wheel Loader	160.00 HOUR	\$20.2397	\$40.7410	\$0.0000	

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950, 3.0 CY, wheel Loader	RUCH UN.UGI	\$20.2397	640.7410	\$0.0000	
17030223	0	70.00% \$4,626.22	100.00% \$6,518.56	\$0.00	\$11,144.78
Crawler-mounted, 2 CY, 235 Hydraulic Excavator 17030232	160.00 HOUR D	\$25.2100 70.00% \$5,762.29	\$92.9693 100.00% \$14,875.09	\$0.000	\$20,637.37
Sand, 6" Lifts, On-Site 17030425	1,100.00 CY D	\$1.0272 70.00% \$1,614.17	\$3.2365 100.00% \$3,560.15	\$0.2378	\$5,435.90
Gravel, 6" Lifts 17030430	900.00 CY	\$1.6037 70.00% \$2,061.90	\$1.5857 100.00% \$1,427.13	\$11.2376	\$13,602.87

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
			The state of the s		
Topsoil 6" Lifts, Off-Site	225.00 CY	\$2.3494	\$3.0499	\$24.2789	
1000000	Q	70.00%	100.00%		
1000001		\$755.16	\$686.23	\$5,462.75	\$6,904.14
Seeding Vegetative Cover	1.00 ACRE	\$35.9559	\$57.2455	\$1,654.7301	
18050402	٥	70.00%	100.00%		
100000000000000000000000000000000000000		\$51.37	\$57.25	\$1,654.73	\$1,763.34
Watering with 3.000-Gallon Tank Truck, Per Pass	1.00 ACRE	\$13.9861	\$22.2741	\$2.3783	
18050413	٥	70.00%	100.00%		
		\$19.98	\$22.27	\$2.38	\$44.63
Mowing	1.00 ACRE	\$11.2562	\$3.7814	\$0.0000	
18050415	٥	%00.02	100.00%		
		\$16.08	\$3.78	\$0.00	\$19.86
10' Wide Grass Drainage Swale	500.00 LF	\$0.5088	\$0.8043	\$2.3074	
33050801	٥	%00.02	100.00%		
		\$363.43	\$402.15	\$1,153.70	\$1,919.28
Clay 10E-7, 6" Lifts, Off-Site	900.00 CY	\$2.7829	\$4.0696	\$4.6378	
33080507	٥	%00.02	100.00%		
		\$3,578.01	\$3,662.64	\$4,174.02	\$11,414.67
60 Mil Polymeric Liner. High-density Polyethylene	23,125.00 SF	\$0.7170	\$0.1183	\$0.6184	
33080572	Q	70.00%	100.00%		
		\$23,686.61	\$2,735.69	\$14,300.50	\$40,722.79
4" Slotted PVC Pipe	1,100.00 LF	\$1.0025	\$0.0148	\$2.1167	
33260802	Q	%00.02	100.00%		
		\$1,575.36	\$16.28	\$2,328.37	\$3,920.01
	Capping Total	\$44,110.57	\$33,967.21	\$39,451.87	\$117,529.66
Cleanup and Landscaping					
General Area Cleanup	2.00 ACRE	\$100.9011	\$95.3650	\$0.0000	
17040101	۵	%00.02	100.00%		
		\$288.29	\$190.73	\$0.00	\$479.02

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Area Preparation, 67% Level & 33% Slope	2.00 ACRE	\$14.5041	\$30.5622	\$0.0000	
18050101	Q	70.00%	100.00%		
		\$41.44	\$61.12	\$0.00	\$102.56
Seeding, 67% Level & 33% Slope, Hydroseeding	2.00 ACRE	\$39.9561	\$65.6422	\$285.4008	
18050401	0	%00.02	100.00%		
		\$114.16	\$131.28	\$570.80	\$816.25
Watering with 3,000-Gallon Tank Truck, Per Pass	2.00 ACRE	\$13.9861	\$22.2741	\$2.3783	
18050413	0	%00.02	100.00%		
		\$39.96	\$44.55	\$4.76	\$89.27
Clean	Cleanup and Landscaping Total	\$483.85	\$427.69	\$575.56	\$1,487.10
Clear and Grub					
Light Brush without Grub, Chipping	2.00 ACRE	\$334.0125	\$351.6323	\$0.0000	
17010401	0	70.00%	100.00%		
		\$954.32	\$703.26	\$0.00	\$1,657.59
	Clear and Grub Total	\$954.32	\$703.26	\$0.00	\$1,657.59
Contractor Costs / General Conditions					
Van or Pickup Rental	90.00 DAY	\$0.0000	\$0.0000	\$35.6751	
33010102	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$3,210.76	\$3,210.76
Mobilize Crew, >= 500 Miles, per Person	4.00 EACH	\$0.0000	\$0.0000	\$1,189.1700	
33010201	٥	%00.02	100.00%		
•		\$0.00	\$0.00	\$4,756.68	\$4,756.68
Per Diem	360.00 DAY	\$0.0000	\$0.0000	\$89.1878	
33010202	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$32,107.61	\$32,107.61
Disposable Boot Covers (Tyvek)	360.00 PAIR	\$0.0000	\$0.0000	\$1.3735	
33010421	0	70.00%	100.00%		
		\$0.00	\$0.00	\$494.46	\$494.46

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
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Disposable Gloves (Latex)	360.00 PAIR	\$0.0000	\$0.0000	\$0.2276	
33010423	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$81.94	\$81.94
Disposable Coveralls (Tyvek)	360.00 EACH	\$0.0000	\$0.0000	\$3.5675	
33010425	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$1,284.30	\$1,284.30
Temporary Office 20' x 8'	3.00 MONTH	\$0.0000	\$0.0000	\$224.5510	
99040101	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$673.65	\$673.65
Temporary Storage Trailer 28' x 10'	3.00 MONTH	\$0.0000	\$0.0000	\$122.2111	
99040202	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$366.63	\$366.63
Portable Toilets - Chemical	3.00 MONTH	\$0.0000	\$0.0000	\$118.9170	
99040501	٥	%00.07	100.00%		
		\$0.00	\$0.00	\$356.75	\$356.75
Construction Photographs	1.00 SET	\$356.7510	\$0.0000	\$0.0000	
99041101	٥	%00.07	100.00%		
		\$509.64	\$0.00	\$0.00	\$509.64
Surveying - 2-man Crew	8.00 DAY	\$297.2925	\$195.0239	\$0.0000	
99041201	٥	%00.07	100.00%		
		\$3,397.63	\$1,560.19	\$0.00	\$4,957.82
Contractor Costs / Ge	Contractor Costs / General Conditions Total	\$3,907.27	\$1,560.19	\$43,332.78	\$48,800.24
Decontamination Facilities					
1,800 PSI Steam Cleaner Rental	3.00 MONTH	\$0.0000	\$0.0000	\$1,168.9541	
33170819	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$3,506.86	\$3,506.86
8' x 36' Decontamination Trailer with 2 Showers, Fans	3.00 MONTH	\$0.0000	\$0.0000	\$535.1265	
33170822		\$0.00	\$0.00%	\$1,605.38	\$1,605.38

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
DOT Steel Drum, 55 Gallon	10.00 EACH	\$0.0000	\$0.0000	\$50.9560	
33199921		\$0.00	\$0.00	\$509.56	\$509.56
Deconta	Decontamination Facilities Total	\$0.00	\$0.00	\$5,621.80	\$5,621.80
Excavation, Buried Waste					
D4 with A-blade Bulldozer	40.00 HOUR	\$20.2397	\$24.4851	\$0.0000	
17030207	٥	70.00%	100.00%	\$0.00	\$2,135.96
Hand Excavation Normal Soil	80.00 CY	\$21.4098	\$0.2561	\$0.0000	
17030211	O 187 December 187 D	70.00% \$2,446.83	100.00%	\$0.00	\$2,467.32
asn 3 n CV Wheel loader	160.00 HOUR	\$20.2397	\$40.7410	\$0.0000	
1703023	O STATE OF	70.00%	100.00%		
		\$4,626.22	\$6,518.56	\$0.00	\$11,144.78
Crawler-mounted, 1 CY, 215 Hydraulic Excavator	40.00 HOUR	\$25.2100	\$42.1680	\$0.0000	
17030230	0	70.00%	100.00%		
		\$1,440.57	\$1,686.72	\$0.00	\$3,127.29
12 CY, Dump Truck	160.00 HOUR	\$12.4745	\$29.4438	\$0.0000	
17030285	Q	%00.02	100.00%		
		\$2,851.31	\$4,711.01	\$0.00	\$7,562.32
Unclassified Fill, 6" Lifts, On-Site	1,500.00 CY	\$1.0266	\$3.3671	\$0.2378	
17030422	a Digitality D	%00.02	100.00%		
		\$2,199.86	\$5,050.65	\$356.70	\$7,607.21
Organic Vapor Analyzer Rental, per Month	3.00 MONTH	\$0.0000	\$0.0000	\$1,239.1151	
33020302	Q TOTAL OF THE PARTY OF THE PAR	%00.02	100.00%		
		\$0.00	\$0.00	\$3,717.35	\$3,717.35
Plastic Laminate Waste Pile Cover	60,000.00 SF	\$0.0105	\$0.0001	\$0.1309	
33080584	Q	%00.02	100.00%		
		\$900.00	\$6.00	\$7,854.00	\$8,760.00

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Total

Fencing

33080585

33170803

Silt Fencing	1,400.00 LF	\$1.0000	\$0.0000	\$1.0000	
18040105	Ω	%00.02	100.00%		
		\$2,000.00	\$0.00	\$1,400.00	\$3,400.00
6' Galvanized Chain-link Fence	450.00 LF	\$0.8374	\$0.0110	\$12.6847	
18040107	٥	%00.02	100.00%		
		\$538.33	\$4.95	\$5,708.12	\$6,251.39
Swing Gates, Complete	1.00 EACH	\$73.3583	\$61.3664	\$291.0877	
18040115	٥	%00.02	100.00%		
		\$104.80	\$61.37	\$291.09	\$457.25
Hazardous Waste Signing	1.00 EACH	\$18.7336	\$0.2328	\$30.4015	
18040501	۵	%00.02	100.00%		
		\$26.76	\$0.23	\$30.40	\$57.40
	Fencing Total	\$2,669.89	\$66.55	\$7,429.60	\$10,166.04
Groundwater Monitoring Wells					

Mobilization/Demobilization Drilling Rig & Crew	1.00 LS	\$394.5190	0.5%	\$0.0000	
33010101	۵	%00.02			
		\$563.60		\$0.00	\$1,401.15
Organic Vapor Analyzer Rental, per Day	4.00 DAY	\$0.0000	\$0.0000	\$118.9178	
33020303	۵	70.00%			
		\$0.00		\$475.67	\$475.67

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
2" Stainless Steel, Well Casing	250.00 LF	\$1.5520	\$3.2945	\$18.6438	
33230121	۵	%00.02	100.00%		
		\$554.29	\$823.63	\$4,660.95	\$6,038.86
2" Stainless Steel. Well Screen	24.00 LF	\$1.3152	\$2.7920	\$48.2611	
33230221	٥	70.00%	100.00%		
		\$45.09	\$67.01	\$1,158.27	\$1,270.37
2" Stainless Steel. Well Plug	8.00 EACH	\$3.9457	\$8.3758	\$30.1633	
33230311	Q	70.00%	100.00%		
		\$45.09	\$67.01	\$241.31	\$353.41
2" Submersible Pump Rental. Day	1.00 DAY	\$0.0000	\$0.0000	\$59.4585	
33230506	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$59.46	\$59.46
Hollow-stem Auger, 8" Outside Diameter Borehole for 2" Well	250.00 LF	\$7.1739	\$15.2287	\$0.0000	
33231101	0	70.00%	100.00%		
		\$2,562.11	\$3,807.18	\$0.00	\$6,369.28
Split Spoon Sample, 2" x 24", During Drilling	125.00 EACH	\$0.0000	\$0.0000	\$29.7293	
33231106	Q	%00.02	100.00%		
		\$0.00	\$0.00	\$3,716.16	\$3,716.16
Well Development Equipment Rental	1.00 WEEK	\$27.4970	\$0.4357	\$452.5599	
33231111	0	%00.02	100.00%		
		\$39.28	\$0.44	\$452.56	\$492.28
Standby for Drilling	1.00 EACH	\$49.3149	\$104.6945	\$0.0000	
33231121	٥	70.00%	100.00%		
		\$70.45	\$104.69	\$0.00	\$175.14
Move Rig/Equipment Around Site	8.00 EACH	\$12.3287	\$26.1737	\$0.0000	
33231122	۵	%00.02	100.00%		
		\$140.90	\$209.39	\$0.00	\$350.29
Furnish 55 Gallon Drum for Drill Cuttings & Development Water	16.00 EACH	\$0.0000	\$0.0000	\$50.9560	
33231126	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$815.30	\$815.30

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Softbooks - Full Detail

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
2" Screen, Filter Pack	40.00 LF	\$1.1180	\$2.3731	\$6.9738	
33231401	٥	70.00%	100.00%		
		\$63.89	\$94.92	\$278.95	\$437.76
Surface Pad, Concrete, 4' x 4' x 4"	8.00 EACH	\$2.8481	\$0.1893	\$12.6844	
33231502	٥	70.00%	100.00%		
		\$32.55	\$1.51	\$101.48	\$135.54
2" Well. Portland Cement Grout	8.00 LF	\$0.0000	\$0.0000	\$1.0703	
33231811	۵	70.00%	100.00%		
		\$0.00	\$0.00	\$8.56	\$8.56
2" Well, Bentonite Seal	8.00 EACH	\$4.4388	\$9.4228	\$17.2319	
33232101	О	%00.02	100.00%		
		\$50.73	\$75.38	\$137.86	\$263.97
5' Guard Posts, Cast Iron, Concrete Fill	24.00 EACH	\$20.1681	\$0.4397	\$29.2574	
33232301	٥	%00.02	100.00%		
		\$691.48	\$10.55	\$702.18	\$1,404.21
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc	8.00 EACH	\$0.0000	\$0.0000	\$153.0344	
33232401	O	%00.02	100.00%		
		\$0.00	\$0.00	\$1,224.28	\$1,224.28
Suspension Cable, Teflon Coated	250.00 FT	\$0.0000	\$0.0000	\$1.0227	
33232422	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$255.68	\$255.68
Hand Reel	8.00 EACH	\$0.0000	\$0.0000	\$20.0970	
33232423	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$160.78	\$160.78
Groundwa	Groundwater Monitoring Wells Total	\$4,859.45	\$6,099.26	\$14,449.42	\$25,408.13
Professional Labor					
Project Manager	80.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
33220101	Ω	70.00%	100.00%		
		\$3,941.25	\$0.00	\$0.00	\$3,941.25

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	Quantity/Unit Level	Labor	Equipment	Materials	Total
QA/QC Officer 33220104	16.00 HOUR D	\$20.2159 70.00%	\$0.0000 100.00%	\$0.0000	\$462.08
Project Engineer 33220105	240.00 HOUR D	\$29.7293 70.00%	\$0.0000	\$0.000	\$10.192.90
Health & Safety Officer 33220113	16.00 HOUR D	\$17.8376 70.00% \$407.72	\$0.000 100.00% \$0.00	\$0.000	\$407.72
Field Technician 33220117	480.00 HOUR D	\$14.2700 70.00% \$9,785.14	\$0.0000 100.00% \$0.00	\$0.000	\$9,785.14
Word Processing/Clerical 33220119	20.00 HOUR D Professional Labor Total	\$11.8917 70.00% \$339.76 \$25,128.85	\$0.0000 100.00% \$0.00 \$0.00	\$0.0000	\$339.76 \$25,128.85
Solidification/Stabilization					
950, 3.0 CY, Wheel Loader 17030223	160.00 HOUR D	\$20.2397 70.00% \$4,626.22	\$40.7410 100.00% \$6,518.56	\$0.000	\$11,144.78
12 CY, Dump Truck 17030285	160.00 HOUR D	\$12.4745 70.00% \$2,851.31	\$29.4438 100.00% \$4,711.01	\$0.000	\$7,562.32
580K, 1CY, Backhoe with Front-end Loader 17030431	320.00 HOUR D	\$20.7273 70.00% \$9,475.34	\$13.9015 100.00% \$4,448.48	\$0.000	\$13,923.82
4" Structural Slab on Grade 18020320	100.00 SF D	\$1.3888 70.00% \$198.40	\$0.1677 100.00% \$16.77	\$1.8464	\$399.81

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
550 Gallon, Stainless Steel Aboveground Wastewater	1.00 MONTH	\$0.0000	\$0.0000	\$356.7510	
19040401	Q	70.00% \$0.00	100.00% \$0.00	\$356.75	\$356.75
Per Diem 33010202	360.00 DAY	\$0.0000	\$0.0000	\$89.1878	\$32.107.61
Truck Scale Rental 33010462	2.00 MONTH D	\$0.000 70.00%	\$0.0000 100.00% \$0.00	\$4,162.0950	\$8,324.19
R60 Rough Terrain Forklift, 6,000 Lb @ 24" LC 33100118	320.00 HOUR D	\$20.2754 70.00% \$9,268.75	\$12.7361 100.00% \$4,075.55	\$0.000	\$13,344.31
Portland Cement Type I (Bulk) 33150405	300.00 TON D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$84.4311	\$25,329.33
Tank Truck Standby Time for Solidification/Stabilization Unit 33150415	320.00 HOUR D	\$0.0000 70.00% \$0.00	\$10.7714 100.00% \$3,446.85	\$0.0000	\$3,446.85
1 CY Plywood Boxes 33150418	100.00 EACH	\$21.0144 70.00% \$3,002.06	\$0.8188 100.00% \$81.88	\$26.7563	\$5,759.57
Operational Labor for Process Equipment 33150420	640.00 HOUR D	\$36.2697 70.00% \$33,160.87	\$0.0000 100.00% \$0.00	\$0.000	\$33,160.87
Bulk Chemical Transport (40,000 Lb Truckload) 33150421	15.00 EACH	\$0.0000	\$0.0000 100.00% \$0.00	\$356.7510	\$5,351.27
10 CY Mixing System 33150423	2.00 MONTH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$4,965.3788 \$9,930.76	\$9,930.76

The second secon	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Solidification/Stabilization Ancillary Equipment 33150435	1.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$7,135.0200	\$7,135.02
Mobilization/Demobilization of Solidification/Stabilization Equipment 33150436	1.00 LS	\$11,787.6476 70.00% \$16,839.50	\$0.0000 100.00% \$0.00	\$0.000	\$16,839.50
DOT Steel Drum, 55 Gallon 33199921	10.00 EACH	\$0.000 70.00%	\$0.0000 100.00% \$0.00	\$50.9560	\$509.56
Diesel Fuel 33420201	2,000.00 GAL D	\$0.000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.4032	\$2,806.40
Water 33420301 Solidifical	250.00 KGAL D	\$0.0000 70.00% \$0.00 \$79,422.45	\$0.0000 100.00% \$0.00 \$23,299.10	\$7.8129 \$1,953.23 \$96,664.38	\$1,953.23 \$199,385.92
Site Total		\$184,921.40	\$88,251.18	\$280,956.24	\$554,128.81

RA-6

SEAD 16 has an inactive deactivation fumace that was used to destroy small arms munitions. SEAD 17 is adjacent to SEAD 16 and has an active deactivation fumace that is used for the destruction of small arms munitions.

The primary media of concern are soils and sediments. The primary contaminants of concern are metals such as lead and copper. excavate/soil washing/ clean soil is backfilled and waste is disposed of at an off-site landfill

groundwater monitoring

Access Roads

Rough Grading, 14G, 1 Pass	7,000.00 SY	\$0.1547	\$0.2854	\$0.0000	
17030103	Q variables	70.00%	100.00%		
		\$1,547.00	\$1,997.80	\$0.00	\$3,544.80
	Access Roads Total	\$1,547.00	\$1,997.80	\$0.00	\$3.544.80

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Analyses: Soil, Sludge, and Sediment					
Van or Pickup Rental	4.00 DAY	\$0.0000	\$0.0000	\$35.6751	
33010102		\$0.00 \$0.00	\$0.00	\$142.70	\$142.70
Mobilize Crew, >= 500 Miles, per Person	4.00 EACH	\$0.0000	\$0.0000	\$1,189.1700	
33010201	Q	70.00%	100.00%		
		\$0.00	\$0.00	\$4,756.68	\$4,756.68
Per Diem	8.00 DAY	\$0.0000	\$0.0000	\$89.1878	
33010202	۵	70.00%	100.00%		
		\$0.00	\$0.00	\$713.50	\$713.50
Organic Vapor Analyzer Rental, per Day	4.00 DAY	\$0.0000	\$0.0000	\$118.9178	
33020303	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$475.67	\$475.67
Disposable Materials per Sample	61.00 EACH	\$0.0000	\$0.0000	\$6.7448	
33020401	Ω	%00.02	100.00%		
		\$0.00	\$0.00	\$411.43	\$411.43
Decontamination Materials per Sample	61.00 EACH	\$0.0000	\$0.0000	\$6.2432	
33020402	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$380.84	\$380.84
TCLP (RCRA) (EPA 1311)	13.00 EACH	\$0.0000	\$0.0000	\$1,861.0511	
33021702	۵	%00.02	100.00%		15
		\$0.00	\$0.00	\$24,193.66	\$24,193.66
Target Analyte List Metals (EPA 6010/7000S), Soil	48.00 EACH	\$0.0000	\$0.0000	\$243.7799	
33021709	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$11,701.44	\$11,701.44
1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12	6.00 EACH	\$0.0000	\$0.0000	\$44.7961	
33022020	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$268.78	\$268.78
1 Liter, 32 Oz, Boston Round Bottle, Case of 12	6.00 EACH	\$0.0000	\$0.0000	\$34.1174	
33022024	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$204.70	\$204.70
Softbooks Full Detail	11/16/97 3:09:48 PM	5			Page 27

40 mi, Clear Vial, Case of 72 40 mi, Clear Vial, Case of 72 40 mi, Clear Vial, Case of 72 53022026 53022024 53022024 53022025 53022034 53022034 53022034 53022034 53022034 53022034 53022034 53022035 53022035 53022035 53022035 53022035 53022035 53022035 53022035 53022035 53022035 53022035 5302035 53022035 53022036 5302036 530302036 530302036 530302036 530302036 530302036 530302036 530302036 530302036 530302036 530302036 530302036 530302036 530302036 530302036 5303000 530302036 530300 530302036 530300 5303000		Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
TO 000% 100.00% 510.477	40 ml, Clear Vial, Case of 72	1.00 EACH	\$0.0000	\$0.0000	\$104.7659	
\$0.00 EACH \$0.0000 \$0.0000 \$1.3438	33022026	٥	%00.02	100.00%		
6.00 EACH \$0.0000 \$0.0000 \$1.3438			\$0.00	\$0.00	\$104.77	\$104.77
\$0.00	Custody Seals, Package of 10	6.00 EACH	\$0.0000	\$0.0000	\$1.3438	
\$0.00 \$0.000 \$16.7079 5.00 EACH \$0.0000 \$16.7079 5.00 EACH \$0.0000 \$16.7079 \$0.000 \$0.0000 \$11.266.10 \$\$ \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$0.0	33022034	٥	%00.02	100.00%		
5.00 EACH \$0.0000 \$0.0000 \$16.7079 \$0.000 \$0.0000 \$184.6901 \$0.000 \$0.0000 \$114.266.10 \$\$ \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$0.0000 \$0.	A STATE OF THE STA		\$0.00	\$0.00	\$8.06	\$8.06
ation Package for QA Verification, Data & 61.00 EACH \$0.000% \$0.000 \$1784.6997 \$0.000 \$1.00.00% \$1184.6997 \$0.000 \$0.0000 \$11.266.10 \$1.00.00% \$11.266.10 \$1.00.00% \$11.266.10 \$1.00.00% \$1.00.00% \$11.266.10 \$1.00.00% \$1.00.00% \$11.266.10 \$1.00.00%	Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of	5.00 EACH	\$0.0000	\$0.0000	\$16.7079	
\$0.000 \$0.000 \$184.6901 tion, Data & 61.00 EACH \$0.0000 \$0.0000 \$184.6901 fion, Data & 61.00 EACH \$0.0000 \$0.0000 \$11,266.10 \$1.9000 \$1.900000 \$1.9	33022035	۵	70.00%	100.00%		
tion, Data & 61.00 EACH \$0.0000 \$0.0000 \$184.6901 \$0.000 \$0.0000 \$11,266.10 \$ \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9027 \$0.000 \$0.0000 \$1,9029 \$0.0000 \$0.0000 \$0.0000 \$0		The Act of Marine	\$0.00	\$0.00	\$83.54	\$83.54
\$0.00 \$0.00% \$11,266.10 \$ \$0.00 \$0.000 \$11,266.10 \$ \$0.000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9020 \$0.0000	tion Package for QA Verification, Data	61.00 EACH	\$0.0000	\$0.0000	\$184.6901	
\$0.00 \$0.00 \$11,266.10 \$ 225.00 LB \$0.0000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$1.9027 \$0.000 \$0.0000 \$1.9027 \$0.0000 \$0.0000 \$23.0965 \$0.0000 \$0.0000 \$253.0965 \$0.0000 \$0.0000 \$253.0965 \$0.0000 \$0.0000 \$253.0965 \$0.0000 \$0.0000 \$259.966 \$0.0000 \$0.0000 \$0.0000 \$0.0000 \$0	33022036	Q	%00.02	100.00%		
S15.00 LB \$0.0000 \$0.0000 \$1.9027 \$1.9027 \$1.000% \$1.0			\$0.00	\$0.00	\$11,266.10	\$11,266.10
Foundaries (Equivalent to 7 Lbs Ice) **Continuous Continuous Cont	Overnight Delivery, 21 - 50 Lb Package		\$0.0000	\$0.0000	\$1.9027	
\$0.00 \$0.000 \$0.000 \$428.11 5.00 EACH \$0.0000 \$0.0000 \$53.0965 \$0.0000 \$0.0000 \$53.0965 \$0.0000 \$0.0000 \$5.9696 \$0.0000 \$0.0000 \$5.9696 \$0.0000 \$0.0000 \$0.0000 \$0.0000 \$0	33022042	O STATE OF THE STATE OF	70.00%	100.00%		
Figure 1 of Lbs Ice) Figure 1 of Lbs Ice) Figure 1 of Lbs Ice) Figure 2 of Log Model (Company)			\$0.00	\$0.00	\$428.11	\$428.11
\$0.00% \$0.00 \$0.00 \$0.000 \$0.000 \$0.0000	60 Quart Ice Chest		\$0.0000	\$0.0000	\$53.0965	
\$0.00 EACH \$0.0000 \$0.000 \$5.9696 5.00 EACH \$0.0000 \$0.0000 \$5.9696 70.00% \$0.000 \$0.0000 8.00 HOUR \$34.4859 \$0.0000 \$0.0000 70.00% \$0.000 \$0.0000 40.00 HOUR \$29.7293 \$0.0000 \$0.0000 \$1,698.82 \$0.000 \$0.0000 64.00 HOUR \$14.2700 \$0.0000 \$0.0000 670.00% \$0.0000 670.00% \$0.0000	33022046	٥	70.00%	100.00%		
5.00 EACH \$0.0000 \$0.0000 \$5.9696 70.00% \$0.000 \$5.9696 8.00 HOUR \$34.4859 \$0.0000 \$0.0000 70.00% \$0.000 \$0.000 40.00 HOUR \$29.7293 \$0.0000 \$0.0000 70.00% \$1,698.82 \$0.000 \$0.0000 81,698.82 \$0.000 \$0.0000 \$0.000 70.00% \$0.0000 \$0.0000 \$0.000 814.2700 \$0.0000 \$0.0000 \$0.0000 \$0.0000 814.2700 \$0.0000			\$0.00	\$0.00	\$265.48	\$265.48
B.00 HOUR \$34,4859 \$0.000 \$29.85 B.00 HOUR \$34,4859 \$0.000 \$0.000 A.00 HOUR \$29,7293 \$0.000 \$0.000 A0.00 HOUR \$29,7293 \$0.000 \$0.000 \$1,698.82 \$0.00 \$0.000 \$1,698.82 \$0.000 \$0.000 B \$10.00% \$0.000 \$1,000% \$1000%	Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	5.00 EACH	\$0.0000	\$0.0000	\$5.9696	
\$0.00 HOUR \$34.4859 \$0.0000 \$0	33022050	O STATE OF	%00.02	100.00%		
8.00 HOUR \$34.4859 \$0.0000 \$0.			\$0.00	\$0.00	\$29.85	\$29.85
## ## ## ## ## ## ## ## ## ## ## ## ##	Project Manager	8.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
\$394.12 \$0.00 \$0.00 40.00 HOUR \$29.7293 \$0.0000 \$0.0000 D 70.00% \$0.000 \$0.000 \$41,698.82 \$0.000 \$0.000 64.00 HOUR \$14.2700 \$0.0000 \$0.0000 D 70.00% \$1.00000	33220101	٥	%00.02	100.00%		
40.00 HOUR \$29.7293 \$0.0000 \$0.0000 D 70.00% 100.00% \$0.000 \$1,698.82 \$0.00 \$0.000 64.00 HOUR \$14.2700 \$0.0000 \$0.0000 D 70.00% 100.00%			\$394.12	\$0.00	\$0.00	\$394.12
\$1,698.82 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.000 \$	Project Engineer	40.00 HOUR	\$29.7293	\$0.0000	\$0.0000	
\$1,698.82 \$0.00 \$0.00 \$0.00 \$0.00 \$0.000 \$0.00	33220105	Q	70.00%	100.00%		
64.00 HOUR \$14.2700 \$0.0000 D 70.00%			\$1,698.82	\$0.00	\$0.00	\$1,698.82
%00.02 D 20.00%	Field Technician	64.00 HOUR	\$14.2700	\$0.0000	\$0.0000	
	33220117	Q	%00.02	100.00%		
\$1,304.69 \$0.00 \$0.00			\$1,304.69	\$0.00	\$0.00	\$1,304.69

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Word Processing/Clerical	4.00 HOUR	\$11.8917	\$0.0000	\$0.0000	
33ZZ0119	a	\$67.95	\$0.00%	\$0.00	\$67.95
Analyses: Soil, Sli	Sludge, and Sediment Total	\$3,465.58	\$0.00	\$55,435.30	\$58,900.88
Cleanup and Landscaping					
General Area Cleanup	2.00 ACRE	\$100.9011	\$95.3650	\$0.0000	
17040101	Ω	70.00% \$288.29	\$190.73	\$0.00	\$479.02
Area Preparation, 67% Level & 33% Slope 18050101	2.00 ACRE D	\$14.5041	\$30.5622	\$0.0000	
		\$41.44	\$61.12	\$0.00	\$102.56
Seeding, 67% Level & 33% Slope, Hydroseeding 18050401	2.00 ACRE D	\$39.9561	\$65.6422	\$285.4008	
		\$114.16	\$131.28	\$570.80	\$816.25
Watering with 3,000-Gallon Tank Truck, Per Pass 18050413	2.00 ACRE D	\$13.9861 70.00% \$39.96	\$22.2741 100.00% \$44.55	\$2.3783	\$89.27
Mowing	2.00 ACRE	\$11.2562	\$3.7814	\$0.0000	
18050415		\$32.16	\$7.56	\$0.00	\$39.72
Clean	Cleanup and Landscaping Total	\$516.01	\$435.25	\$575.56	\$1,526.82
Clear and Grub					
Light Brush without Grub, Chipping	2.00 ACRE	\$334.0125	\$351.6323	\$0.0000	
		\$954.32	\$703.26	\$0.00	\$1,657.59
	Clear and Grub Total	\$954.32	\$703.26	\$0.00	\$1,657.59

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Contractor Costs / General Conditions					
Van or Pickup Rental	90.00 DAY	\$0.0000	\$0.0000	\$35.6751	
33010102	Q	%00.02	100.00%		
		\$0.00	\$0.00	\$3,210.76	\$3,210.76
Mobilize Crew, >= 500 Miles, per Person	4.00 EACH	\$0.0000	\$0.0000	\$1,189.1700	
33010201	٥	%00.02	100.00%		
A september of the sept		\$0.00	\$0.00	\$4,756.68	\$4,756.68
Per Diem	360.00 DAY	\$0.0000	\$0.0000	\$89.1878	
33010202	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$32,107.61	\$32,107.61
Disposable Boot Covers (Tyvek)	360.00 PAIR	\$0.0000	\$0.0000	\$1.3735	
33010421	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$494.46	\$494.46
Disposable Gloves (Latex)	360.00 PAIR	\$0.0000	\$0.0000	\$0.2276	
33010423	Q	70.00%	100.00%		
Section of the State of the Section		\$0.00	\$0.00	\$81.94	\$81.94
Disposable Coveralls (Tyvek)	360.00 EACH	\$0.0000	\$0.0000	\$3.5675	
33010425	۵	70.00%	100.00%		
The state of the s		\$0.00	\$0.00	\$1,284.30	\$1,284.30
Temporary Office 20' x 8'	3.00 MONTH	\$0.0000	\$0.0000	\$224.5510	
99040101	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$673.65	\$673.65
Temporary Storage Trailer 28' x 10'	3.00 MONTH	\$0.0000	\$0.0000	\$122.2111	
99040202	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$366.63	\$366.63
Portable Toilets - Chemical	3.00 MONTH	\$0.0000	\$0.0000	\$118.9170	
99040501	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$356.75	\$356.75
Construction Photographs	1.00 SET	\$356.7510	\$0.0000	\$0.0000	
99041101	Q	70.00%	100.00%		
		\$509.64	\$0.00	\$0.00	\$509.64
Softbooks Full Detail	11/16/97 3:09:50 PM	PM			Page 30

5
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9

\$509.56

\$509.56 \$5,621.80

100.00%

%00.07

Ω

10.00 EACH

DOT Steel Drum, 55 Gallon

33199921

Decontamination Facilities Total

Excavation, Buried Waste

D5 with A-blade Bulldozer

17030208

\$0.00 \$0.00

\$0.00

\$0.00

\$5,621.80

\$2,643.02

\$0.00

\$0.0000

100.00% \$20.49

70.00%

Ω

\$2,446.83 \$20.2397

\$21.4098

80.00 CY

Hand Excavation, Normal Soil

17030211

950, 3.0 CY, Wheel Loader

17030223

\$0.2561

\$0.0000

100.00%

70.00%

Ω

\$20.2397

40.00 HOUR

\$1,486.46

\$1,156.55

\$37.1616

\$2,467.32

\$0.00 \$0.0000 \$5,572.39

\$0.00

100.00%

70.00%

Ω

80.00 HOUR

\$2,313.11 \$25.2100

\$3,259.28 \$42.1680

\$40.7410

\$0.0000

100.00%

%00.02

80.00 HOUR

Crawler-mounted, 1 CY, 215 Hydraulic Excavator

17030230

\$3,373.44

\$2,881.14

\$6,254.58

\$0.00

\$1,605.38

\$1,605.38

\$0.00

100.00%

70.00%

3.00 MONTH

8' x 36' Decontamination Trailer with 2 Showers, Fans

33170822

\$0.00 \$0.0000

\$0.0000

\$50.9560

\$0.0000

\$3,506.86

\$3,506.86 \$535.1265

\$0.00

\$1,168.9541

\$0.0000

100.00%

%00.02

\$0.0000

3.00 MONTH

\$0.00 \$0.0000

\$46,941.06

\$43,332.78

\$3,098.64

\$0.00

100.00% \$975.12 \$975.12

70.00%

\$2,633.16

Contractor Costs / General Conditions Total

Decontamination Facilities

1,800 PSI Steam Cleaner Rental

33170819

\$2,123.52

\$297.2925

5.00 DAY

Surveying - 2-man Crew

99041201

\$195.0239

Total

Materials \$0.0000

Equipment

Labor

Safety Quantity/Unit Level

Page 31
11/16/97 3:09:51 PM
Softbooks 3ull Detail

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
12 CY, Dump Truck 17030285	160.00 HOUR D	\$12.4745 70.00% \$2,851.31	\$29.4438 100.00% \$4,711.01	\$0.0000	\$7,562.32
Backfill with Excavated Material 17030415	1,500.00 CY	\$1.3681 70.00% \$2,931.64	\$0.8234 100.00% \$1,235.10	\$0.2378	\$4,523.44
Organic Vapor Analyzer Rental, per Month 33020302	3.00 MONTH	\$0.000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1,239.1151	\$3,717.35
Plastic Laminate Waste Pile Cover 33080584	60,000.00 SF D	\$0.0105 70.00% \$900.00	\$0.0001 100.00% \$6.00	\$0.1309	\$8,760.00
Sprayed Water Dust Suppressant 33080585	7,000.00 SY	\$0.0029 70.00% \$29.00	\$0.0046 100.00% \$32.20	\$0.000	\$61.20
Decontaminate Heavy Equipment 33170803	10.00 EACH D Excavation, Buried Waste Total	\$143.2474 70.00% \$2,046.39 \$17,555.99	\$25.5078 100.00% \$255.08 \$14,379.06	\$0.0000 \$0.000 \$11,928.05	\$2,301.47
Fencing					

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silt fencing	800.00 LF	\$1.0000	\$0.0000	\$1.0000	
18040103		\$1,142.86	\$0.00%	\$800.00	\$1,942.86
Hazardous Waste Signing	1.00 EACH	\$18.7336	\$0.2328	\$30.4015	
18040501	Q	70.00%	100.00%		
		\$26.76	\$0.23	\$30.40	\$57.40
	Fencing Total	\$1,169.62	\$0.23	\$830.40	\$2,000.25

	Safety Quantity/Unit Level	ty el Labor	Equipment	Materials	Total
Groundwater Monitoring Wells					
Mobilization/Demobilization Drilling Rig & Crew 33010101	1.00 LS	\$394.5190 70.00%	\$837.5562	\$0.0000	
		\$563.60	\$837.56	\$0.00	\$1,401.15
Organic Vapor Analyzer Rental, per Day	2.00 DAY	\$0.0000	\$0.0000	\$118.9178	
33020303	۵	70.00%	100.00% \$0.00	\$237.84	\$237.84
Decontaminate Rig, Augers, Screen (Rental Equipment)	1.00 DAY	\$0.0000	\$0.0000	\$161.7271	
33170808	Ω		100.00% \$0.00	\$161.73	\$161.73
2" Stainless Steel, Well Casing	100.00 LF	\$1.5520	\$3.2945	\$18.6438	
33230121	Δ	70.00%	100.00%	¢1 864 38	¢2 415 54
			2	20:100	20014
2" Stainless Steel, Well Screen	12.00 LF	69	\$2.7920	\$48.2611	
33230221	Ω	\$22.55	100.00% \$33.50	\$579.13	\$635.18
2" Stainless Steel, Well Plug	4.00 EACH	\$3.9457	\$8.3758	\$30.1633	
33230311	۵		100.00%		
		\$22.55	\$33.50	\$120.65	\$176.70
2" Submersible Pump Rental, Day	1.00 DAY	\$0.0000	\$0.0000	\$59.4585	
000000000000000000000000000000000000000	1	\$0.00	\$0.00	\$59.46	\$59.46
Hollow-stem Auger, 8" Outside Diameter Borehole for 2" Well	100.00 LF	69	\$15.2287	\$0.0000	
33231101	a	\$1,024.84	\$1,522.87	\$0.00	\$2,547.71
Well Development Equipment Rental	1.00 WEEK	\$27.4970	\$0.4357	\$452.5599	
00000	n .	\$39.28	\$0.44	\$452.56	\$492.28
Standby for Drilling	1.00 EACH	\$49.3149	\$104.6945	\$0.0000	
			\$104.69	\$0.00	\$175.14
Softbooks Full Detail	11/16/97 3:09:53 PM	1:53 PM			Page 33

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Move Rig/Equipment Around Site	4.00 EACH	\$12.3287	\$26.1737	\$0.0000	
33231122	2	\$70.45	\$104.69	\$0.00	\$175.14
Furnish 55 Gallon Drum for Drill Cuttings & Development Water	8.00 EACH	\$0.0000	\$0.0000	\$50.9560	
33231126	٥	70.00% \$0.00	100.00% \$0.00	\$407.65	\$0.00
2" Screen, Filter Pack	20.00 LF	\$1.1180	\$2.3731	\$6.9738	
33231401	٥	70.00% \$31.94	100.00%	\$139.48	\$218.88
Surface Pad Concrete 4'x 4'x 4"	4.00 EACH	\$2.8481	\$0.1893	\$12.6844	
33231502	٥	70.00%	100.00%	650 74	467 77
		\$10.21	90.00	47.000	7.100
2" Well, Portland Cement Grout	4.00 LF	\$0.0000	\$0.0000	\$1.0703	
33231811	۵	70.00%	100.00%		
		\$0.00	\$0.00	\$4.28	\$4.28
2" Well, Bentonite Seal	4.00 EACH	\$4.4388	\$9.4228	\$17.2319	
33232101	Q	70.00%	100.00%		
		\$25.36	\$37.69	\$68.93	\$131.98
5' Guard Posts, Cast Iron, Concrete Fill	12.00 EACH	\$20.1681	\$0.4397	\$29.2574	
33232301	Q	70.00%	100.00%		
		\$345.74	\$5.28	\$351.09	\$702.10
Teflon Bailer, 3/4" Outside Diameter x 3', 180 cc	4.00 EACH	\$0.0000	\$0.0000	\$203.6930	
33232402	O	%00.02	100.00%		
		\$0.00	\$0.00	\$814.77	\$814.77
Suspension Cable, Teflon Coated	100.00 FT	\$0.0000	\$0.0000	\$1.0227	
33232422	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$102.27	\$102.27
Hand Reel	4.00 EACH	\$0.0000	\$0.0000	\$20.0970	
33232423	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$80.39	\$80.39
Groundwater	Groundwater Monitoring Wells Total	\$2,454.75	\$3,057.90	\$5,495.34	\$10,600.34

11/16/97 3:09:54 PM

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Landfill Disposal					
Transport Bulk Solid Hazardous Waste, 22 tons per trip	32.00 trip	\$0.0000	\$0.0000	\$1,650.0000	
33190005	Ω	70.00%	100.00%		
695 cy of clay/silt at one ton per cy		\$0.00	\$0.00	\$52,800.00	\$52,800.00
Landfill Hazardous Solid Bulk Waste Requiring Stabilization (ningle from Farthwatch)	695.00 tons	\$0.0000	\$0.0000	\$75.0000	
33197265	٥	70.00%	100.00%		
	Pandfill Disposal Total	\$0.00	\$0.00	\$52,125.00	\$52,125.00 \$104,925.00
Professional Labor					
Project Manager	80.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
33220101	Q	70.00%	100.00%		
		\$3,941.25	\$0.00	\$0.00	\$3,941.25
QA/QC Officer	16.00 HOUR	\$20.2159	\$0.0000	\$0.0000	
33220104	٥	%00.02	100.00%		
		\$462.08	\$0.00	\$0.00	\$462.08
Project Hydrogeologist	40.00 HOUR	\$29.7293	\$0.0000	\$0.0000	
33220106	Q	%00.02	100.00%		
		\$1,698.82	\$0.00	\$0.00	\$1,698.82
Health & Safety Officer	16.00 HOUR	\$17.8376	\$0.0000	\$0.0000	
33220113	٥	%00.02	100.00%		
		\$407.72	\$0.00	\$0.00	\$407.72
Field Technician	480.00 HOUR	\$14.2700	\$0.0000	\$0.0000	
33220117	Q	%00.02	100.00%		
		\$9,785.14	\$0.00	\$0.00	\$9,785.14
Word Processing/Clerical	20.00 HOUR	\$11.8917	\$0.0000	\$0.0000	
33220119	2	70.00%	100.00%	000	2200 76
	Professional Labor Total	\$16.634.76	\$0.00	\$0.00	\$16,634.76
2	ובססוסוומו רמחסו וסנמו				

	Materials
	Equipment
	Labor
Safety	Level
	Quantity/Unit

Total

Soil Washing

Treat 0 - 9,999 Tons of Soil, Including Residual Water	2,084.00 TON	\$1.3509	\$0.9144	\$130.8087	
33130901	٥	70.00%	100.00%		
assume ont ton equals one cy		\$4,021.82	\$1,905.61	\$272,605.33	\$278,532.76
	Soil Washing Total	\$4,021.82	\$1,905.61	\$272,605.33	\$278,532.76
Site Total		\$50,953.02		\$500,749.56	\$574,749.16

The three data items in the labor and equipment columns are: unit cost, productivity, and total cost. The two data items in the materials column are: unit cost and total cost.

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		34	

section 4 figures

- Figure 1 On-site monofill details and Quanity take offs
- Figure 2 Preliminary remediation system layout/site plan
- Figure 3 SEAD 16 estimated soil over 2000 ppm lead
- Figure 4 SEAD 17 estimated soil over 2000 ppm lead
- Figure 5 SEAD 16 estimated total volume of soil/sediment to be excavated
- Figure 6 SEAD 17 estimated total volume of soil/sediment to be excavated
- Figure 7 Soil washing- estimated volume reduction calculation

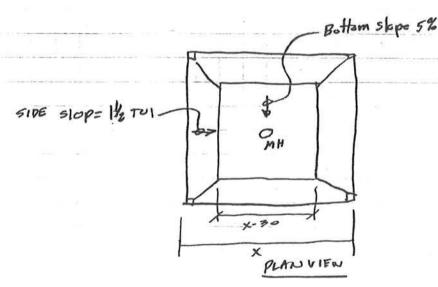
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CLIENT SENECA ARMY DEPOT

SUBJECT SEAD 16 \$ 17 RIFS COST ESTIMATE

ON-SITE LANDFILL.

- O VOLUME OF SOR TO BE LANDFILLED = 2375 CY
- 2) Assume I composite liver per 6 NYCRR 360-2.14
 FOR judustrial waste monofill.
- 3 use depth in monofill = 10ft.



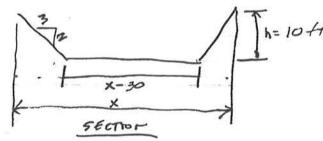
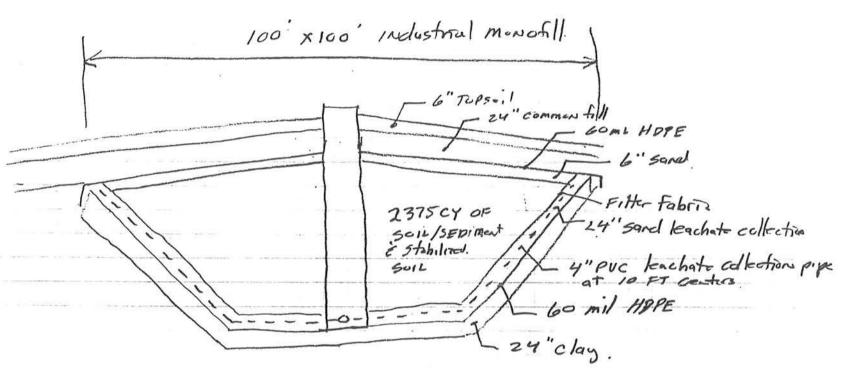


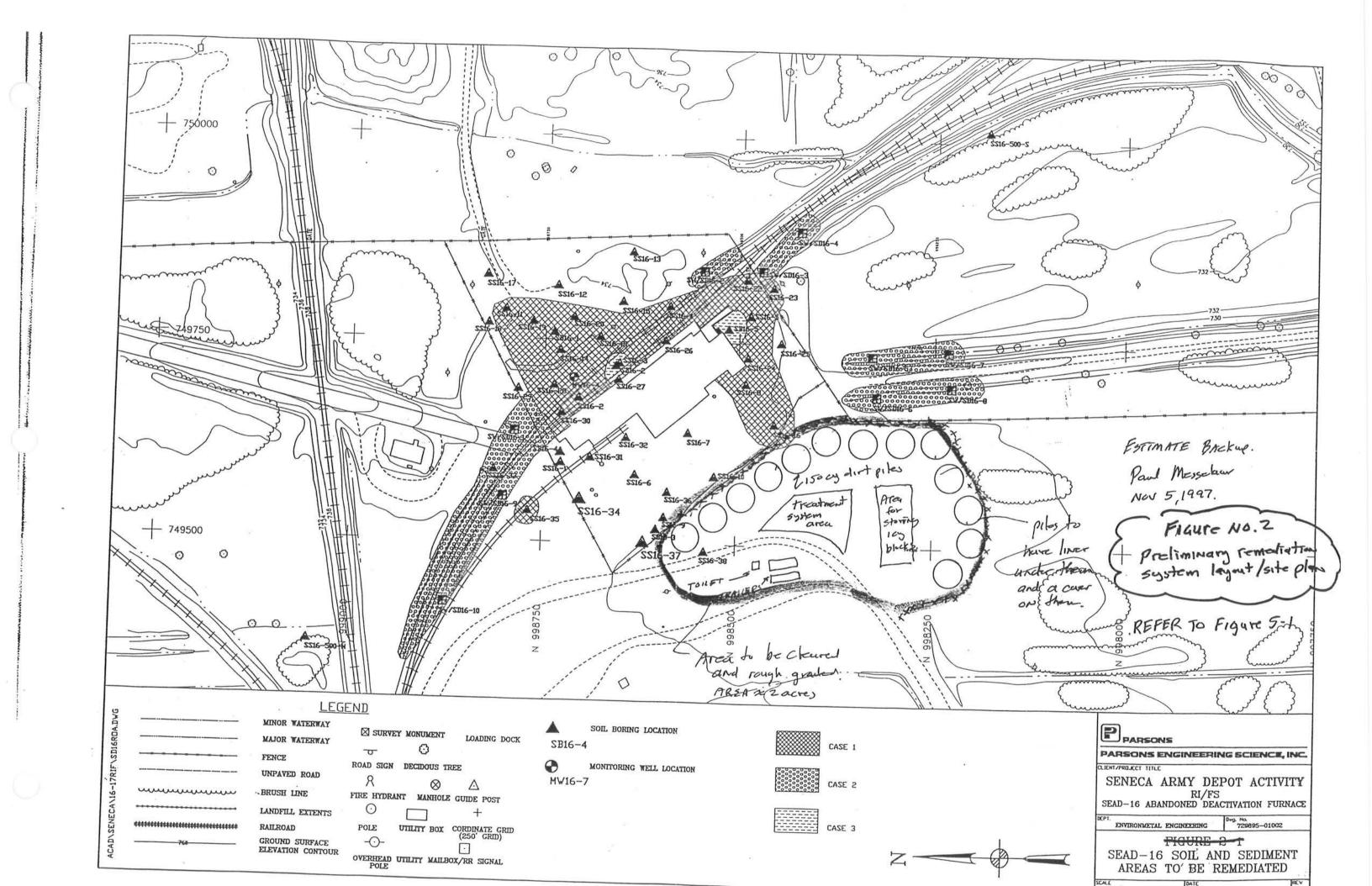
FIGURE NO.1 Seneca Army Depot-SEAD 16\$17 RIFS COST ESTIMATE BACKUP. ON-site Monofill details and Quanity takeoffs



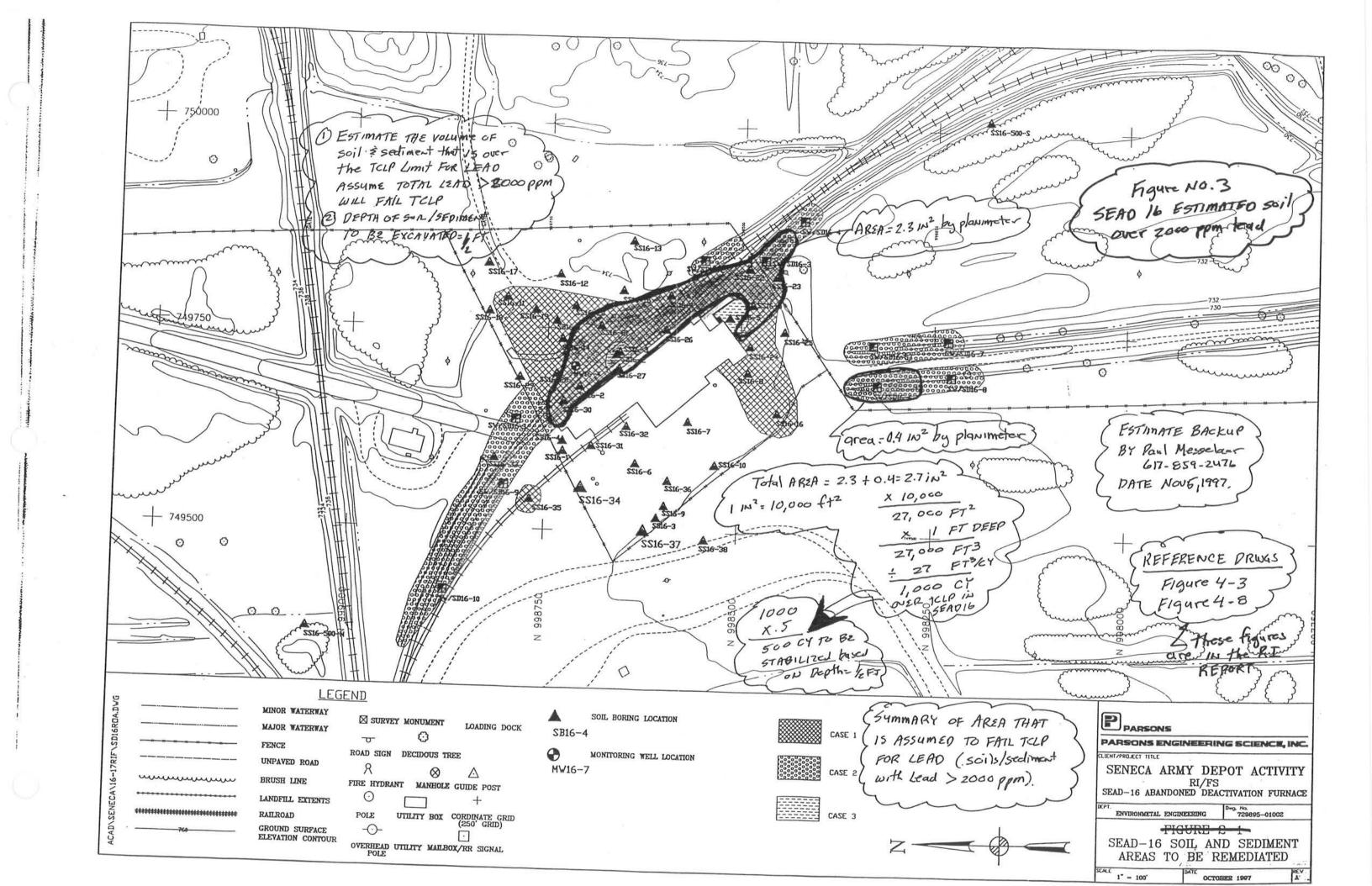
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BY POM DATE NIV 5,1997

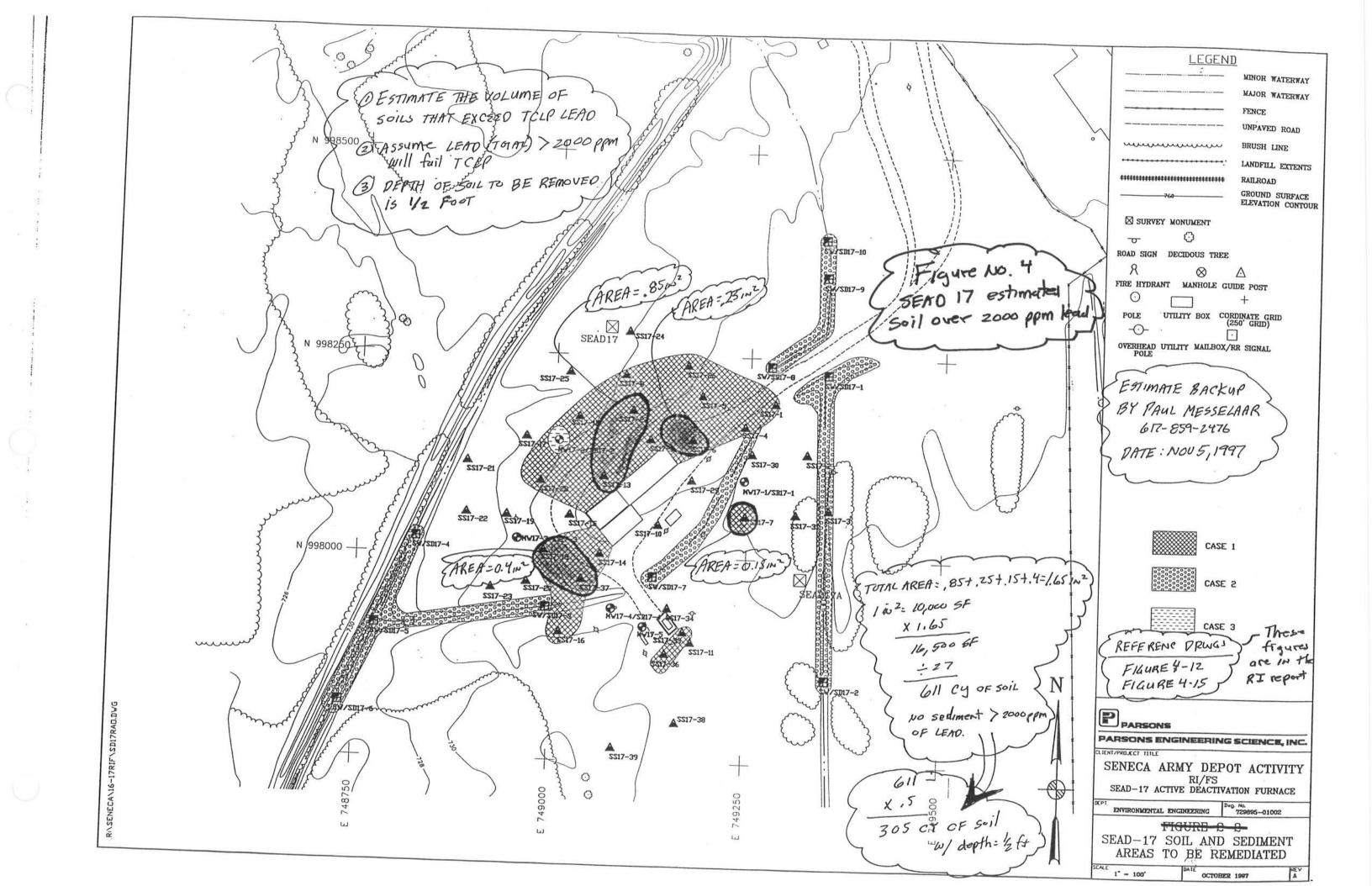


manhote 16 Foot deep.

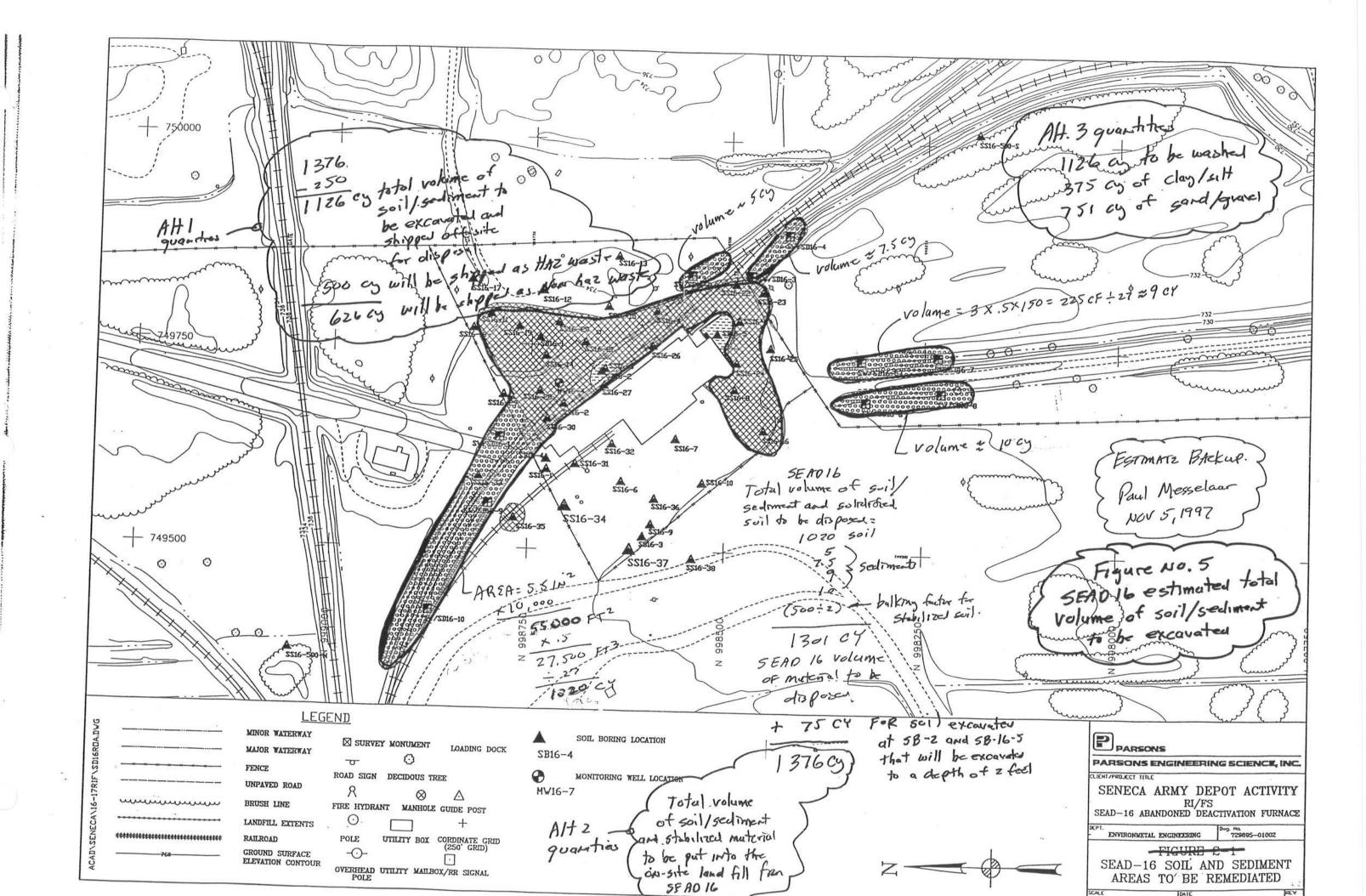


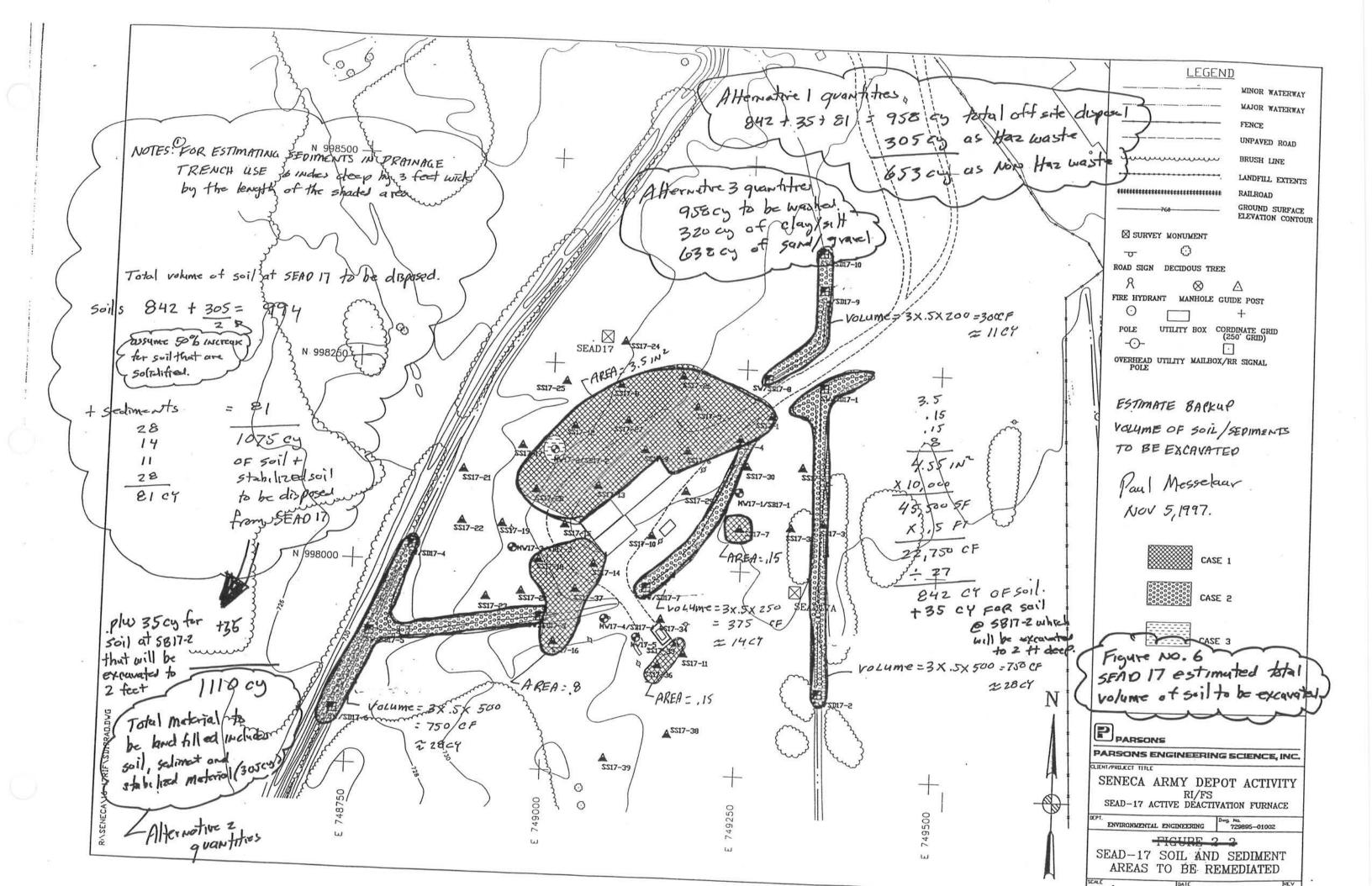


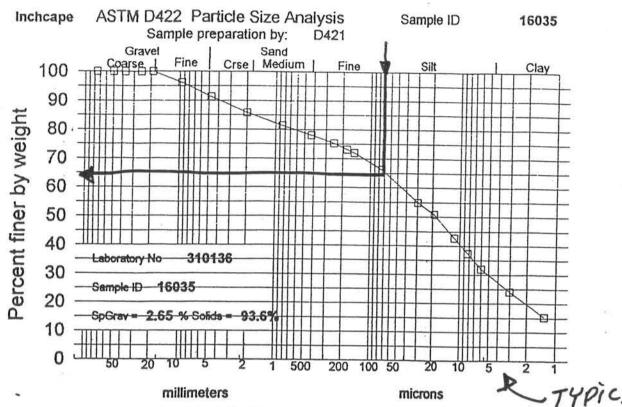












Particle Size, millimeters (mm) and microns (um)

Maximum	
particle size:	19 mm

Shape and hardness (>#10):

		- 5		
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 mm	100.0	0.0	assumou
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	96.2	3.8	
#4	4.75	91.3	4.9	
#10	2.00	85.8	5.5	
#20	850.0 um	81.4	4.4	
#40	425.0	78.0	3.4	
#60	250.0	75.2	2.8	
#80	180.0	73.1	2.1	
#100	150.0	72.0	1.1	
#200	75.0	66.2	5.8	
Hydrometer	29.8	54.9	11.3	Dispersion of soil
I	19.2	50.8	4.1	for hydrometer test
1	11.5	42.7	8.1	by mechanical mixer
Ì	8.3	. 37.4	5.4	with metal paddle
į.	6.0	32.0	5.3	operated for at least
1	3.0	24.1	8.0	one minute within a
V	1.3	15.3	8.8	dispersion cup

Printed by 2007 28-Aug-96

Set 210 Lab No. 310136 Soil

soil sample ID	% silt/clay
16 034	24
16035	63
16036	24
16047	15
16068	37
16069	63
16000	23
	7/249
	AVG: 36 % SIL+/CLAY BY WT FOR
	5012

SEDIMENT

SEDIMENT ID	% 5,1t/clay	
16124A	55	
16123A	55	
16122A	65	
16120 A	65	
16119 A	33	
16121 A	48	
16 125 A	28	
16126A	95	
16127 A	28	
1612 8 A	18	
16129A	20	ė
16124. 16130A	80	
16131 A	61	89
	60	
16132A	4	
16133 A	67	
16134 A	96	
16135 A	e 7	
16136A		
16137 A	73	
	67	
16142A	45	
16143 A -		
21	1204	
Δ	57% Silt/	elay
Aug	BYU	ut Fol
	SEDII	mat.

the majority of soil/sediment to be executed on this project is soils therefore use a /3 volume reduction based on separatmy sitt/clay from grant/sand.

FIGURET

SENECA ARMY DEPUT-SEAD 16 \$ 17 RIFS

COST ESTIMATE BACKUP

Soil Washing - estimated volume reduction calculation

BY: Paul Messelaur

Date: Nov. 5,1997.

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section 5 Quotations





November 12, 1997

Ms. Hillary Eiklor Parsons Engineering, Inc. 101 Huntington Avenue Boston, Massachusetts 02199

Dear Hillary:

On behalf of Earthwatch Waste Systems, Inc., I would like to thank you for giving me the opportunity to provide you with the following quotation for the transportation and disposal of the hazardous soil located in Romulus, NY.

Hazardous Soil (D-Series)

Disposal:

\$75.00/ton

Transportation:

\$75.00/ton

- > Disposal pricing is contingent upon facility approval.
- > There is a twenty-two (22) ton minimum on transportation.
- > Payment terms to be granted upon completion of a credit application.

Earthwatch Waste Systems, Inc., welcomes the opportunity to service all of your waste disposal needs. If you have any questions regarding this proposal, pleases do not hesitate to contact me. Prices are valid for thirty (30) days and are subject to verification thereafter.

Sincerely,

Christopher J. McCune

Account Executive

"With An Eye On Your Future"



November 12, 1997

Ms. Hillary Eiklor Parsons Engineering, Inc. 101 Huntington Avenue Boston, Massachusetts 02199

Dear Hillary:

On behalf of Earthwatch Waste Systems, Inc., I would like to thank you for giving me the opportunity to provide you with the following quotation for the transportation and disposal of the non-hazardous contaminated soil located in Romulus, NY.

Ontario County Landfill, Stanley, NY.

Disposal:

\$15.00/ton

Transportation:

\$14.00/ton

Approval Requirements: Full TCLP including Pesticides and Herbicides.

> There is a twenty-two (22) ton minimum on transportation.

> Payment terms to be granted upon completion of a credit application.

Earthwatch Waste Systems, Inc., welcomes the opportunity to service all of your waste disposal needs. If you have any questions regarding this proposal, pleases do not hesitate to contact me. Prices are valid for thirty (30) days and are subject to verification thereafter.

Sincerely,

Christopher J. McCune Account Executive

"With An Eye On Your Future"

CORPORATE AND SALES OFFICE: 3527 Harlem Road • Buffalo, NY 14225 Phone (716) 833-3286 • Fax (716) 833-5670

PARSONS ENGINEERING SCIENCE, INC. TELEPHONE MEMORANDUM

TO:

Rocky LaRocca

INITIATED BY:

Hilary Eichler

COMPANY: Seneca Meadows Landfill

TELEPHONE NO: 315-539-5624

DATE:

November 10, 1997

TIME:

10:00 am

CLIENT:

U.S. Army Engineer Division

PROJECT:

SEAD-16 and 17 FS

SUBJECT:

Cost Estimate for Subtitle D Landfill

FILE:

729895.01002

Discussed pricing and acceptance requirements for disposal of materials from SEAD-16 and 17. He has sent a package of information to Don Yonika in the last month (refer to attached selected copies from this package), which shows that the landfill has adequate capacity and complies with Subtitle D requirements. Rocky confirmed pricing as follows, assuming the contaminated soil meets requirements:

Transportation and Landfilling

\$40/ton

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Section 6 Comparative cost estimate

Alternative 1: Excavate/ Stabilize/ Off-site Disposal

SENECA ARMY DEPOT SEAD 16 & 17 RIFS COST ESTIMATE SUMMARY ALTERNATIVE NO 1 EXCAVATE/STABILIZE/OFF-SITE DISPOSAL

WBS number	description	cost
32xxx	design and treatability study (estimated at 15% of construction cost)	\$65,773
331xx01	mobilization and preparatory work (includes decontamination facilities and fencing)	\$7,621
331xx02	monitoring, sampling,testing,and analysis (includes soil sampling analysis)	\$64,312
331xx03	site work (includes access roads, cleanup and landscaping, clear and grub)	\$6,598
331xx06	groundwater collection and control (includes groundwater monitoring wells)	\$11,372
331xx08	solids collection and containment (Excavation, buried waste)	\$49,644
331XX15	stabilize/fixation/encapsulation (includes solidification/stabilization)	\$176,648
331xx19	disposal commercial (Includes landfill disposal)	\$70,429
331xx22	general requirements (includes contractor costs/ General Conditions)	\$28,520
332xx	engineering during construction (includes professional Labor)	\$13,345
333xx	construction management	\$10,000
	SUBTOTAL ESTIMATED CONSTRUCTION COST location multiplier 0.85 escalation 10% overhead and profit 13% contingencies 20% TOTAL ESTIMATED CONSTRUCTION COST	\$504,262 \$428,622 42,862 \$55,720 \$85,724
342XXX	operation and maintenance (post construction) (includes o&m costs)	\$10,422 per sampling event
	Present worth based on 30 years and i = 5%	\$773,110

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parsons engineering science

Prudential Center Boston , Massachusetts ,02199 617 262 3200

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Professional Labor Sampling and Analysis	סוכם

\$1,963.83 \$10,422.04 **\$12,385.87**

RA-4

4		
	Access Roads	\$3,544.80
	Analyses: Soil, Sludge, and Sediment	\$54,312.57
	Cleanup and Landscaping	\$1,397.83
	Clear and Grub	\$1,657.59
	Contractor Costs / General Conditions	\$46,941.06
	Decontamination Facilities	\$5,621.80
	Excavation, Buried Waste	\$49,644.12
	Fencing	\$2,000.25
	Groundwater Monitoring Wells	\$11,372.16
	Landfill Disposal	\$70,429.00
	Professional Labor	\$17,457.00
	Solidification/Stabilization	\$176,646.00

Page

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		Safety				
	Quantity/Unit	Level	Labor	Equipment	Materials	Total
o&m cost						
Professional Labor						
Project Manager	4.00 HOUR	۵	\$197.06	\$0.00	\$0.00	\$197.06
Project Engineer	40.00 HOUR	Ω	\$1,698.82	\$0.00	\$0.00	\$1,698.82
Word Processing/Clerical	4.00 HOUR	٥	\$67.95	\$0.00	\$0.00	\$67.95
	Professional Labor Tota	Total	\$1,963.83	\$0.00	\$0.00	\$1,963.83
Sampling and Analysis						
Van or Pickup Rental	2.00 DAY	۵	\$0.00	\$0.00	\$71.35	\$71.35
Mobilize Crew, >= 500 Miles, per Person	2.00 EACH	۵	\$0.00	\$0.00	\$2,378.34	\$2,378.34
Per Diem	4.00 DAY	٥	\$0.00	\$0.00	\$356.75	\$356.75
Prefiltering Liquids	4.00 EACH	٥	\$0.00	\$0.00	\$59.46	\$59.46
Acid Digestion	4.00 EACH	O	\$0.00	\$0.00	\$95.13	\$95.13
Repackage and Ship Sample	4.00 EACH	Ω	\$0.00	\$0.00	\$142.70	\$142.70
Organic Vapor Analyzer Rental, per Day	2.00 DAY	۵	\$0.00	\$0.00	\$237.84	\$237.84
Disposable Materials per Sample	4.00 EACH	۵	\$0.00	\$0.00	\$26.98	\$26.98
Decontamination Materials per Sample	4.00 EACH	۵	\$0.00	\$0.00	\$24.97	\$24.97
Rinsate Analysis	1.00 EACH	۵	\$0.00	\$0.00	\$190.27	\$190.27
Pesticides/PCBs (EPA 608)	4.00 EACH	۵	\$0.00	\$0.00	\$713.50	\$713.50
Volatile Organic Analysis (EPA 624)	4.00 EACH	Ω	\$0.00	\$0.00	\$1,070.25	\$1,070.25
Base Neutral & Acid Extractable Organics (EPA 625)	4.00 EACH	۵	\$0.00	\$0.00	\$1,664.84	\$1,664.84
Target Analyte List Metals (EPA 6010/7000S), Soil	4.00 EACH	Ω	\$0.00	\$0.00	\$975.12	\$975.12
1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12	1.00 EACH	Ω	\$0.00	\$0.00	\$44.80	\$44.80
40 ml, Clear Vial, Case of 72	1.00 EACH	Ω	\$0.00	\$0.00	\$104.77	\$104.77
1 Liter, 32 oz, High-density Polyethylene Bottle, Case of 12	1.00 EACH	Ω	\$0.00	\$0.00	\$34.78	\$34.78
Custody Seals, Package of 10	1.00 EACH	Ω	\$0.00	\$0.00	\$1.34	\$1.34

		Safety					
	Quantity/Unit	Level	Labor	Equipment	Materials	Total	
Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of 4	se 1.00 EACH	۵	\$0.00	\$0.00	\$16.71	\$16.71	
Documentation Package for QA Verification, Data & Benchwork	4.00 EACH	۵	\$0.00	\$0.00	\$738.76	\$738.76	
Overnight Delivery, 21 - 50 Lb Package	25.00 LB	۵	\$0.00	\$0.00	\$47.57	\$47.57	(4)
60 Quart Ice Chest	1.00 EACH	٥	\$0.00	\$0.00	\$53.10	\$53.10	
Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	1.00 EACH	Q	\$0.00	\$0.00	\$5.97	\$5.97	
Field Technician	32.00 HOUR	Q	\$652.34	\$0.00	\$0.00	\$652.34	
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc	4.00 EACH	۵	\$0.00	\$0.00	\$612.14	\$612.14	
Suspension Cable, Teflon Coated	100.00 FT	۵	\$0.00	\$0.00	\$102.27	\$102.27	
	Sampling and Analysis Total	Total	\$652.34	\$0.00	\$9,769.70	\$10,422.04	
Total o&m cost			\$2,616.17	\$0.00	\$9,769.70	\$12,385.87	
BA-4							
Access Roads							
Rough Grading, 14G, 1 Pass	7,000.00 SY	٥	\$1,547.00	\$1,997.80	\$0.00	\$3,544.80	
	Access Roads Total	Total	\$1,547.00	\$1,997.80	\$0.00	\$3,544.80	
Analyses: Soil, Sludge, and Sediment							
Van or Pickup Rental	3 00 047	c	ç	6			
Mobilize Crew >= 500 Miles per Derson	10000	ו כ	\$0.00	\$0.00	\$107.03	\$107.03	
Per Diam	2.00 EACH	0	\$0.00	\$0.00	\$2,378.34	\$2,378.34	
Some of the second of the seco	6.00 DAY	ပ	\$0.00	\$0.00	\$535.13	\$535.13	
Organia Mania Anni Anni Anni Anni Anni Anni Anni	5.00 EACH	۵	\$0.00	\$0.00	\$178.38	\$178.38	
Olganic vapor Analyzer Kental, per Day	3.00 DAY	۵	\$0.00	\$0.00	\$356.75	\$356.75	
Disposable Materials per Sample	50.00 EACH	۵	\$0.00	\$0.00	\$337.24	\$337.24	
Decontamination Materials per Sample	50.00 EACH	۵	\$0.00	\$0.00	\$312.16	\$312.16	
ICLP (RCRA) (EPA 1311)	15.00 EACH	۵	\$0.00	\$0.00	\$27,915,77	\$27,915,77	
l arget Analyte List Metals (EPA 6010/7000S), Soil	35.00 EACH	۵	\$0.00	\$0.00	\$8.532.30	\$8,532.30	
1 Liter, 32 Uz, Clear Wide Mouth Jar, Case of 12	5.00 EACH	۵	\$0.00	\$0.00	\$223.98	\$223.98	
1 Liter, 32 Uz, Boston Round Bottle, Case of 12	5.00 EACH	Ω	\$0.00	\$0.00	\$170.59	\$170.59	
40 ml, Clear Vial, Case of 72	2.00 EACH	Ω	\$0.00	\$0.00	\$209.53	\$209.53	
Castody Seals, Package of 10		۵	\$0.00	\$0.00	\$6.72	\$6.72	
of 4	e 4.00 EACH	Ω	\$0.00	\$0.00	\$66.83	\$66.83	

	die Mandelle	Safety	-			j
	adailuty/OIIIt	רפגפו	Labor	Ednipment	Materiais	lotal
Documentation Package for QA Verification, Data & Benchwork	50.00 EACH	Ω	\$0.00	\$0.00	\$9,234.51	\$9,234.51
Overnight Delivery, 21 - 50 Lb Package	200.00 LB	۵	\$0.00	\$0.00	\$380.54	\$380.54
60 Quart Ice Chest	5.00 EACH	Ω	\$0.00	\$0.00	\$265.48	\$265.48
Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	5.00 EACH	۵	\$0.00	\$0.00	\$29.85	\$29.85
Project Manager	8.00 HOUR	۵	\$394.12	\$0.00	\$0.00	\$394.12
Project Engineer	40.00 HOUR	۵	\$1,698.82	\$0.00	\$0.00	\$1,698.82
Field Technician	48.00 HOUR	۵	\$978.51	\$0.00	\$0.00	\$978.51
Analyses: Soil,	Soil, Sludge, and Sediment Total	Total	\$3,071.46	\$0.00	\$51,241.11	\$54,312.57
Cleanup and Landscaping						
General Area Cleanup	2.00 ACRE	۵	\$288.29	\$190.73	\$0.00	\$479.02
Area Preparation, 67% Level & 33% Slope	2.00 ACRE	۵	\$41.44	\$61.12	\$0.00	\$102.56
Seeding, 67% Level & 33% Slope, Hydroseeding	2.00 ACRE	٥	\$114.16	\$131.28	\$570.80	\$816.25
Ole	Cleanup and Landscaping Total	Total	\$443.89	\$383.14	\$570.80	\$1,397.83
Clear and Grub						
Light Brush without Grub, Chipping	2.00 ACRE	۵	\$954.32	\$703.26	\$0.00	\$1,657.59
	Clear and Grub Total	Total	\$954.32	\$703.26	\$0.00	\$1,657.59
Contractor Costs / General Conditions						
Van or Pickup Rental	90.00 DAY	۵	\$0.00	\$0.00	\$3,210.76	\$3,210.76
Mobilize Crew, >= 500 Miles, per Person	4.00 EACH	Ω	\$0.00	\$0.00	\$4,756.68	\$4,756.68
Per Diem	360.00 DAY	۵	\$0.00	\$0.00	\$32,107.61	\$32,107.61
Disposable Boot Covers (Tyvek)	360.00 PAIR	٥	\$0.00	\$0.00	\$494.46	\$494.46
Disposable Gloves (Latex)	360.00 PAIR	۵	\$0.00	\$0.00	\$81.94	\$81.94
Disposable Coveralls (Tyvek)	360.00 EACH	۵	\$0.00	\$0.00	\$1,284.30	\$1,284.30
l emporary Office 20' x 8'	3.00 MONTH	۵	\$0.00	\$0.00	\$673.65	\$673.65
l emporary Storage Trailer 28' x 10'	3.00 MONTH	۵	\$0.00	\$0.00	\$366.63	\$366.63
Portable Toilets - Chemical	3.00 MONTH	۵	\$0.00	\$0.00	\$356.75	\$356.75
Construction Photographs	1.00 SET	Ω	\$509.64	\$0.00	\$0.00	\$509.64
Surveying - 2-man Crew	5.00 DAY	Ω	\$2,123.52	\$975.12	\$0.00	\$3,098.64
Contractor Cost	Contractor Costs / General Conditions Total	otal	\$2,633.16	\$975.12	\$43,332.78	\$46,941.06

	Quantity/Unit	Safety Level	Labor	Fauipment	Materials	Total
Decontamination Facilities						
1,800 PSI Steam Cleaner Rental	3.00 MONTH	۵	\$0.00	\$0.00	\$3,506.86	\$3,506.86
8' x 36' Decontamination Trailer with 2 Showers, Fans	3.00 MONTH	۵	\$0.00	\$0.00	\$1,605.38	\$1,605.38
DOT Steel Drum, 55 Gallon	10.00 EACH	۵	\$0.00	\$0.00	\$509.56	\$509.56
Dec	Decontamination Facilities Total	Total	\$0.00	\$0.00	\$5,621.80	\$5,621.80
Excavation, Buried Waste						
D6 with A-blade Bulldozer	al IOH OO OF		24 425 20	27 727 70	000	
Hand Excavation, Normal Soil	80.00 CV	ם כ	\$2 446 83	\$1,131,43	\$0.00	\$2,896.82
950, 3.0 CY, Wheel Loader	160.00 HOUR	۵ ۵	\$4,626.22	\$6.518.56	\$0.00	\$11 144 78
Crawler-mounted, 1 CY, 215 Hydraulic Excavator	40.00 HOUR	۵	\$1,440.57	\$1,686.72	\$0.00	\$3,127.29
12 CY DUMP TRUCK	160.00 HOUR	۵	\$2,850.29	\$4,710.40	\$0.00	\$7,560.69
Unclassified Fill, 6" Lifts, On-Site	1,500.00 CY	۵	\$2,199.86	\$5,050.65	\$356.70	\$7,607.21
Organic Vapor Analyzer Rental, per Month	3.00 MONTH	۵	\$0.00	\$0.00	\$3,717.35	\$3,717.35
Plastic Laminate Waste Pile Cover	60,000.00 SF	۵	\$900.00	\$6.00	\$7,854.00	\$8,760.00
Sprayed Water Dust Suppressant	7,000.00 SY	٥	\$29.00	\$32.20	\$0.00	\$61.20
Decontaminate Heavy Equipment	10.00 EACH	Ω	\$2,046.39	\$255.08	\$0.00	\$2,301.47
Ě	Excavation, Buried Waste Total	Total	\$17,704.55	\$20,011.53	\$11,928.05	\$49,644.12
Fencing						
o Galvanized Chain-link Fence	800.00 LF	Ω	\$957.03	\$8.80	\$10,147.76	\$1,942.86
Hazardous Waste Signing	1.00 EACH	۵	\$26.76	\$0.23	\$30.40	\$57.40
	Fencing Total	Total	\$983.79	\$9.03	\$10,178.16	\$2,000.25
Groundwater Monitoring Wells						
Mobilization/Demobilization Drilling Rig & Crew	1.00 LS	0	\$563.60	\$837.56	00 08	00 0\$
Organic Vapor Analyzer Rental, per Day	2.00 DAY	0	\$0.00	\$0.00	\$237.84	\$237.84
Decontaminate Rig, Augers, Screen (Rental Equipment)	t) 1.00 DAY	۵	\$0.00	\$0.00	\$161.73	\$161.73
2" Stainless Steel, Well Casing	100.00 LF	Q	\$221.71	\$329.45	\$1,864.38	\$2,415.54
2" Stainless Steel, Well Screen	12.00 LF	٥	\$22.55	\$33.50	\$579.13	\$635.18
2" Stainless Steel, Well Plug	4.00 EACH	۵	\$22.55	\$33.50	\$120.65	\$176.70
2" Submersible Pump Rental, Day		۵	\$0.00	\$0.00	\$59.46	\$59.46
Hollow-stem Auger, 8" Outside Diameter Borehole for 2"	100 001 E	_	\$4 00 KA	£4 £32 07	000	1

Hollow-stem Auger, 8" Outside Diameter Borehole for 2" Well

\$2,547.71

\$59.46

\$0.00

\$0.00

00

1.00 DAY 100.00 LF

		Safety					
	Quantity/Unit	Level	Labor	Equipment	Materials	Total	
Split Spoon Sample, 2" x 24", During Drilling	50.00 EACH	۵	\$0.00	\$0.00	\$1,486.47	\$1,486.47	
Well Development Equipment Rental	1.00 WEEK	۵	\$39.28	\$0.44	\$452.56	\$492.28	
Standby for Drilling	1.00 EACH	۵	\$70.45	\$104.69	\$0.00	\$0.00	
Move Rig/Equipment Around Site	4.00 EACH	۵	\$70.45	\$104.69	\$0.00	\$175.14	
Furnish 55 Gallon Drum for Drill Cuttings & Development Water	8.00 EACH	۵	\$0.00	\$0.00	\$407.65	\$407.65	
2" Screen, Filter Pack	80.00 LF	۵	\$127.77	\$189.85	\$557.90	\$875.52	
Surface Pad, Concrete, 4' x 4' x 4"	4.00 EACH	۵	\$16.27	\$0.76	\$50.74	\$67.77	
2" Well, Portland Cement Grout	4.00 LF	Ω	\$0.00	\$0.00	\$4.28	\$4.28	
2" Well, Bentonite Seal	4.00 EACH	۵	\$25.36	\$37.69	\$68.93	\$131.98	
5' Guard Posts, Cast Iron, Concrete Fill	12.00 EACH	Ω	\$345.74	\$5.28	\$351.09	\$702.10	
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc	4.00 EACH	Ω	\$0.00	\$0.00	\$612.14	\$612.14	
Suspension Cable, Teflon Coated	100.00 FT	۵	\$0.00	\$0.00	\$102.27	\$102.27	
Hand Reel	4.00 EACH	۵	\$0.00	\$0.00	\$80.39	\$80.39	
Groundwat	Groundwater Monitoring Wells Total	Fotal	\$2,550.58	\$3,200.28	\$7,197.60	\$11,372.16	
Landfill Disposal							
Transport Bulk Solid non-Hazardous Waste, 22 tons per trip (quote Earthwatch)	113.00 trip	Ω	\$0.00	\$0.00	\$34,804.00	\$34,804.00	
Landfill Nonhazardous Solid Bulk Waste by ton (quote Earthwatch)	2,375.00 ton	Ω	\$0.00	\$0.00	\$35,625.00	\$35,625.00	
	Landfill Disposal Total	Fotal	\$0.00	\$0.00	\$70,429.00	\$70,429.00	
Professional Labor							
Project Manager	40.00 HOUR	۵	\$1,970.62	\$0.00	\$0.00	\$1,970.62	
QA/QC Officer	8.00 HOUR	۵	\$231.04	\$0.00	\$0.00	\$231.04	
Project Engineer	120.00 HOUR	Ω	\$5,096.45	\$0.00	\$0.00	\$5,096.45	
Health & Safety Officer	8.00 HOUR	۵	\$203.86	\$0.00	\$0.00	\$203.86	
Field Technician	480.00 HOUR	۵	\$9,785.14	\$0.00	\$0.00	\$9,785.14	
Word Processing/Clerical	10.00 HOUR	۵	\$169.88	\$0.00	\$0.00	\$169.88	
	Professional Labor Total	otal	\$17,457.00	\$0.00	\$0.00	\$17,457.00	
Solidification/Stabilization							
950, 3.0 CY, Wheel Loader	160.00 HOUR	۵	\$4,626.22	\$6,518.56	\$0.00	\$11,144.78	
580K, 1CY, Backhoe with Front-end Loader	320.00 HOUR	Ω	\$9,475.34	\$4,448.48	\$0.00	\$13,923.82	

		Safety				
	Quantity/Unit	Level	Labor	Equipment	Materials	Total
6" Structural Slab on Grade	100.00 SF	۵	\$202.37	\$16.96	\$224.26	\$443.59
Per Diem	240.00 DAY	۵	\$0.00	\$0.00	\$21,405.07	\$21,405.07
Truck Scale Rental	1.00 MONTH	۵	\$0.00	\$0.00	\$4,162.10	\$4,162.10
R60 Rough Terrain Forklift, 6,000 Lb @ 24" LC	320.00 HOUR	٥	\$9,268.75	\$4,075.55	\$0.00	\$13,344.31
Portland Cement Type I (Bulk)	300.00 TON	۵	\$0.00	\$0.00	\$25,329.33	\$25,329.33
Tank Truck Standby Time for Solidification/Stabilization Unit	320.00 HOUR	۵	\$0.00	\$3,446.85	\$0.00	\$3,446.85
1 CY Plywood Boxes	100.00 EACH	۵	\$3,002.06	\$81.88	\$2,675.63	\$5,759.57
Operational Labor for Process Equipment	640.00 HOUR	۵	\$33,160.87	\$0.00	\$0.00	\$33,160.87
Bulk Chemical Transport (40,000 Lb Truckload)	15.00 EACH	۵	\$0.00	\$0.00	\$5,351.27	\$5,351.27
10 CY Mixing System	2.00 MONTH	۵	\$0.00	\$0.00	\$9,930.76	\$9,930.76
Solidification/Stabilization Ancillary Equipment	1.00 EACH	٥	\$0.00	\$0.00	\$7,135.02	\$7,135.02
Mobilization/Demobilization of Solidification/Stabilization Equipment	1.00 LS	۵	\$16,839.50	\$0.00	\$0.00	\$16,839.50
DOT Steel Drum, 55 Gallon	10.00 EACH	۵	\$0.00	\$0.00	\$509.56	\$509.56
Diesel Fuel	2,000.00 GAL	۵	\$0.00	\$0.00	\$2,806.40	\$2,806.40
Water	250.00 KGAL	۵	\$0.00	\$0.00	\$1,953.23	\$1,953.23
Solidific	Solidification/Stabilization Total	Total	\$76,575.10	\$18,588.28	\$81,482.61	\$176,646.00
Total RA-4			\$123,920.84	\$45,868.44	\$281,981.91	\$441.024.17

SEAD 16 & 17

Paul Messelaar

11/2/97

excavate/soil washing/backfill clean soils/solidify and off-site landfill alternatives includs; RA-1 no action; RA-4 excavate/solidify/off-site deactivation fumaces, one active and one inactive. Remediation Soil and sediment remediation at two small arms munitions landfill; RA-5 excavate/solidify/ on-site landfill; and RA-6

Safety Quantity/Unit Level

Equipment

Labor

Materials

Total

Boston, Massachusetts, 02199

Prudential Center

parsons engineering science

617 262 3200

o&m cost

SEAD 16 & 17 groundwater monitoring prepare monitoring report groundwater monitoring groundwater/metals

Professional Labor

Project Manager	4.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
33220101	۵	70.00%	100.00%		
		\$197.06	\$0.00	\$0.00	\$197.06
Project Engineer	40.00 HOUR	\$29.7293	\$0.0000	\$0.0000	
33220105	۵	70.00%	100.00%		
-		\$1,698.82	\$0.00	\$0.00	\$1,698.82
Word Processing/Clerical	4.00 HOUR	\$11.8917	\$0.0000	\$0.0000	
33220119	Ω	70.00%	100.00%		
		\$67.95	\$0.00	\$0.00	\$67.95
	Professional Labor Total	\$1,963.83	\$0.00	\$0.00	\$1,963.83
Sampling and Analysis					
Van or Pickup Rental	2.00 DAY	\$0.0000	\$0.0000	\$35 6751	

\$71.35

\$35.6751

100.00%

70.00%

Ω

33010102

\$0.00

\$0.0000

\$0.0000

\$0.00

Softbooks -- Full Detail

\$95.13

\$95.13

\$35.6751

100.00%

70.00%

Ω

\$0.00 \$0.0000

\$0.0000

4.00 EACH

\$0.0000

\$142.70

\$142.70

\$0.00

\$118.9178

100.00%

70.00%

Ω

2.00 DAY

Organic Vapor Analyzer Rental, per Day

33020303

Repackage and Ship Sample

33020225

\$0.00

\$0.0000

\$0.00

\$237.84

\$237.84 \$6.7448 \$26.98

\$26.98

100.00%

70.00%

Ω

\$0.00

\$0.0000

4.00 EACH

\$0.0000

\$0.00

\$6.2432

100.00%

70.00%

Ω

\$0.00 \$0.0000

\$0.0000

4.00 EACH

Decontamination Materials per Sample

33020402

Disposable Materials per Sample

33020401

\$0.0000

\$0.00 \$0.0000

\$24.97

\$24.97

\$190.2672

100.00%

70.00%

۵

1.00 EACH

\$0.00 \$0.0000

\$0.00 \$0.0000

\$190.27

\$190.27

\$178.3755

100.00%

70.00%

Ω

4.00 EACH

Pesticides/PCBs (EPA 608)

33021617

Rinsate Analysis

33020512

\$0.00

\$59.46

\$59.46

100.00%

70.00%

Ω

4.00 EACH

Prefiltering Liquids

33010202

Per Diem

33020206

Acid Digestion

33020207

\$0.00

\$0.00 \$0.0000

\$23.7834

100.00%

70.00%

Ω

\$0.00

\$0.0000

4.00 EACH

\$0.00

\$356.75

\$356.75 \$14.8646

100.00%

%00.02

4.00 DAY

\$0.00 \$0.0000

\$0.00 \$0.0000

\$0.0000

\$2,378.34

\$2,378.34 \$89.1878

\$0.00

\$1,189.1700

\$0.0000 Equipment

100.00%

70.00%

Ω

\$0.00 \$0.0000

\$0.0000

2.00 EACH

Mobilize Crew, >= 500 Miles, per Person

33010201

Labor

Safety Quantity/Unit Level

Total

Materials

	-	
2	=	
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7	5	
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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Volatile Organic Analysis (EPA 624) 33021618	4.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000	\$267.5633	\$1,070.25
Base Neutral & Acid Extractable Organics (EPA 625) 33021619	4.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$416.2095	\$1,664.84
Target Analyte List Metals (EPA 6010/7000S), Soil 33021709	4.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$243.7799	\$975.12
1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12 33022020	1.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$44.7961	\$44.80
40 ml, Clear Vial, Case of 72 33022026	1.00 EACH D	\$0.000 70.00% \$0.00	\$0.000 100.00% \$0.00	\$104.7659	\$104.77
1 Liter, 32 oz, High-density Polyethylene Bottle, Case of 12 33022030	1.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$34.7833	\$34.78
Custody Seals, Package of 10 33022034	1.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.3438	\$1.34
Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of 4 33022035	1.00 EACH	\$0.0000	\$0.0000	\$16.7079	\$16.71
Documentation Package for QA Verification, Data & Benchwork 33022036	4.00 EACH	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$184.6901	\$738.76
Overnight Delivery, 21 - 50 Lb Package 33022042	25.00 LB D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1.9027	\$47.57
		3			

Softbooks -- Full Detail

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
60 Quart Ice Chest	1.00 EACH	\$0.0000	\$0.0000	\$53.0965	
33022046	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$53.10	\$53.10
Blue Ice Soft Packs (Equivalent to 7 Lbs Ice)	1.00 EACH	\$0.0000	\$0.0000	\$5.9696	
33022050	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$5.97	\$5.97
Field Technician	32.00 HOUR	\$14.2700	\$0.0000	\$0.0000	
33220117	0	70.00%	100.00%		
		\$652.34	\$0.00	\$0.00	\$652.34
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc	4.00 EACH	\$0.0000	\$0.0000	\$153.0344	
33232401	0	70.00%	100.00%		
		\$0.00	\$0.00	\$612.14	\$612.14
Suspension Cable, Teflon Coated	100.00 FT	\$0.0000	\$0.0000	\$1.0227	
33232422	0	%00.02	100.00%		
		\$0.00	\$0.00	\$102.27	\$102.27
	Sampling and Analysis Total	\$652.34	\$0.00	\$9,769.70	\$10,422.04
Site Total		\$2,616.17	\$0.00	\$9,769.70	\$12,385.87

3A-4

SEAD 16 has an inactive deactivation fumace that was used to destroy small arms munitions. Sead 17 is ajacent to SEAD 16 and has an active The primary media of concem are soils and sediments. THe primary cintaiminants of concem are metals such as lead and copper. deactivation fumace that is used for the destruction of small arms munitions. excavate/solidify/stabilize/off-site lanfill disposal

Access Roads

groundwater monitoring

Rough Grading, 14G, 1 Pass	7,000.00 SY	\$0.1547	\$0.2854	\$0.0000	
17030103	٥	70.00%	100.00%		
		\$1,547.00	\$1,997.80	\$0.00	\$3,544.80
	Access Roads Total	\$1,547.00	\$1,997.80	\$0.00	\$3,544.80

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Analyses: Soil, Sludge, and Sediment					
Van or Pickup Rental 33010102	3.00 DAY	\$0.0000	\$0.0000 100.00% \$0.00	\$35.6751	\$107.03
Mobilize Crew, >= 500 Miles, per Person 33010201	2.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1,189.1700	\$2,378.34
Per Diem 33010202	6.00 DAY	\$0.0000	\$0.0000 75.00% \$0.00	\$89.1878	\$535.13
Repackage and Ship Sample 33020225	5.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$35.6751	\$178.38
Organic Vapor Analyzer Rental, per Day 33020303	3.00 DAY	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$118.9178	\$356.75
Disposable Materials per Sample 33020401	50.00 EACH	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$6.7448	\$337.24
Decontamination Materials per Sample 33020402	50.00 EACH	\$0.0000	\$0.0000	\$6.2432	\$312.16
TCLP (RCRA) (EPA 1311) 33021702	15.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$1,861.0511	\$27,915.77
Target Analyte List Metals (EPA 6010/7000S), Soil 33021709	35.00 EACH	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$243.7799	\$8,532.30
1 Liter, 32 Oz, Clear Wide Mouth Jar, Case of 12 33022020	5.00 EACH D	\$0.0000 70.00% \$0.00	\$0.0000 100.00% \$0.00	\$44.7961	\$223.98
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	Quantity/Unit Level	Labor	Equipment	Materials	Total
1 Liter, 32 Oz, Boston Round Bottle, Case of 12	5.00 EACH	\$0.0000	\$0.0000	\$34.1174	
33022024	0	70.00%	100.00%		
		\$0.00	\$0.00	\$170.59	\$170.59
40 ml, Clear Vial, Case of 72	2.00 EACH	\$0.0000	\$0.0000	\$104.7659	
33022026	٥	%00.02	100.00%		
	A STATE OF THE PARTY OF THE PAR	\$0.00	\$0.00	\$209.53	\$209.53
Custody Seals, Package of 10	5.00 EACH	\$0.0000	\$0.0000	\$1.3438	
33022034	٥	70.00%	100.00%		
	STATE OF STA	\$0.00	\$0.00	\$6.72	\$6.72
Safe Transport Can Filled with Vermiculite, 1 Gallon, Case of	4.00 EACH	\$0.000	\$0.0000	\$16.7079	
33022035	٥	70.00%	100.00%		
		\$0.00	\$0.00	\$66.83	\$66.83
Documentation Package for QA Verification, Data & Benchwork	50.00 EACH	\$0.0000	\$0.0000	\$184.6901	
33022036	0	70.00%	100.00%		
		\$0.00	\$0.00	\$9,234.51	\$9,234.51
Overnight Delivery, 21 - 50 Lb Package	200.00 LB	\$0.0000	\$0.0000	\$1.9027	
33022042	۵	%00.02	100.00%		
		\$0.00	\$0.00	\$380.54	\$380.54
60 Quart Ice Chest	5.00 EACH	\$0.0000	\$0.0000	\$53.0965	
33022046	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$265.48	\$265.48
Blue Ice Soft Packs (Equivalent to 7 Lbs Ice) -	5.00 EACH	\$0.0000	\$0.0000	\$5.9696	
33022050	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$29.85	\$29.85
Project Manager	8.00 HOUR	\$34.4859	\$0.0000	\$0.0000	
33220101	0	%00.02	100.00%		
		\$394.12	\$0.00	\$0.00	\$394.12
Project Engineer	40.00 HOUR	\$29.7293	\$0.0000	\$0.0000	
33220105	٥	%00.02	100.00%		
		\$1,698.82	\$0.00	\$0.00	\$1 698 82

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Field Technician 33220117	48.00 HOUR	\$14.2700	\$0.0000	\$0.0000	
		\$978.51	\$0.00	\$0.00	\$978.51
Analyses: Soil, Slu	Soil, Sludge, and Sediment Total	\$3,071.46	\$0.00	\$51,241.11	\$54,312.57
Cleanup and Landscaping					
General Area Cleanup	2.00 ACRE	\$100.9011	\$95.3650	\$0.0000	
17040101	٥	70.00%	100.00%		
		\$288.29	\$190.73	\$0.00	\$479.02
Area Preparation, 67% Level & 33% Slope	2.00 ACRE	\$14.5041	\$30.5622	\$0.0000	
18050101	٥	70.00%	100.00%		
		\$41.44	\$61.12	\$0.00	\$102.56
Seeding, 67% Level & 33% Slope, Hydroseeding	2.00 ACRE	\$39.9561	\$65.6422	\$285.4008	
18050401	٥	%00.02	100.00%		
		\$114.16	\$131.28	\$570.80	\$816.25
Cleanu	Cleanup and Landscaping Total	\$443.89	\$383.14	\$570.80	\$1,397.83
Clear and Grub					
Light Brush without Grub, Chipping	2.00 ACRE	\$334.0125	\$351.6323	\$0.0000	
17010401	٥	%00.02	100.00%		
		\$954.32	\$703.26	\$0.00	\$1,657.59
	Clear and Grub Total	\$954.32	\$703.26	\$0.00	\$1,657.59
Contractor Costs / General Conditions					
Van or Pickup Rental	90.00 DAY	\$0.0000	\$0.0000	\$35.6751	
33010102	٥	%00.02	100.00%		
		\$0.00	\$0.00	\$3,210.76	\$3,210.76
Mobilize Crew, >= 500 Miles, per Person	4.00 EACH	\$0.0000	\$0.0000	\$1,189.1700	
33010201	a	,0.00%	100.00%	1	
		\$0.00	\$0.00	\$4,756.68	\$4,756.68

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	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Per Diem 33010202	360.00 DAY	\$0.0000	\$0.0000	\$89.1878	
		\$0.00	\$0.00	\$32,107.61	\$32,107.61
Disposable Boot Covers (Tyvek)	360.00 PAIR	\$0.0000	\$0.0000	\$1.3735	
33010421	0	70.00%	100.00%		
		\$0.00	\$0.00	\$494.46	\$494.46
Disposable Gloves (Latex)	360.00 PAIR	\$0.0000	\$0.0000	\$0.2276	
33010423	0	70.00%	100.00%		
		\$0.00	\$0.00	\$81.94	\$81.94
Disposable Coveralls (Tyvek)	360.00 EACH	\$0.0000	\$0.0000	\$3.5675	
33010425	0	70.00%	100.00%		
		\$0.00	\$0.00	\$1,284.30	\$1,284.30
Temporary Office 20' x 8'	3.00 MONTH	\$0.0000	\$0.0000	\$224.5510	
99040101	0	%00.02	100.00%		
		\$0.00	\$0.00	\$673.65	\$673.65
Temporary Storage Trailer 28' x 10'	3.00 MONTH	\$0.0000	\$0.0000	\$122.2111	
99040202	0	70.00%	100.00%		
		\$0.00	\$0.00	\$366.63	\$366.63
Portable Toilets - Chemical	3.00 MONTH	\$0.0000	\$0.0000	\$118.9170	
99040501	0	70.00%	100.00%		
		\$0.00	\$0.00	\$356.75	\$356.75
Construction Photographs	1.00 SET	\$356.7510	\$0.0000	\$0.0000	
99041101	٥	70.00%	100.00%		
		\$509.64	\$0.00	\$0.00	\$509.64
Surveying - 2-man Crew	5.00 DAY	\$297.2925	\$195.0239	\$0.0000	
99041201	Q	%00.02	100.00%		
		\$2,123.52	\$975.12	\$0.00	\$3,098.64
Contractor Cos	Contractor Costs / General Conditions Total	\$2,633.16	\$975.12	\$43,332.78	\$46,941.06

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Decontamination Facilities					
1,800 PSI Steam Cleaner Rental	3.00 MONTH	\$0.0000	\$0.0000	\$1,168.9541	
	à	\$0.00	\$0.00	\$3,506.86	\$3,506.86
8' x 36' Decontamination Trailer with 2 Showers, Fans	3.00 MONTH	\$0.0000	\$0.0000	\$535.1265	
77001100	0	\$0.00%	\$0.00%	\$1,605.38	\$1,605.38
DOT Steel Drum, 55 Gallon	10.00 EACH	\$0.0000	\$0.0000	\$50.9560	
33199921	Ω	%0.00%	100.00%	8509 56	25.00 56
Decontamina	Decontamination Facilities Total	\$0.00	\$0.00	\$5,621.80	\$5,621.80
Excavation, Buried Waste					
D6 with A-blade Bulldozer	40.00 HOUR	\$20.3943	\$43.2858	\$0.0000	
17030209	٥	70.00%	100.00%		
		\$1,165.39	\$1,731.43	\$0.00	\$2,896.82
Hand Excavation, Normal Soil	80.00 CY	\$21.4098	\$0.2561	\$0.0000	
17030211	O.	70.00% \$2,446.83	100.00% \$20.49	\$0.00	\$2,467.32
950, 3.0 CY, Wheel Loader	160.00 HOUR	\$20.2397	\$40.7410	\$0.0000	
17030223	۵	70.00% \$4,626.22	100.00% \$6,518.56	\$0.00	\$11,144.78
Crawler-mounted, 1 CY, 215 Hydraulic Excavator	40.00 HOUR	\$25.2100	\$42.1680	\$0.0000	
007000	a	70.00% \$1,440.57	100.00% \$1,686.72	\$0.00	\$3,127.29
12 CY DUMP TRUCK	160.00 HOUR	\$12.4700	\$29.4400	\$0.0000	
00000	a	\$2,850.29	100.00% \$4,710.40	\$0.00	\$7,560.69
Unclassified Fill, 6" Lifts, On-Site	1,500.00 CY	\$1.0266	\$3.3671	\$0.2378	
		\$2,199.86	100.00% \$5,050.65	\$356.70	\$7,607.21
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۵	\$0.00%
60,000.00 SF D	\$0.0105 70.00%
7,000.00 SY	\$0.0029 70.00% \$29.00
10.00 EACH D Excavation, Buried Waste Total	\$143.2474 70.00% \$2,046.39 \$17,704.55
800.00 LF D	\$0.8374 70.00% \$957.03
1.00 EACH D Fencing Total	\$18.7336 70.00% \$26.76 \$983.79
1.00 LS	\$394.5190 70.00% \$563.60
2.00 DAY	\$0.0000 70.00% \$0.00
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\$57.40

\$30.40

100.00%

\$0.23

\$0.2328

\$10,178.16

\$2,000.25

\$0.00

\$0.00

\$118.9178

100.00%

\$0.0000

\$0.00

\$0.0000

100.00%

\$837.56

\$837.5562

Mobilization/Demobilization Drilling Rig & Crew

33010101

Organic Vapor Analyzer Rental, per Day

33020303

Groundwater Monitoring Wells

\$237.84

\$237.84

\$1,942.86

\$30.4015

\$8.80

\$12.6847

100.00%

\$0.0110

\$61.20

\$0.000

\$2,301.47

\$0.00

100.00%

\$255.08

\$20,011.53

\$25.5078

\$11,928.05

Total

Materials \$1,239.1151

Equipment

Safety Quantity/Unit Level \$3,717.35

\$3,717.35

\$0.0001

100.00%

\$0.0000

3.00 MONTH

Organic Vapor Analyzer Rental, per Month

33020302

Plastic Laminate Waste Pile Cover

33080584

Sprayed Water Dust Suppressant

33080585

Decontaminate Heavy Equipment

33170803

6' Galvanized Chain-link Fence

18040107

Fencing

Hazardous Waste Signing

18040501

\$0.1309

100.00%

\$8,760.00

\$7,854.00

\$6.00

\$0.0000

100.00%

\$0.0046

\$32.20

Softbooks -- Full Detail

\$0.0000 \$16 \$0.000 \$16 \$0.000 \$16 \$0.000 \$11,8 \$0.000 \$245 \$1,18 \$0.000 \$24,18 \$1,229.45 \$1,18 \$1,229.45 \$1,18 \$1,00.000 \$24,18 \$0.000 \$25,19 \$1,00.000 \$25,19 \$0.000 \$25,19 \$1,00.000 \$25,19 \$1,00.		Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
## 100.00 LF \$1.5520 \$3.2945 \$1 ## 100.00 LF \$1.5520 \$3.2945 \$1 ## 12.00 LF \$1.5520 \$3.2945 \$1 ## 12.00 LF \$1.352 \$2.2945 \$1 ## 12.00 LF \$1.352 \$2.2945 \$1 ## 100.00% \$2.255 \$2.3545 \$1 ## 100.00% \$2.255 \$33.50 \$2 ## 100.00% \$2.255 \$33.50 \$2 ## 1.00 DAY \$0.000 \$1.00.00% \$2.000 ## 100.00% \$1.00.00% \$1 ## 100.00 LF \$7.1739 \$1.522.87 ## 100.00% \$1.00.00% \$2.0000 \$2 ## 100.00% \$1.00.00% \$1 ## 100.00% \$1.00.00% \$1 ## 1.00 WEEK \$22.4970 \$0.000 \$1 ## 1.00 EACH \$49.3149 \$104.6945 \$1 ## 1.00 EACH \$1.3287 \$286.1737 \$1 ## 1.00 EACH \$1.00.00% \$1 ## 1.00 EACH \$1.3287 \$286.1737 \$1 ## 1.00 EACH \$1.00.00% \$1 ## 1.00 EACH \$1.3287 \$286.1737 \$1 ## 1.00 EACH \$1.00.00% \$1 ## 1.00 EACH \$1.32887 \$286.1737 \$1 ## 1.00 EACH \$1.00.00% \$1 ## 1.00 EACH \$1.32887 \$286.1737 \$1 ## 1.00 EACH \$1.00.00% \$1 ## 1.00.	Decontaminate Rig Augers, Screen (Rental Equipment)	1 00 DAY	\$0,000	\$0,000	4161 7271	
70.00% 100.00% 50.00 \$ \$0.00			0000	0000	141:1019	
\$0.00 \$0.00	33170808	Ω	70.00%	100.00%		
12.00 LF 57.5520 \$3.2945 \$1 12.00 LF 521.71 \$329.45 \$1 12.00 LF 57.3752 \$2.7920 \$4 70.00% 100.00% \$2.35.50 \$33.50 \$4 4.00 EACH \$3.3457 \$33.50 \$5 70.00% 100.00% \$2.000 \$5 10.00 DAY \$0.000 \$0.000 \$5 \$0.000 \$0.000 \$5 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0.000 \$0.000 \$1 \$0			\$0.00	\$0.00	\$161.73	\$161.73
## \$221.71 \$329.45 \$1. \$221.71 \$329.45 \$1. \$1.200 LF	2" Stainless Steel, Well Casing	100.00 LF	\$1.5520	\$3.2945	\$18.6438	
\$221.71 \$329.45 \$1,3152 \$2.7920 \$4 \$1.2.00 LF \$1.3152 \$2.7920 \$4 \$22.55 \$33.50 \$5 \$20.00 \$20.00 \$5 \$20.00 \$20.00 \$2	33230121	Δ	%00.02	100.00%		
12.00 LF \$1.3152 \$2.7920 \$4 \$22.55 \$33.50 \$5 4.00 EACH \$3.9457 \$8.3758 \$5 70.00% 100.00% \$5 9.000 \$6.000 \$5 9.000 \$0.000 \$5 9.000 \$0.000 \$5 1.00 DAY \$0.0000 \$0.0000 \$5 1.00 DAY \$0.0000 \$0 1.00 DAY \$0.0000 \$0.0000 \$0 1.00 DAY \$0.0000 \$0.0000 \$0 1.00 DAY \$0.0000 \$0 1.00 DA			\$221.71	\$329.45	\$1,864.38	\$2,415.54
## \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ 4.00 EACH \$3.9457 \$8.3758 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.55 \$33.50 \$\$ \$22.000 \$00000 \$\$ \$20.000 \$00000 \$\$ \$20.000 \$20.000 \$\$	2" Stainless Steel, Well Screen	12.00 LF	\$1.3152	\$2.7920	\$48.2611	
\$22.55 \$33.50 \$\$ 4.00 EACH \$3.9457 \$8.3758 \$3 4.00 EACH \$3.9457 \$8.3758 \$3 y 1.00 DAY \$0.0000 \$100.000 \$2 \$22.55 \$33.50 \$\$ y 1.00 DAY \$0.0000 \$100.000 \$2 \$0.000 \$100.000 \$2 \$0.000 \$100.000 \$1 \$0.000 LF \$7.1739 \$7.5287 \$3 \$1.024.84 \$1,522.87 \$4 \$1.00 WEEK \$27.4970 \$0.0000 \$1 \$0.000 \$100.000 \$1 \$1.00 WEEK \$27.4970 \$0.445 \$3 \$1.00 EACH \$49.3149 \$104.6945 \$3 \$1.00 EACH \$49.3149 \$104.6945 \$3 \$1.00 EACH \$1.3287 \$26.1737 \$3 \$1.00 WEACH \$1.3287 \$26.1737 \$3 \$1.00 WEACH \$1.00 WEACH \$1.00 WEACH \$1.00.000 \$1 \$1.00 EACH \$1.00 WEACH \$1.00 WEACH \$1.00.000 \$1 \$1.00 WEACH \$1.00 WEACH \$1.00.000 \$1 \$1.00 EACH \$1.00 EACH \$1	33230221	٥	%00.02	100.00%		
4.00 EACH \$3.9457 \$8.3758 \$5 \$22.55 \$33.50 \$\$ y 1.00 DAY \$0.0000 \$0.0000 \$5 \$0.000 \$0.0000 \$5 \$0.000 \$0.0000 \$5 \$1,024.84 \$1,522.87 ing Drilling \$0.00 EACH \$0.0000 \$0.0000 \$1 \$0.000 \$0.0000 \$1 \$0.000 \$0.0000 \$1 \$0.000 \$0.0000 \$1 \$0.000 \$0.0000 \$1 \$0.000 \$0.0000 \$1 \$0.000 \$0.0000 \$1 \$0.000 \$0.0000 \$1 \$0.000 \$0.0000 \$1 \$0.00000 \$1 \$0.00000 \$1 \$0.00000 \$1 \$0.00000 \$1 \$0.00000 \$1 \$0.00000 \$1 \$0.00000 \$1	*		\$22.55	\$33.50	\$579.13	\$635.18
## \$22.55 \$33.50 \$5 ## \$22.55 \$33.50 \$5 ## \$22.55 \$33.50 \$5 ## \$0.000 \$5 ## \$0.000 \$5 ## \$0.000 \$5 ## \$1,522.87 ## \$1,522.87 ## \$1,522.87 ## \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,024.84 \$1,522.87 ## \$1,020.00 ## \$1,00.00	2" Stainless Steel, Well Plug	4.00 EACH	\$3.9457	\$8.3758	\$30.1633	
\$22.55 \$33.50 \$\$ y	33230311	۵	%00.02	100.00%		
## 1.00 DAY \$0.0000 \$0.0000 \$5.00000 \$5.00000 \$5.0000 \$5.00000 \$5.0000 \$5.0000 \$5.0000 \$5.0000 \$5.0000 \$5.0000 \$5.0000 \$5.0000			\$22.55	\$33.50	\$120.65	\$176.70
## \$0.00 \$0.	2" Submersible Pump Rental, Day	1.00 DAY	\$0.0000	\$0.0000	\$59.4585	
\$0.00 \$0.00 \$0.00	33230506	۵	%00.02	100.00%		
ameter Borehole for 2" Well 100.00 LF \$7.1739 \$15.2287 \$0 100.00% \$1,00.00% \$1,00.00% \$29 ing Drilling 50.00 EACH \$0.000 \$0.000% \$29 ing Drilling 50.00 EACH \$0.000% \$0.000% \$1,40.00% \$0.00% \$1,40.00% \$1,40.00% \$1,40.00% \$1,40.00% \$1,40.00% \$1,40.00% \$1,00.00% \$1,40.00% \$1,			\$0.00	\$0.00	\$59.46	\$59.46
## \$1,024.84 \$1,522.87 To 000	Hollow-stem Auger, 8" Outside Diameter Borehole for 2" Well	100.00 LF	\$7.1739	\$15.2287	\$0.0000	
\$1,024.84 \$1,522.87 ring Drilling \$0.000 \$0.0000 \$29 p 70.00% \$0.000 \$1,4 \$0.00 \$0.00 \$1,4 \$0.00 \$0.00 \$1,4 \$0.00 \$0.00% \$0.44 \$4 \$1.00 \$39.28 \$0.44 \$4 \$1.00 \$49.3149 \$104.6945 \$0 \$1.00 \$10.00% \$100.00% \$100.00% \$1.00 \$10.00% \$100.00% \$100.00% \$20.00 \$20.00% \$20.00% \$20.00% \$20.00% \$20.00 \$20.00% \$20.00% \$20.00% \$20.00% \$20.00% \$20.00 \$20.00%	33231101	۵	%00.02	100.00%		
ing Drilling 50.00 EACH 50.00% \$0.00% \$1,4 \$0.00% \$1,4 \$0.00% \$1,4 \$1,00 WEEK \$27,4970 \$0.4357 \$452 \$452 \$1,00 \$0.4357 \$452 \$1,00 \$0.00% \$1,00 \$0.4357 \$452 \$1,00 \$0.4357 \$452 \$1,00 \$0.00% \$1,00 \$0.4357 \$1,00 \$0.4357 \$1,00 \$0.4357 \$1,00 \$0.4357 \$1,00 \$0.4357 \$1,00 \$0.4357 \$1,00 \$0.00% \$1,00 \$0.4357 \$1,00 \$0.00% \$1,00 \$0.			\$1,024.84	\$1,522.87	\$0.00	\$2,547.71
## 1.00 WEEK \$27.4970 \$0.00% \$1,4	Split Spoon Sample, 2" x 24", During Drilling	50.00 EACH	\$0.0000	\$0.0000	\$29.7293	
\$0.00 \$0.00 \$1,4 I.00 WEEK \$27.4970 \$0.4357 \$452 D 70.00% 100.00% \$39.28 \$0.44 \$4 1.00 EACH \$49.3149 \$104.6945 \$0 D 70.00% 100.00% \$70.45 \$104.69 \$70.45 \$104.69 \$70.00% 100.00% \$70.00% 100.00%	33231106	٥	%00.02	100.00%		
ntal 1.00 WEEK \$27.4970 \$0.4357 \$452 D 70.00% \$100.00% \$49.3149 \$104.6945 \$0 D 70.00% \$104.6945 \$0 TO.00% \$104.6945 \$0 TO.00% \$100.00%			\$0.00	\$0.00	\$1,486.47	\$1,486.47
\$39.28 \$0.44 \$4 1.00 EACH \$49.3149 \$104.6945 \$0 70.00% \$100.00% \$100.00% \$12.3287 \$26.1737 \$0 COUNTY COUNTY \$100.00%	Well Development Equipment Rental	1.00 WEEK	\$27.4970	\$0.4357	\$452.5599	
\$39.28 \$0.44 \$4 1.00 EACH \$49.3149 \$104.6945 \$0 70.00% 100.00% \$70.45 \$104.69 4.00 EACH \$12.3287 \$26.1737 \$0 70.00% 100.00% \$77.45 \$104.69		Ω	70.00%	100.00%		
1.00 EACH \$49.3149 \$104.6945 \$0 70.00% 100.00% \$70.45 \$104.69 \$0 4.00 EACH \$12.3287 \$26.1737 \$0 D 70.00% 100.00% \$10.00%			\$39.28	\$0.44	\$452.56	\$492.28
\$70.45 \$104.69 \$70.45 \$104.69 4.00 EACH \$12.3287 \$26.1737 \$0 D 70.00% 100.00%	Standby for Drilling	1.00 EACH	\$49.3149	\$104.6945	\$0.0000	
\$70.45 \$104.69 4.00 EACH \$12.3287 \$26.1737 \$0 D 70.00% 100.00%	33231121	0	70.00%	100.00%		
4.00 EACH \$12.3287 \$26.1737 \$C D 70.00% 100.00%			\$70.45	\$104.69	\$0.00	\$0.00
D 70.00% 100.00%	Move Rig/Equipment Around Site	4.00 EACH	\$12.3287	\$26.1737	\$0.0000	
\$40A 69	33231122	۵	70.00%	100.00%		
60:40			\$70.45	\$104.69	\$0.00	\$175.14

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Furnish 55 Gallon Drum for Drill Cuttings & Development Water	8.00 EACH	\$0.0000	\$0.0000	\$50.9560	
33231126	٥	70.00% \$0.00	100.00% \$0.00	\$407.65	\$407.65
2" Screen, Filter Pack 33231401	80.00 LF D	\$1.1180 70.00%	\$2.3731 100.00% \$189.85	\$6.9738	\$875.52
Surface Pad, Concrete, 4' x 4' x 4" 33231502	4.00 EACH	\$2.8481 70.00% \$16.27	\$0.1893 100.00% \$0.76	\$12.6844	\$67.77
2" Well, Portland Cement Grout 33231811	4.00 LF	\$0.0000	\$0.0000 100.00% \$0.00	\$1.0703	\$4.28
2" Well, Bentonite Seal 33232101	4.00 EACH D	\$4.4388 70.00% \$25.36	\$9.4228 100.00% \$37.69	\$17.2319	\$131.98
5' Guard Posts, Cast Iron, Concrete Fill 33232301	12.00 EACH D	\$20.1681 70.00% \$345.74	\$0.4397 100.00% \$5.28	\$29.2574	\$702.10
Teflon Bailer, 3/4" Outside Diameter x 1', 60 cc 33232401	4.00 EACH D	\$0.0000 70.00%	\$0.0000 100.00% \$0.00	\$153.0344	\$612.14
Suspension Cable, Teflon Coated 33232422	100.00 FT D	\$0.0000	\$0.0000 100.00% \$0.00	\$1.0227	\$102.27
Hand Reel 33232423 Groundwater Mo	4.00 EACH D Groundwater Monitoring Wells Total	\$0.0000 70.00% \$0.00 \$2,550.58	\$0.0000 100.00% \$0.00 \$3,200.28	\$20.0970	\$80.39

	Safety Quantity/Unit Level	Labor	Equipment	Materials	Total
Landfill Disposal					
Transport Bulk Solid non-Hazardous Waste, 22 tons per trip (quote Earthwatch) 33190205 2486 cy of soil, sediment and stabilized material at one ton equals one yard	113.00 trip	\$0.000 70.00%	\$0.0000	\$308.0000	\$34,804.00
Landfill Nonhazardous Solid Bulk Waste by ton (quote Earthwatch) 33197270	2,375.00 ton D Landfill Disposal Total	\$0.000 70.00% \$0.00 \$0.00	\$0.0000 100.00% \$0.00 \$0.00	\$15.0000 \$35,625.00 \$70,429.00	\$35,625.00 \$70,429.00
Professional Labor Project Manager 33220101	40.00 HOUR D	\$34.4859 70.00%	\$0.0000	\$0.000	\$1.970.62
QA/QC Officer 33220104 Project Engineer	8.00 HOUR 120.00 HOUR	\$20.2159 70.00% \$231.04 \$29.7293	\$0.0000 \$0.000 \$0.00	\$0.0000	\$231.04
33220105 Health & Safety Officer 33220113	8.00 HOUR	\$5,096.45 \$17.8376 70.00% \$203.86	\$0.00% \$0.0000 100.00% \$0.00	\$0.000	\$5,096.45
Field Technician 33220117	480.00 HOUR D	\$14.2700 70.00% \$9,785.14	\$0.000 100.00% \$0.00	\$0.000	\$9,785.14
Word Processing/Clerical 33220119	10.00 HOUR D Professional Labor Total	\$11.8917 70.00% \$169.88 \$17,457.00	\$0.0000 100.00% \$0.00 \$0.00	\$0.000	\$169.88 \$17,457.00
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