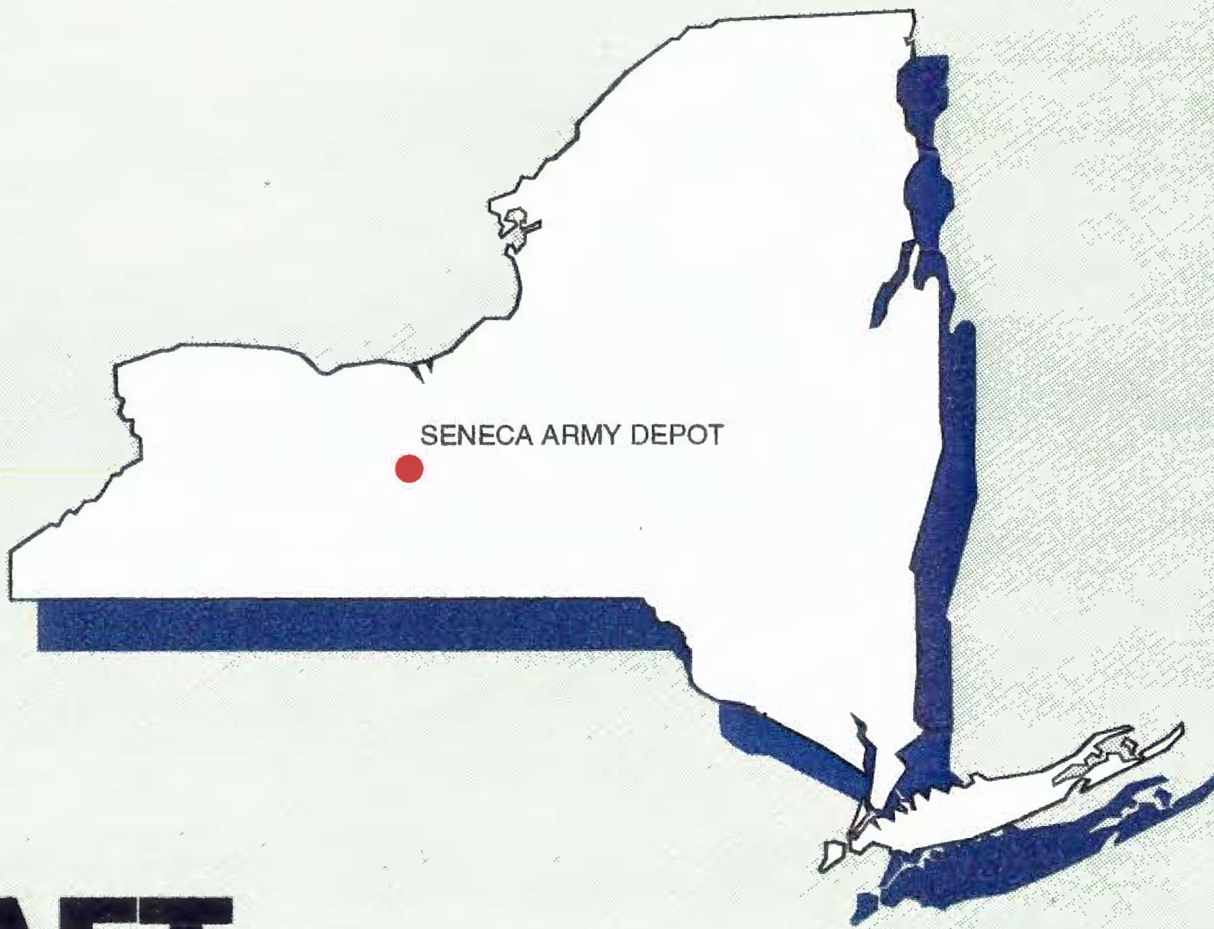
U.S. ARMY ENGINEER DIVISION
HUNTSVILLE, ALABAMA



DRAFT

ACTION MEMORANDUM
ASH LANDFILL REMOVAL ACTION

OCTOBER 1993

Attachment A
Seneca Army Depot
Ash Landfill Removal Action
Response to Comments
USAEHA

Comment #1

General, Mr. Hoddinott, SVE System.

The location of the extraction well is not stated in this document. A system that places an extraction well near the source for rapid source reduction will have to include some remedial action to capture the head of the plume. Especially since the head of this plume is offpost.

Recommendation: Discuss the placement of the extraction well in relation to the efficiency of capturing the entire known plume.

Response #1

The focus of this removal action is the elimination of the source of VOCs in soil which is responsible for continued impacts to the groundwater. Although the pre-draft submittal did recommend Soil Vapor Extraction (SVE) as the proposed remedial alternative, which would have included groundwater dewatering, the recommended alternative was changed to Low Temperature Thermal Desorption (LTTD). Nonetheless, some temporary dewatering and treatment may be required to support this alternative. The quantity of water to be treated will be small since the aquifer thickness is only 5 to 10 feet and the geologic materials are low yielding. Any water removed as part of implementing the remediation of source soils will be in the area of the "bend in the road" not the entire plume since this area is currently the focus of this remedial action.

Comment #2

General, Mr. Valdivia and Mr. Hoddinott, Drinking Water Quality.

The data in this document does not include water quality data from the farmhouse well. This data is needed to assess the impact of the plume on the drinking water.

Recommendation: Add the analytical results from the farmhouse well and discuss the health implications of the results.

Response #2

The farmhouse well data has not been added to this remedial action because the remediation of the contaminated groundwater plume is not the focus of this document. The recently issued Remedial Investigation (RI) report has considered the data from the farm house wells. Additionally, quarterly monitoring data from these three (3) wells and the newly installed off-depot wells confirms that the groundwater plume does not reach the farmhouse and therefore there are no groundwater impacts to the farmhouse from the Ash Landfill site.

Comment #3

Pages 2-8 to 2-10, Section 2.1.4.1, Soil Gas; Pages 2-11 to 2-12, Table 2-2, Preliminary Draft Action Memorandum; and Pages 2-28 to 2-34, Section 2.6.1, *and location. Whenever possible, samples reanalyzed as dilutions of the original sample or reanalyzed for poor surrogate or matrix spike recovery have been combined as one sample for clarity. A more thorough discussion of the QA/QC Procedures has been included in the RI.*

Comment #10 Page 2-50, Section 2.6.2.1, Volatile Organic Compounds, Second paragraph; and Page 2-38, Figure 2-19 Preliminary Draft EE/CA. Mr. Bayha.

"The highest concentrations of total volatiles from two borings in the central-western portion of the Ash Landfill (B10-92 and B31-91) were between approximately 1600 and 1700 ug/kg --." The boring No. B10-92 should be No. B10-91.

Recommendation: Correct the text to change B10-92 to B10-91.

Response #10 *The text will be revised accordingly.*

Comment #11 No description of the collection of duplicate samples is present in the text, nor is there any section on QC or QA.

Response #11 *A full discussion of the data including sampling and analytical procedures and QA/QC has been included in the RI/FS report.*

Comment #12 Page 3-1, Preliminary Draft EE/CA, Section 3.1, General Statement of the Removal Action Objectives, and Section 3.2, ARARs (SCGs); also pages 3-11 to 3-17, Sections 3.2.1, 3.2.2, and 3.2.3, Chemical Specific ARARs, Location Specific ARARs, and Action Specific ARARs, respectively. Mr. Bayha.

"Removal action objectives must protect human health and the environment, and address contaminants of concern, exposure routes, and receptors. Applicable or relevant and appropriate requirements (ARARs) that establish cleanup standards are also used to identify removal action objectives. In New York State, the acronym ARARs is not used, but is replaced with the term New York State Standards, Criteria, and Guidelines (SCGs), as presented in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #HWR-90-4030". Since ARARs are not used in New York, why are the three categories of ARARs discussed? If they are there for comparison purposes with applicable SCGs, it is all right to have them in the text.

Recommendation: Delete all ARARs and replace them with applicable SCGs.

Response #12 *ARARs and SCGs are both discussed since NYSDEC and the EPA are both acting as the lead agency.*

Comment #13 Page 5,5, Section 5.2.3.3, Fenceline Monitoring, Preliminary Draft EE/CA. Mr. Bayha.

How can fenceline monitoring ensure the protection of SEAD personnel? Air samples are collected on a periodic basis at the post boundary. Local residents ymay feel more secure, but it doesn't do anything for SEAD personnel unless they live at or near the post boundary. In addition, this report states that the SVE System is located well away from the post boundary.

Recommendation: Delete the portion that states "---to ensure the protection of SEAD personnel ---." Why spend extra Government monies for fenceline monitoring when the SVE System is located well away from the post boundary?

Response #13 *The Pre-draft version of this document proposed SVE as the recommended remedial alternative, however, following discussions with the COE in Huntsville, Low Temperature Thermal Desorption was selected as the preferred alternative. Since this alternative will require excavation of contaminated soil emission and dispersion modeling has been performed to estimate the downwind impacts, See Appendix C. The results suggest that it is possible to exceed the annual air quality standard for TCE. Further, it is a requirement of the State of New York that ambient air monitoring be performed at a distance of 200 ft downwind of a remedial action to ensure protection of the public health. This has been required for all intrusive subsurface work such as test pits and soil borings. However, to ensure the protection of post personnel an Ambient Air Monitoring "Fence Line" will be established along the fenceline associated with the bunker storage area as well as the western post boundary. The text will be revised accordingly.*

Attachment B
Seneca Army Depot
Ash Landfill Removal Action
Response to Comments
Becker

Comment #1 Becker, MRD-ED-EC G-H, CHEM.

These comments refer to: "Preliminary Draft Action Memorandum For Ash Landfill Removal Action Seneca Army Depot Romulus, New York", dated 2 July, 1993, by Parsons Engineering-Science, Inc.

Response #1 *No response required.*

Comment #2 Becker, MRD-ED-EC PG-TOC3+, CHEM.

Abbreviations and Acronyms listings were not complete in the copy provided to this reviewer, suggest they be completed. Also please check and correct entry for MCPP.

Response #2 *Abbreviations and Acronyms will be updated for the next revision.*

Comment #3 Becker, MRD-ED-EC Pg 1-1, CHEM.

From the limited information provided to this reviewer it appears Dichloroethene (DCE) was analyzed as the total of cis and trans isomers, but quantified as 1,2-trans-dichloroethene. This was a common practice and should not cause problems on this submittal, so long as the actual protocol used is known. However, by the time of final design the isomer or isomer mix will need to be known to ensure proper remedial design settings.

Also the SEAD facility is listed as a Post, this is incorrect as it serves as a DEPOT.

Response #3 *ES believes that the mix between the cis and trans isomers would not significantly impact the remedy selection of the thermal desorption unit since the isomers have very similar chemical and physical properties and would be removed from the soil with equal efficiency. The facility will be referred to as a Depot rather than a Post.*

Comment #4 Becker, MRD-ED-EC PG 2-3, CHEM.

The word "uncontaminated" in association with trash should be removed. Trash was burned (a common practice of the period), however it is not known as to what individual constituents were in the trash.

Response #4 *The word uncontaminated will be deleted.*

Comment #5 Becker, MRD-ED-EC PG 2-10, CHEM.

See my previous comment on qualitative/quantitative presentation for DCE.

Response #5 *The mix between cis and trans 1,2 DCE has not been distinguished by the laboratory as the two isomers, if necessary it may be possible to make this distinction, however, ES believes that because the two isomer are similar the impact of this distinction on the remedy selection is not likely to be significant.*

Comment #6 Becker, MRD-ED-EC PG 2-14, CHEM.

The D-series pesticides most likely result from degradation of p,p'-DDT so it is very unlikely that the DDE and/or DDD are not associated with the DDT, therefore the regulatory limit most likely will be associated with the total D-series pesticides.

With the amounts of PCBs noted it is likely that the incineration process (conducted from 1974 to 1979) resulted in the formation of dioxins. Were analytical determinations performed for dioxins and furans? If not, suggest a limited number of borings being made in both the most contaminated areas (recommend seven) and in representative background areas (recommend three) and samples be taken and analyzed for the full priority pollutant target compound and target analyte lists, in time for publication in the next draft of the EE/CA.

Response #6 *ES has reevaluated and modified the text and the database, Tables 2-5 and 2-7, to include only those samples which were obtained from the area of concern at the "bend in the road", since this is the focus of this remedial action response. Consequently, PCBs and pesticides were eliminated from consideration because these analytes were either not detected or below the NYSDEC TAGM soil clean-up goals. Dioxin sampling was not performed since it is not in the scope of work for this removal action.*

Comment #7 Becker, MRD-ED-EC PG 2-16, CHEM.

It should be determined if the acetone and methylene chloride contamination is site related or field/laboratory artifact related since these compounds may foul a remediation system if it is not designed for their presence.

Also, it is not documented that the DCE and vinyl chloride are degradation products of the TCE, therefore suggest the use of "daughter(s)" be eliminated from the next draft.

Response #7 *Many of the samples which showed the presence of Acetone and Methylene Chloride have been eliminated as laboratory contamination during the data validation process, with the exception of one sample which detected acetone at approximately 100 ug/kg in soil. This value was high enough to be retained as real, however, acetone, even though it is very soluble in water, is still volatile and will be removed by the selected remedial alternative, Low Temperature*

Thermal Desorption. DCE and Vinyl Chloride are degradation products of TCE and will be revised.

Comment #8 Becker, MRD-ED-EC PG 2-19, CHEM.

The limited information provided to this reviewer suggest semi-volatile compounds were detected in samples of the groundwater. Please check the analytical record and ensure the information provided reflects fact.

Also any filtered metals data demonstrating higher levels than non-filtered samples are suspect and should most likely not be used to support decisions relating to this EE/CA.

Response #8 *Although filtered and unfiltered samples were collected during the Phase I sampling effort, it is the policy of the regulatory agencies reviewing this document that filtered metal are unacceptable, therefore, the monitoring well data for Phase II included only non-filtered data. The only data which is useable for any decision making processes are non-filtered data. The presence of metals in groundwater is an issue only as it effects the soil excavation dewatering activities No semivolatiles were present in Phase I samples and eight were detected in Phase II samples. These included phthalates and phenolic compounds. Several metals were detected in the on-site monitoring wells. The presence of these compounds will be addressed during the dewatering process by using a temporary carbon adsorption treatment system and/or a ion exchange metals removal system.*

Comment #9 Becker, MRD-ED-EC PG 2-20, CHEM.

This reviewer understands the goal of this remedial action to be as stated, "to remove the source of groundwater contamination", however other goals are listed later. Please clarify.

Response #9 *The goal of the removal action is to remove the source of TCE and DCE groundwater contamination. Goals referred to on page 2-21 are for a different report. The text has been modified to clarify this issue.*

Comment #10 Becker, MRD-ED-EC PG 2-21, CHEM.

This reviewer finds the comparisons of wells to other wells to be confusing, suggest a more simple presentation format for limits of contamination be selected.

Also please clarify source of contamination, is it the ash landfills or the refuse burn pits, a combination of both or something else?

Response #10 *The information provided summarizes previous work and is presented to provide an overview of the entire site. However, the EE/CA text has been revised to focus on the "bend in the road" only not the other areas such as the debris piles.*

The actual source of groundwater contamination is at the "bend in the road" area, which includes portions of the Ash Landfill.

Comment #11 Becker, MRD-ED-EC PG 2-23, CHEM.

Please check to see if the other potential source north of the landfill has been eliminated from consideration. If so, please add a statement of such to the text.

Response #11 *The area north of the Ash Landfill is a contributor to the source of groundwater impacts and has been included as part of the "bend in the road" area.*

Comment #12 Becker, MRD-ED-EC PG 5-3, CHEM.

The remediation goal listed in this section is removal of TCE and DCE. Is this the only goal? If so has the source of these compounds been clearly identified? If not the source needs to be pin pointed so a focused removal may be conducted.

Response #12 *Following the completion of the Phase II soil headspace program and the collection of the confirmatory soil borings which were installed along the perimeter of the soil source area described as the "bend in the road", ES believes that the source of groundwater impacts has been pin pointed. This data is the basis of this removal action.*

Comment #13 Becker, MRD-ED-EC PG 5-4, CHEM.

The assumption that the site is fenced and patrolled by armed guards may not be valid for the entire project, especially if the site is scheduled for closure as noted in this submittal.

Response #13 *Although the base is going through a process of closure and realignment, the facility does and will continue to have armed guards patrolling the fenced boundaries because this facility stores munitions for the army. The closure process is not scheduled to be finalized until the year 1995. This remedial action is scheduled to occur during the summer of 1994 and will be finished by the time any changes are made to the security status of the depot. Further, SEDA is still very active in demilitarization and, even if the base is closed, may retain this mission. The process of depot closure is still uncertain but it is likely to be a long process.*

Comment #14 Becker, MRD-ED-EC PG 1-1, CHEM.

Suggest reference to PAHs be changed to the more broad semi-volatiles, since other contamination in addition to PAHs were found and are not being addressed.

Response #14 *Agreed, The text has been changed accordingly.*

Comment #15 Becker, MRD-ED-EC PG 1-2, CHEM.

See the objectives paragraph, many new goals besides protection of the groundwater are listed. In addition, the text states SEAD may be returned to the private sector, if so the EE/CA is too narrow to meet the broader objectives. Please clearly specify the desired end-state for this portion of the remediation.

Response #15 *The goal of this effort is to expidite the remediation of the source of groundwater impacts. This effort is being performed proactively, in order to streamline the RI/FS process since following the collection of the data this area has been well defined and accessible. The narrow focus of this document is intentional since the broader objectives will be addressed in the Record of Decision (ROD) for this site.*

Comment #16 Becker, MRD-ED-EC G-1, CHEM.

Suggest a global correction to change xylene to xylenes and 1,2-DCE to DCE (total) to more accurately portray the supporting data.

Response #16 *Agreed for xylenes. However, since 1,1-DCE could be confused with 1,2- DCE if a global change is made to DCE therefore, ES believes that 1,2-DCE should remain as is.*

Comment #17 Becker, MRD-ED-EC PG 2-75, CHEM.

The statement about site concentrations being below the background average, suggests some abnormality. Please check to ensure the listed analytes are statistically below the site backgrounds. If so the background levels are wrong or some unknown site condition is selectively removing these substances.

Response #17 *This section has been rewritten to discuss only those metals which were detected above the NYSDEC TAGM value. In some instances, the NYSDEC TAGM value is background. The statement which is the source of this comment has been deleted.*

Comment #18 Becker, MRD-ED-EC PG 2-76, CHEM.

Provide more information on the slug of TCE. Define slug, source, and extent and explain the scientific protocols used in its identification.

Response #18 *Agreed; Slug is an inappropriate term and has been deleted. ES considers a source to be an area of contaminated soil which is responsible for the continued leaching of dissolved constituents into the groundwater. The extent of the source area is the lateral and vertical limits to this area.*

Comment #19 Becker, MRD-ED-EC PG 2-79, CHEM.

Please see my previous comments on use of "daughter(s)" and filtered versus non-filtered results.

Response #19 *See response #7.*

Comment #20 Becker, MRD-ED-EC PG 2-81, CHEM.

See my previous comments on use of the term "daughter(s)".

Response #20 *See response #7.*

Comment #21 Becker, MRD-ED-EC G-2, CHEM.

Reference the information provided in Appendices 4 and 5. Strongly suggest the PM consider the benefit of spending $2+ million on this EE/CA to remove TCE and DCE, when other contaminants will remain. Other alternatives may be more cost effective in the long term, especially if SEAD may be returned to the private sector.

Response #21 *Although this effort may not be the only remedial action taken it will eliminate the source of a groundwater plume which is currently migrating off-post, potentially to a drinking water supply. Any future remedial action taken as part of the RI/FS process will need to address this area. As part of this document, ES has performed a cost analysis and, with the concurrence of the COE, has selected an alternative, which is not the lowest in cost but is the the most reliable and certain. ES believes that the eventually through the RI/FS process the same remedial alternative would be selected, which is Low Temperature Thermal Desorption, but this process has been accelerated in order to protect the public and the environment from further impacts.*

Comment #22 Becker, MRD-ED-EC PG 5-6, CHEM.

Since discharge requirements will to a large extent determine cost, strongly suggest the source of discharge be identified and the listing of allowable contamination be provided in the next draft.

Response #22 *Agreed; The source of the discharge from a temporary water treatment facility will most likely be to the drainage swales which are adjacent to the paved access roadways. These swales eventually discharge to Kendia Creek.*

Comment #23 Becker, MRD-ED-EC Appendix-B, CHEM.

Please provide a listing of data flags, primary laboratory conducting analysis and general time-frame of analysis.

Response #23 *This information has been provided in the Table of Content of the EE/CA.*

Comment #24 Becker, MRD-ED-EC G-L, CHEM.

End.

Attachment C
Seneca Army Depot
Ash Landfill Removal Action
Response to Comments
Healy

Comment #1 Sec 1.0, Para. 2 - Would recommend stating the primary objective of the removal action in a more succinct manner. The primary objective of the removal action is to remediate contaminated soils and eliminate the source of groundwater contamination at this site.

Response #1 *Section 1.0 Paragraph 1 has been revised to read "which uses Low Temperature Thermal Desorption to remediate soils contaminated with hydrocarbons .... in Romulus, New York. This action will eliminate the source of chlorinated groundwater contamination at this site.*

Comment #2 Sec 1.0, Para. 4 - Considering the prior acknowledgement that the planned action is of a narrow focus and that our intent is to be out there remediating groundwater shortly, I would suggest that the "if/then" nature of this paragraph is very misleading. Recommend deleting it or changing it to reflect the inevitable effort to be expended (i.e. groundwater remediation).

Response #2 <u>The paragraph has been rewritten to that additional remedial actions may be performed.</u>

Comment #3 Sec 2.0 - Recommend a reference to a "Reference" page where all previous reports are listed by full title, etc. For the general public and the less initiated, additional research may be helpful.

Response #3 *A reference page has been included in the Table of Content of the EE/CA.*

Comment #4 Sec 2.1.1, Para. 1 - Recommend verifying the reference to "Special Weapons Activity" with Mr. Battaglia. Such activity may no longer be performed.

Response #4 *Although the "Special Weapons" mission for SEDA has moved it is still an activity that SEDA could be involved with.*

Comment #5 Sec 2.1.1, Para. 2 - The comments on facility operation and Army personnel should be clarified. Do these comments relate to downsizing (currently underway) or closure (a possibility).

Response #5 *The depot is being downsized and will be closed in the near future. However, the final decision related to this is subject to change.*

Comment #6 Sec 2.1.4.2, Para. 1 - Recommend adding a reference to fully identify the "Phase II RI/FS Report."

Response #6 *A full reference which identifies this report has been included in the text.*

Comment #7 Sec 2.1.4.4, Para. 2 - Recommend adding a reference to fully identify the "Phase II RI/FS Report."

Response #7 *A full reference which identifies this report has been included in the text.*

Comment #8 Sec 2.2.1, Para. 1 - Recommend adding a reference to fully identify the "PSCR."

Response #8 *A full reference which identifies this report has been included in the text.*

Comment #9 Sec 2.2.2, 2.2.3, and 2.2.4 - Recommend using the full title and adding a reference to each of these prior reports.

Response #9 *A full reference which identifies this report has been included in the text.*

Comment #10 Sec 2.2.6 - Recommend using the full title and adding a reference to each of these prior reports.

Response #10 *A full reference which identifies this report has been included in the text.*

Comment #11 Sec 2.2.27, Pg 2-22 - Recommend changing "Phase II" to "Phase I." Change the third sentence to read "A second phase has since been completed and data analysis is underway. Delete "These techniques ... used for the feasibility study. Much of." Change the second to the last sentence to identify "PSCR."

Response #11 *Agreed.*

Comment #13 Sec 5.1.4 - In lines 4 thru 6, two thoughts appear to be confused. Recommend reversing the positioning of the sentences "Off site disposal...Technology." and "There were thermal...organic contamination."

Response #13 *These sentences will be revised.*

APPENDIX A

Comment #14 Sec 1.1, Para. 4 - See comment 2, above.

Response #14 The paragraph has been rewritten to that additional remedial actions may be performed.

Comment #15 General - Considering the similarity of the text in the EE/CA to that provided in the Action Memo (initial sections, general information), please coordinate changes made as a result of prior comments in the relevant places of Appendix A.

Response #15 *All changes to the Action Memo has been incorporated in the EE/CA.*

Comment #16 Sec 2.1, Page 1 - All work performed by USATHAMA was part of this SI. Main/ES is responsible for the Phase I and Phase II RI work. Please correct here and elsewhere.

Response #16 *Agreed.*

Comment #17 Sec 2.1, Para 1 & 4 - Please provide references to fully identify all prior reports. Each should be fully titled in the references section and identified by a number in the text.

Response #17 *Section 2.1 page 1 has been revised accordingly.*

Comment #18 With regard to the "PSCR" and "Phase I RI," see Comment 17 above. Also, correct "Action."

Response #18 *The text has been revised to fully identify these reports.*

Comment #19 Sec 2.6.1 - See comment 16, above.

Response #19 *Section 2.6.1 has been revised accordingly.*

Comment #20 Sec 2.6.3.1, Para. 3 - With regard to this inferred isocontours...I was under the impression that a real definition has nailed down as part of the Phase II work. If this data is available, the discussion may be out-dated.

Response #20 *This data is now available and has been included in the next revision.*

Comment #21 Sec 3 - The ARAR's have not been finalized as of this date due to NYSDEC's lack of input. Most comment will have to wait, even if contract schedules have to be slipped. NYSDEC's input may have a serious affect on the conclusions drawn to date.

Response #21 *Agreed.*

Comment #22 General - For the record..The need for a follow-up investigation to verify the results of the SVE and the likely, eventual asymptotic relationship of effort to results may be disadvantages to using SVE.

Response #22 *The remediation contractor will be responsible to determine if the site clean-up objectives have been met in accordance with "Methods for Evaluating the attainment of Clean Up Standards Volume 1. Solid Media - February 1989" EPA*

230/02-89-42 or an alternative guidance if required by NYSDEC.

A reference to this document will be included in the discussion of the ARARs.

Attachment D
Seneca Army Depot
Ash Landfill Removal Action
Response to Comments
G. Holden

Comment #1 Table 2-3 - The soil gas results in the table may be used to indicate presence or absence of volatiles but do not at all indicates presence of hot spots. Soil gas usefulness appears to be very limited and results should be used cautiously.

Response #1 *ES believes and the data supports the use of soil gas surveys in conjunction with confirmatory soil sampling to delineate the TCE and DCE hot spots.*

Comment #2 4.3.1.1 - Expand discussion to include what is actual effectiveness of soil vapor extraction in the ash landfill would be considering the actual soil types that are there.

Response #2 *At the time of this report the recommended remedial alternative was SVE, however this has changed to Low Temperature Thermal Desorption.*

Comment #3 4.3.1.3, 4.5, page 5-8 - Discuss the effect of soil types on cost of soil vapor extraction at the ash landfill.

Response #3 *The impact of soil type on the cost of SVE is related to the amount of vacuum which must be applied and the length of time that the vacuum must be applied. This discussion has been included in this section however, the costs of the SVE systems were based on actual soil conditions at the Ash Landfill.*

ACTION MEMORANDUM REPORT
ASH LANDFILL
SENECA ARMY DEPOT
ROMULUS, NEW YORK

Prepared For:

Seneca Army Depot
Romulus, New York

Prepared By:

Engineering-Science, Inc.
Prudential Center
Boston, Massachusetts

720446 November 1, 1993

Table of Contents

Table of Contents
(Con't)

FIGURES

TABLES

ABBREVIATIONS AND ACRONYMS

AM	Action memorandum
ARAR	Applicable or relevant and appropriate requirements
AQCR	Air Quality Control Region
AROCLOR	
B	Soil Boring Designation
bgl	Below ground level
BH	
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cm/sec	Centimeter per second
CWA	Clean Water Act
2,4-DB	4-(2,4-Dichlorophenoxy) butanoic acid
1,2-DCE	1,2-Dichloroethene
DDD	1,1-dichloro-2,2-bis(p-chlorophenyl)ethane
DDE	
DDT	1,1-(2,2,2-Trichloroethylidene)bis[4-chlorobenzene]
DOD	Department of Defense
DOT	Department of Transportation
EE/CA	Engineering Evaluation/Cost Analysis
EPA	United States Environmental Protection Agency
EM	Electromagnetic Induction
ES	Engineering-Science, Inc.
FS	Feasibility Study
ft.bls	Feet Below Land 'Surface
GC	Gas chromatograph
GPR	Ground Penetrating Radar
ICF	ICF Technology, Inc.
IRM	Interim Remedial Measure
IRP	Installation restoration program
m	meter
m/s	meter per second
MAIN	Charles T. Main, Inc.
MCL	Maximum Contaminant Level
MCPP	($\pm$)-2-(4-chloro-2-methylphenoxy)-propanoic acid
μg/kg	micrograms per kilogram
μg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ML	Non Plastic or Low Plasticity Fines Low Liquid Limit

ABBREVIATIONS AND ACRONYMS - Continued

MW	Monitoring well
MSL	Mean Sea Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
O&M	Operations and maintenance
OSHA	Occupational Safety and Health Administration
PA	Preliminary assessment
PAH	Polynuclear aromatic hydrocarbon
PA/SI	Preliminary assessment/site investigation
PCB	Polychlorinated biphenyl
PM	Particulate Matter
ppmv	Part Per Million by Volume
ppmw	Part Per Million by Weight
POTW	Publically-Owned Treatment Works
PSCR	Preliminary Site Characterization Report
PT	Monitoring well designation
RCRA	Resource Conservation and Recovery Act
RETEC	Remediation Technologies Incorporated
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
RQD	Rock quality designation
SB	Soil boring
SCG	Standards, Criteria, or Guidelines
SCS	Soil Conservation Service
SDWA	Safe Drinking Water Act
SEAD	Seneca Army Depot (former name)
SEDA	Seneca Army Depot
SG	Soil gas survey designation
SI	Site investigation
SIP	State Implementation Plan
SOV	Soil organic vapor
SPDES	State Pollutant Discharge Elimination System
SVE	Soil vapor extraction
TAGM	Technical and Guidance Memorandum

ABBREVIATIONS AND ACRONYMS - Continued

Target	Target Environmental, Inc.
TBC	To be considered
TCE	Trichloroethene
TP	Test pit
TPH	Total petroleum hydrocarbons
TOX	Total Organic Halogens
USACE	U.S. Army Corps of Engineers
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
UST	Underground storage tank
VOA	Volatile organic analysis
VOC	Volatile organic compound
Vs	Volt-second
VC	Vinyl Chloride

DATA QUALIFIERS

EPA - defined qualifiers for Organic Analyses are as follows:

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number for the diluted sample, and all concentration values reported are flagged with the "D" flag.

E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data identification criteria but the result is less than the sample quantitation limit but greater than zero.

L - The analyte is a suspected laboratory contaminant. It's presence in the sample is unlikely (applies to volatile and semi-volatile organic results).

S - The compound was detected above instrument saturation levels (applies to semi-volatile organic results).

U - Indicates compound was analyzed for but not detected.

X - The reported result was derived from instrument response outside the calibration range (applies to pesticide/PCB results).

Y - The reported result is below the specified reporting limit (applies to pesticide/PCB results).

EPA - qualifiers for inorganic analyses are as follows:

B - Concentration qualifier which indicates that the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

U - The analyte was analyzed for but not detected.

REFERENCES

Muller E.H. and Cadwell D.H., 1986, Surficial Geologic Map of New York State Finger Lakes Sheet. Survey, Map and Chart Series No. 40.

United States Army Environmental Hygiene Agency (USAEHA), 1987, Evaluation of Solid Waste Management Units, Seneca Army Depot, Interim Final Report, Groundwater Contamination Survey, No. 38-26-0868-88.

United States Army Environmental Hygiene Agency (USAEHA), 1979, Army Pollution Abatement Program Study, No. D-1031-W, Landfill Leachate Study Seneca Army Depot, Romulus, New York, 23 July - 3 August 1979.

United States Army Toxic and Hazardous Materials Agency (USATHAMA), 1989, Remedial Investigations Feasibility Studies, Seneca Army Depot Burning PA/Landfill.

United States Army Toxic and Hazardous Materials Agency (USATHMA), 1980, Installation Assessment of Seneca Army Depot, Report No. 157, AMXTH-IR-A-157, January 1980.

1.0 PURPOSE AND INTRODUCTION

This action memorandum proposes a remedial program which will utilize thermal desorption of excavated soils impacted with chlorinated hydrocarbons at the Ash Landfill site at the Seneca Army Depot (SEDA) in Romulus, New York. The SEDA is a Federal Section National Priorities List (NPL) site. This document has been prepared by Engineering-Science, Inc. (ES) of Boston which has been retained by the United States Army Corps of Engineers (USACE). The work to be performed will be conducted in full compliance with the requirements of the Comprehensive Environmental Responsibility, Compensation, and Liability Act (CERCLA) to perform these activities.

The purpose of this action memorandum is to describe the process for the proposed non-time-critical removal action at the former Ash Landfill. This removal action is an interim remedial measure (IRM), and is not intended to be the final remedy for the entire Ash landfill site. The primary objective of the removal action is distinct, and is to eliminate or significantly reduce the potential for human or environmental exposure to contamination through uncontrolled releases of trichloroethene (TCE), vinyl chloride (VC) and dichlroethene (DCE) to groundwater from contaminanted soils. An Engineering Evaluation/Cost Analysis (EE/CA) was conducted to evaluate the various remedial options for the site, and to select the best option. The EE/CA is included as **Appendix** A.

This work is based primarily upon the data collected during the Remedial Investigation (RI) for the Ash Landfill. Activities conducted as part of the RI included geophysical surveys, soil gas surveys, soil borings and test pits to gather stratigraphic information, soil samples for analytical testing, and construction and sampling of groundwater monitoring wells. The primary focus of this removal action is an area known as the "bend in the road" at the SEDA Ash Landfill. This area was identified during the RI as the primary source of volatile organic contamination at the site.

The removal action for the SEDA Ash Landfill is not financed by Superfund. Therefore, the requirements of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) in section 300.415(b)(5) for fund-financed removal actions do not apply.

1.1 SITE CONTACTS

The project managers for this removal action are:

Seneca Army Depot

Mr. Randall Battaglia
Environmental Coordinator, DEH
Seneca Army Depot
Romulus, New York 14541-5001

Engineering-Science, Inc.

Mr. Michael Duchesneau, P.E.
Project Manager
Engineering-Science, Inc.
101 Huntington Ave
Boston, Massachusetts 02199

EPA, Region 2

Ms. Carla Struble, P.E.
Remedial Project Manager
U.S. Environmental Protection Agency (EPA), Region 2
26 Federal Plaza
Jacob K. Javits Federal Building
New York, NY

New York Department of Environmental Conservation

Mr. Kamal Gupta, P.E.
Remedial Project Manager
New York State Department of Environmental Conservation (NYSDEC)
50 Wolf Road
Albany, NY

2.0 SITE CONDITIONS AND BACKGROUND

The following discussion is based on information presented in previous reports prepared for the SEDA Ash Landfill.

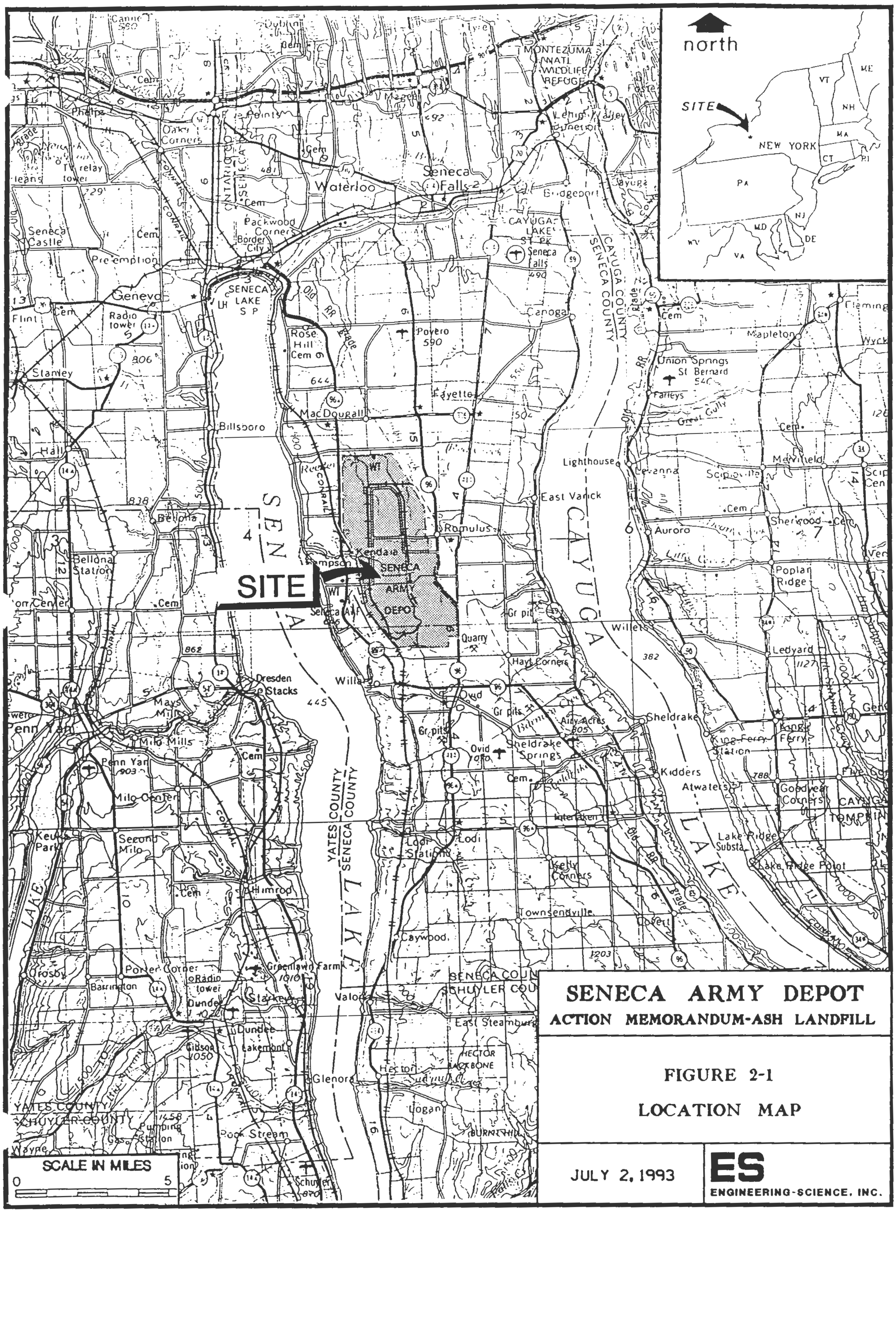
2.1 SITE DESCRIPTION

2.1.1 Base History

SEDA is located in Romulus, New York between Cayuga and Seneca lakes in the Finger Lakes region of central New York (**Figure 2-1**). 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. The post generally consists of an elongated central area for storage of ammunitions and weaponry in quonset-style buildings, an operations and administration area in the eastern portion and an army barracks area at the north end of the depot. Base housing for Army Personnel and their families is located in a 54-acre development adjacent to Route 96 and in another 69-acre development situated on Seneca Lake. The base was expanded to encompass a 1,524-meter airstrip, formerly the Sampson Air Force Base. The primary mission of SEDA is the management of munitions. Currently, SEDA is used for: 1) receiving, storing, and distributing ammunition and explosives, 2) providing receipt, storage, and distribution of military items; and 3) performing depot-level maintenance, demilitarization, and surveillance on conventional ammunition and special weapons. The depot currently employs less than 1,000 civilian and military personnel.

SEDA is being downsized, and will possibly be closed in the near future. The facility will continue to be operated by civilians whose primary responsibilities will include environmental restoration and demilitarization projects. No Army personnel or their dependents will be housed on the depot.

The depot lies immediately west of the village of Romulus (**Figure 2-1**), 12 miles south of the villages of Seneca Falls and Waterloo, and 2.5 miles north of the village of Ovid. The nearest major cities are Syracuse and Rochester, located 60 miles northeast and northwest, respectively. Land use in the area includes farms, dairy farms, suburban residential areas, and some light industrial areas.



SENECA ARMY DEPOT

ACTION MEMORANDUM-ASH LANDFILL

FIGURE 2-1

LOCATION MAP

JULY 2, 1993

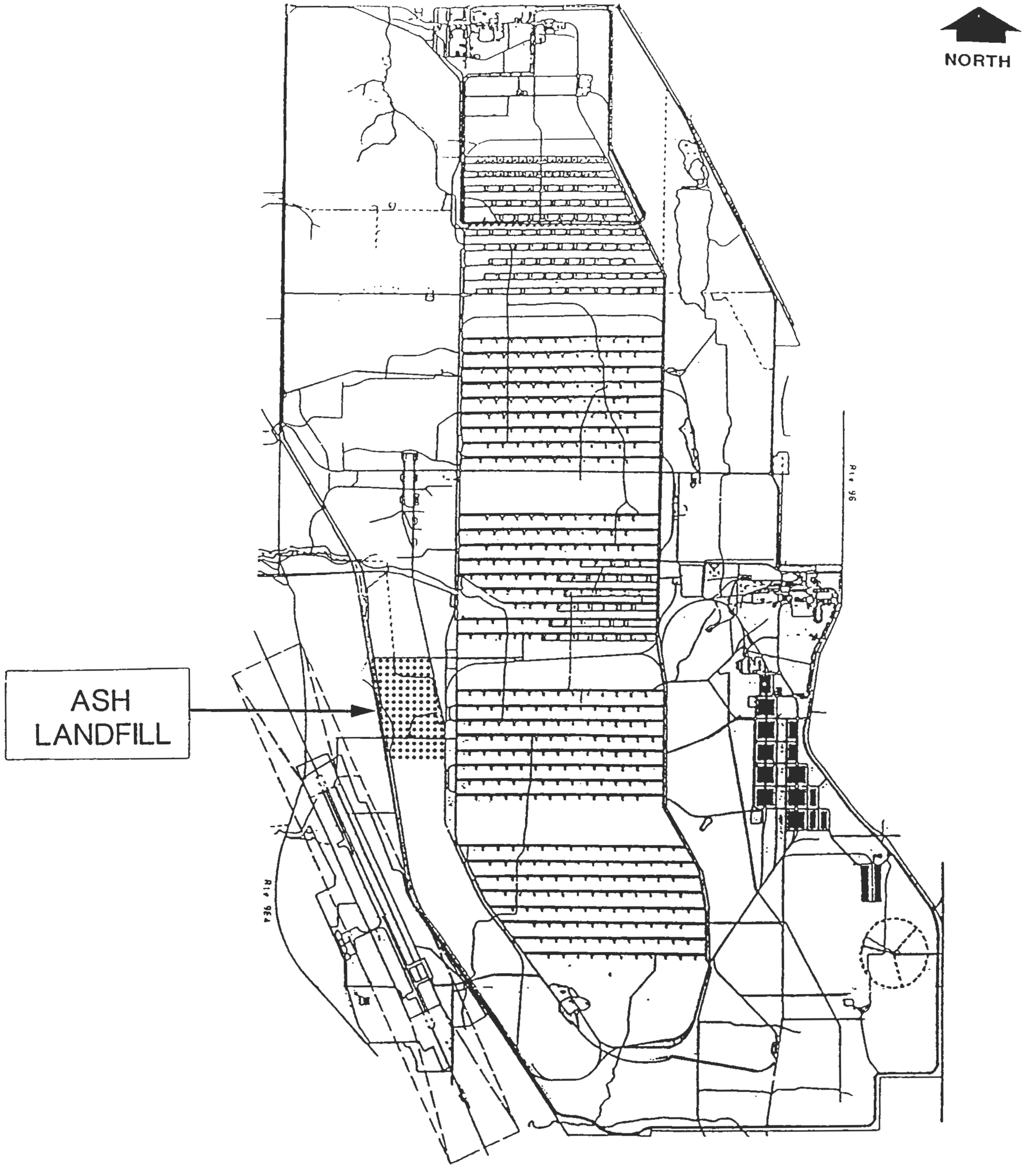
ES ENGINEERING-SCIENCE, INC.

2.1.2 Site History

The Ash Landfill site encompasses approximately 130 acres about 2,000 feet east of the northwestern extension of the SEDA airstrip in the southwestern portion of the 10,587-acre SEDA. The site consists of an abandoned incinerator building and stack, a former cooling pond, an Ash Landfill, and a nearby Non-Combustible Fill Landfill **(Figure 2-2)**. The site is bounded on the north by Cemetery Road, on the east by a SEDA railroad line, on the south by undeveloped SEDA land, and on the west by the depot's boundary. Beyond the depot's western boundary are farmland and residences on Smith Farm Road and along Route 96A, with Sampson State Park near Seneca Lake is further to the west. The nearest residence is located approximately 2,500 feet west of the landfill.

From 1941 to 1974, uncontaminated trash was burned in a series of burn pits east of the abandoned incinerator building. The ash from the refuse burning pits was buried in the landfill. The incinerator was built in 1974 and took the place of the open burning pits. Nearly all of the approximately 18 tons of refuse generated per week on the depot were incinerated. The source for the refuse was domestic waste from depot activities and family housing. Large items which could not be burned were disposed of at the non-combustible fill landfill.

Ashes and other residues from the incinerator were temporarily disposed of in an unlined cooling pond immediately north of the incinerator building. When the pond filled (approximately every 18 months), the fly ash and residues were removed, transported, and buried in the adjacent landfill east of the cooling pond. The refuse was dumped in piles and occasionally spread and compacted. The active area of the Ash Landfill extended at least 500 feet north at the incinerator building near a bend in a dirt road, as seen in an undated aerial photograph of the incinerator during operation. Parallel grooves at the northernmost extent of the filled area are visible in the aerial view of the incinerator and adjacent fill area during active operation and indicate that the fill was spread using a bulldozer or similar equipment. The incinerator was destroyed by a fire on May 8, 1979, and the landfill was subsequently closed. The landfill was capped with native soils of various thicknesses but has not been closed with an engineered cover or cap.



SENECA ARMY DEPOT

ACTION MEMORANDUM-ASH LANDFILL

FIGURE 2-2

LOCATION OF ASH LANDFILL

AT THE SENECA ARMY DEPOT

JULY 2, 1993

ES

ENGINEERING-SCIENCE, INC.

2.1.3 Site Characteristics

2.1.3.1 Geology

The site is located in the Finger Lakes region of New York, which 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. Locally, the shale is soft, grey, and fissile, and is mapped as the upper member of the Hamilton Group. The shale contains interbeds of calcareous shale and limestone.

Pleistocene age glacial till deposits overlie the shales. The till matrix, the result of glaciation, varies locally but generally consists of horizons of unsorted silt, clay, sand, and gravel. In the Finger Lakes region the till thickness varies from 1 to 50 meters. However, on the till plain between Seneca and Cayuga Lake it is near the surface and generally thin (Muller and Cadwell, 1986). The soils at the site are classified as unsorted inorganic clays, inorganic silts, and silty sands. Gray competent shale was encountered between 6 and 14 feet below the land surface in all borings on the site and in off-site surrounding areas. The topography slopes consistently to the west from an elevation of 720 feet in the eastern portion of the site to 614 feet in the western portion of the site. Bedrock topographic gradients are steepest in the eastern portion of the site (as is land surface topography) and in the southwestern portion of the site where they shift slightly to the southwest.

A thin (1.5 to 12 feet thick) zone of gray weathered shale was encountered in almost all locations drilled on-site. This zone is characterized by fissile shale with a large amount of brown interstitial silt and clay. No outcrops of weathered or competent shale are exposed on the site, however, several shale pits are located throughout the facility.

A 2 to 11 foot thick mantle of dense glacial till covers the shale on-site. The till is generally characterized by brown to gray-brown silt, clay and fine sand with few fine to coarse gravel-sized inclusions of weathered shale. Darian silt-loam soils, 0 to 18 inches thick, are developed over the till on-site, however, in some locations till is exposed at the surface. The surficial soils are somewhat poorly drained and have a silt clay loam and clay sub soil. In general, the topographic relief associated with these soils is 3 to 8%.

2.1.3.2 Hydrogeology

The hydrogeologic properties of the site were characterized during the Phase I and Phase II remedial investigations. A full discussion can be found in the RI and the EE/CA **(Appendix A)**.

The general direction of groundwater flow in the shallow aquifer is to the west toward Seneca Lake following surface topography. Shallow aquifer elevations are approximately 655 feet in the eastern portion of the site and drop to a low of 630 feet in the western portion of the site.

A flow direction for the deep competent shale aquifer can not be accurately determined from the array of wells on the site since flow is through fractures in bedrock. However, groundwater elevations in deep wells are higher in the eastern portion of the site (between approximately 680 and 686 feet) than they are in the western portion of the site (between approximately 630 and 634 feet) suggesting a westerly direction of flow in the deep aquifer is likely similar to the overburden aquifer.

2.1.3.3 Area Meteorology

Table 2-1 summarizes climatological data for the SEDA area. A cool climate exists with temperatures ranging from an average of 23°F in January to 69°F in July. Marked temperature differences are found between daytime highs and nighttime lows during the summer and portions of the transitional seasons. Precipitation is well-distributed, averaging approximately 3 inches per month. The annual average snowfall is approximately 100 inches. Wind velocities are moderate, but during the winter months, there are numerous days with sufficient winds to cause blowing and drifting snow. The most frequently occurring wind directions are westerly and west-southwesterly.

As **Table 2-1** shows, temperatures tend to be highest from June through September. Precipitation and relative humidity tend to be rather high throughout the year. The months with the most amount of sunshine are June through September.

2.1.4 <u>Contamination Assessment</u>

The results of the RI are summarized below. These activities include both screening (such as soil gas surveys) and confirmation sampling. The primary purpose of the screening activities was to provide information to be used in locating the soil borings. Confirmation sampling was used to confirm the extent of the contamination and to positively identify the contaminants present.

TABLE 2-1
CLIMATOLOGICAL DATA FOR SENECA ARMY DEPOT

Month	Temperature (°F) Max.	Min.	Mean	Precip.[1] Mean (In)	RH[3] Mean (%)	Sunshine[3] (%)	Sky Cover[3] (Tenths)	Mean No. of Days[4] Clear	Partly Cloudy	Cloudy
Jan	30.9	14.0	22.5	1.88	70	35	7.5	3	7	21
Feb.	32.4	14.1	23.3	2.16	70	50	7.0	3	6	19
Mar.	40.6	23.4	32.0	2.45	70	50	7.0	4	7	20
Apr.	54.9	34.7	44.8	2.86	70	50	7.0	6	7	17
May	66.1	42.9	54.5	3.17	70	50	6.5	6	10	15
June	76.1	53.1	64.6	3.70	70	60	6.5	8	10	12
July	80.7	57.2	69.0	3.46	70	60	6.0	8	13	10
Aug	78.8	55.2	67.0	3.18	70	60	6.0	8	11	12
Sept.	72.1	49.1	60.7	2.95	70	60	6.0	8	11	12
Oct.	61.2	39.5	50.3	2.80	70	50	6.0	7	8	16
Nov	47.1	31.4	39.3	3.15	70	30	7.5	2	6	22
Dec.	35.1	20.4	27.8	2.57	70	30	8.0	2	5	24
Annual	56.3	36.3	46.3	34.33	70	50	6.5	64	101	200

Period	Mixing Wind Height (m)[2]	Speed (m/s)[2]
Morning (annual)	650	6
Morning (winter)	900	8
Morning (spring)	700	6
Morning (summer)	500	5
Morning (autumn)	600	5
Afternoon (annual)	1400	7
Afternoon (winter)	900	8
Afternoon (spring)	1600	8
Afternoon (summer)	1800	7
Afternoon (autumn)	1300	7

Mean Annual Pan Evaporation (in.)[3]: 35
Mean Annual Lake Evaporation (in.)[3]: 28
No. of episodes lasting more than 2 days (No. of episode-days)[2]:
    Mixing Height <500 m, wind speed < 2 m/s: 0(0)
    Mixing Height <1000 m, wind speed <2 m/s: 0(0)
No. of episodes lasting more than 5 days (No. of episode-days)[2]:
    Mixing Height <500 m, wind speed < 4 m/s: 0(0)

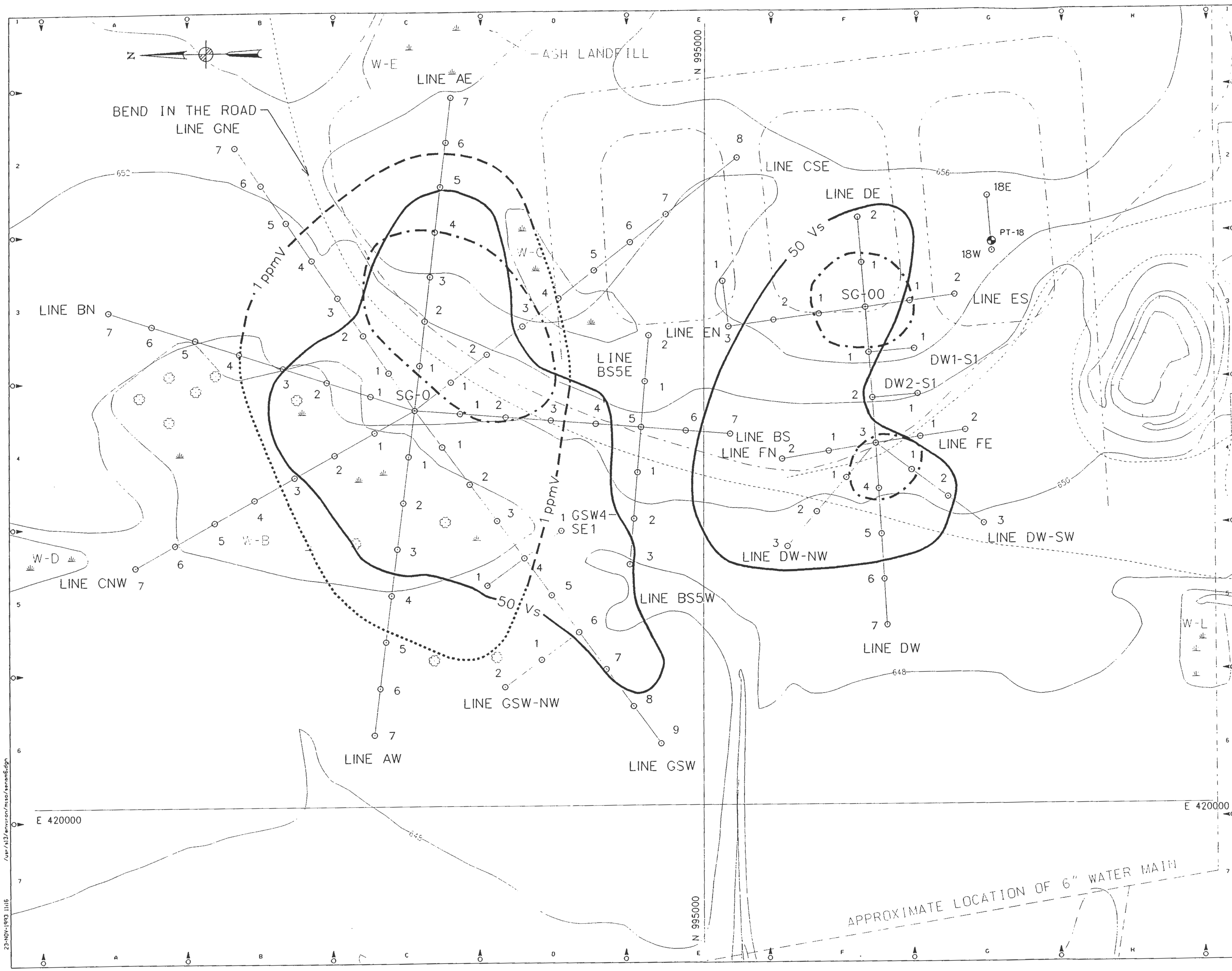
REFERENCES:
[1]Climate of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Ithaca Cornell Univ., NY.
[2]Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States. George C. Holzworth, Jan. 1972
[3]Climate Atlas of the United States. U.S. Department of Commerce, 1983.
[4]Climate of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Syracuse, NY.

2.1.4.1 Soil Gas

Three separate soil gas investigations have been carried out at the SEDA Ash Landfill. The first was conducted by Target Environmental, Inc. (Target) under the supervision of ICF Technology, Inc. and is included as part of the USATHAMA RI/FS submitted in March 1989. In their investigation, Target assembled a grid over the entire Ash Landfill site in order to identify potential hot spots. The highest concentration determined was from an area southeast of the bend-in-the-road which contained a concentration of 11,000 μg/L of total volatiles. The second highest soil gas value was 655 μg/L which was located at the bend in the road.

The next soil gas investigation was conducted in 1991 by MAIN. The concentration units for this investigation was parts-per-million by volume (ppmv) expressed as TCE equivalents. This investigation attempted to build upon the results of the Target investigation by further investigating the known areas of contamination and identify the presence of volatiles at geophysical anomalies previously determined. No elevated soil gas concentrations were determined at any geophysical anomalies. The results of MAIN's investigation correlated reasonably well with the two elevated soil gas results of the Target investigation, however, MAIN's data suggested that both the extent and magnitude of the concentration at the bend-in-the-road area were greater than previously determined by Target. Near the bend in the road, total volatile organics in soil gas were as high as 86.6 ppmv at SG-70. A 1 ppmv total volatile organics isocontour encompasses an area approximately 250 feet by 175 feet (**Figure 2-3**). This area appeared to extend to the south toward the Ash Landfill and the incinerator building. TCE concentrations in soil gas are also provided on **Figure 2-3**. The soil gas survey clearly identified a source area for volatile organic compounds in soil (i.e., area encompassed by 1 ppmv isocontour). Experience from previous soil gas surveys suggest that concentration exceeding 1 ppmv are indicative of areas where the soil is considered contaminated.

Areas identified in the Target (1989) soil gas survey with soil gas concentrations of over 100 μg/l (17 ppmv as TCE) are identified on **Figure 2-3**. In the southeasternmost location, a total volatile organics concentration of approximately 11,000 μg/l (approximately 1,880 ppmv as TCE) was detected, the highest concentration detected in the Target (1989) survey. As a basis for comparison, this location was sampled during MAIN's soil gas survey (SG-14) and a concentration of approximately 50 ppmv was determined. Differences in concentration are not unexpected using soil gas techniques, and at this location this difference is not unexpected. However, soil gas concentrations determined by MAIN are higher near the bend in the unpaved road (up to 86.6 ppmv) than was previously identified by Target.



REV	DATE	DESCRIPTION
B	11/93	DRAFT AM/EECA
A	9/93	PRELIM. DRAFT AM/EECA

DRAWN BY G.A.KAELIN — CHECKED BY D.KELNAR
DESIGN SUPV. G.A.KAELIN — RESP. ENGR. M.CURRY
CHIEF DISC. ENGR. W.E.BAKER — MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER M.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPLICK
IN CHARGE W.D.PATTERSON

ES
ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL

DEPT. ENVIRONMENTAL ENGINEERING — NO. 720489-01000

FIGURE 2-3
AREA OF CONCERN SOIL GAS AND SOIL HEADSPACE RESULTS FROM PHASE 1 AND 2

SCALE 1" = 50'
ES DWG. NO. 720489-01000-2-3 — REV B

As a Phase II follow-up to the MAIN soil gas survey, the next soil gas investigation was carried out by ES (formerly MAIN) in 1993. The purpose of this investigation was to fully delineate the two hot spots identified near the bend in the road. The original plan was to conduct the investigation using the same methodology as that of the MAIN investigation. However, due to heavy precipitation, the surface soils at the site were saturated, and the water table was extremely high. This eliminated the possibility of performing soil gas, since no soil gas is present, necessitating a change in the work plan. For this phase of the investigation, two 2-inch-diameter, 2 foot long split spoons were driven to a depth of 4 feet. The first spoon sample was discarded. A soil sample from approximately 10 grams, the second spoon at a depth of 2 to 4 feet was collected and placed in a 40-ml VOA vial with a Teflon septum. Headspace samples were collected from the vial and analyzed in a manner similar to the analysis of the soil gas using a Photovac Model 10S-50 portable GC.

The results of this investigation are summarized in **Table 2-2** and **Figure 2-3**. Areas of contamination were fully delineated, and soil borings were collected both inside and outside the areas of contamination in order to confirm the results of the investigation. The soil headspace survey indicated two areas of contamination of approximately 38,000 and 17,000 square feet, which will be remediated as part of this removal action.

2.1.4.2 Soil

Volatile organic compounds were the primary contaminant of concern present in most of the soil samples collected during drilling. The volatile organics include TCE, 1,2-DCE (total), tetrachloroethene, 1,2-dichloroethane (one occurrence), 1,1,1-trichloroethane, chloroform, 2-butanone, benzene, toluene, ethylbenzene, xylene, methylene chloride and acetone. The latter two compounds were found at low levels in only six borings (two of which were background borings) and are believed to laboratory contaminants. A summary of the laboratory data is in the EE/CA **(Appendix A)**. Complete data tables are in **Appendix B**. A full discussion of the data can be found in the RI report.

The highest concentrations of volatile organic compounds were detected in samples from varying depths (2 to 8 feet) in the fill of the Ash Landfill and immediately northwest of this filled area, near the bend in the road. The highest concentration of volatile organic compounds (669,000 μg/kg of mostly TCE) was found in the 2 to 4 foot sample in B15-91 **(Figure 2-4)**. Generally, concentrations of total volatile organic compounds decrease in a westward direction between boring B15-91 and B25-91 (on the western side of wetland B).

SENECA ARMY DEPOT
ASH LANDFILL

TABLE 2-2
SOIL HEADSPACE RESULTS USING GAS CHROMATOGRAPHY

PHASE II

HEADSPACE POINT	INJECTION VOLUME (ml)	TCE (vs)	DCE (vs)	TCE ADJUSTED (vs)	DCE ADJUSTED (vs)	Total TCE+DCE (vs)
SG-0	0.2	17.9	91.4	89.5	457.0	546.5
SG-0	0.1	3.3	84.6	33.0	846.0	879.0
AE-1	0.1	727.0	293.0	7,270.0	2,930.0	10,200.0
AE-1	0.1	327.0	244.0	3,270.0	2,440.0	5,710.0
AE-2	0.05	1,500.0	199.0	30,000.0	3,980.0	33,980.0
AE-3	0.05	5.5	50.0	110.0	1,000.0	1,110.0
AE-3	0.025	2.0	17.4	80.0	696.0	776.0
AE-4	0.05	1,200.0	228.0	24,000.0	4,560.0	28,560.0
AE-5	0.05	1.6	-	32.0	0.0	32.0
AE-6	0.5	-	-	0.0	0.0	0.0
AE-7	0.5	3.6	0.2	7.2	0.4	7.6
AW-1	0.5	344.0	269.0	688.0	538.0	1,226.0
AW-2	0.5	35.2	88.9	70.4	177.8	248.2
AW-3	1	70.3	88.8	70.3	88.8	159.1
AW-4	1	12.0	5.2	12.0	5.2	17.2
AW-5	1	26.3	12.9	26.3	12.9	39.2
AW-6	1	13.1	2.2	13.1	2.2	15.3
AW-7	1	1.8	-	1.8	0.0	1.8
BS-1	0.25	3.4	54.5	13.6	218.0	231.6
BS-2	0.25	5.0	100.0	20.0	400.0	420.0
BS-2	0.1	2.5	51.4	25.0	514.0	539.0
BS-3	0.25	12.5	13.7	50.0	54.8	104.8
BS-3	0.1	5.5	8.5	55.0	85.0	140.0
BS-4	0.25	5.5	10.8	22.0	43.2	65.2
BS-5	0.5	6.8	1.8	13.6	3.6	17.2
BS-5	0.25	3.7	1.1	14.8	4.4	19.2
BS-6	1	0.7	31.6	0.7	31.6	32.3
BS-7	0.5	12.9	285.0	25.8	570.0	595.8
BS-5E-1	0.25	-	-	0.0	0.0	0.0
BS-5E-2	0.5	1.4	-	2.8	0.0	2.8
BS-5W-1	0.25	2.0	1.6	8.0	6.4	14.4
BS-5W-2	0.5	11.9	1.8	23.8	3.6	27.4
BS-5W-3	0.5	17.5	10.5	35.0	21.0	56.0
BN-1	0.25	0.6	0.3	2.4	1.2	3.6
BN-2	1	1.7	81.5	1.7	81.5	83.2
BN-3	0.5	22.0	14.2	44.0	28.4	72.4
BN-4	0.5	-	-	0.0	0.0	0.0
BN-5	0.5	-	-	0.0	0.0	0.0
BN-6	not run	not run	not run	not run	not run	not run
BN-7	1	-	-	0.0	0.0	0.0
CSE-1	0.1	0.4	356.0	4.0	3,560.0	3,564.0
CSE-2	0.05	79.6	58.0	1,592.0	1,160.0	2,752.0
CSE-3	0.25	-	0.9	-	3.6	3.6
CSE-4	0.5	0.9	1.0	1.8	2.0	3.8
CSE-5	0.5	0.5	-	1.0	0.0	1.0
CSE-6	0.5	8.8	1.0	17.6	2.0	19.6
CSE-7	0.5	4.0	-	8.0	0.0	8.0
CSE-8	0.5	-	-	0.0	0.0	0.0
CNW-1	0.5	1.0	7.9	2.0	15.8	17.8
CNW-1	0.25	0.3	4.2	1.2	16.8	18.0
CNW-2	0.5	45.3	118.0	90.6	236.0	326.6
CNW-3	0.5	1.0	12.7	2.0	25.4	27.4
CNW-4	0.5	5.4	0.4	10.8	0.8	11.6
CNW-5	1	-	-	0.0	0.0	0.0
CNW-6	not run	not run	not run	not run	not run	not run
CNW-7	0.5	-	-	0.0	0.0	0.0

SENECA ARMY DEPOT
ASH LANDFILL

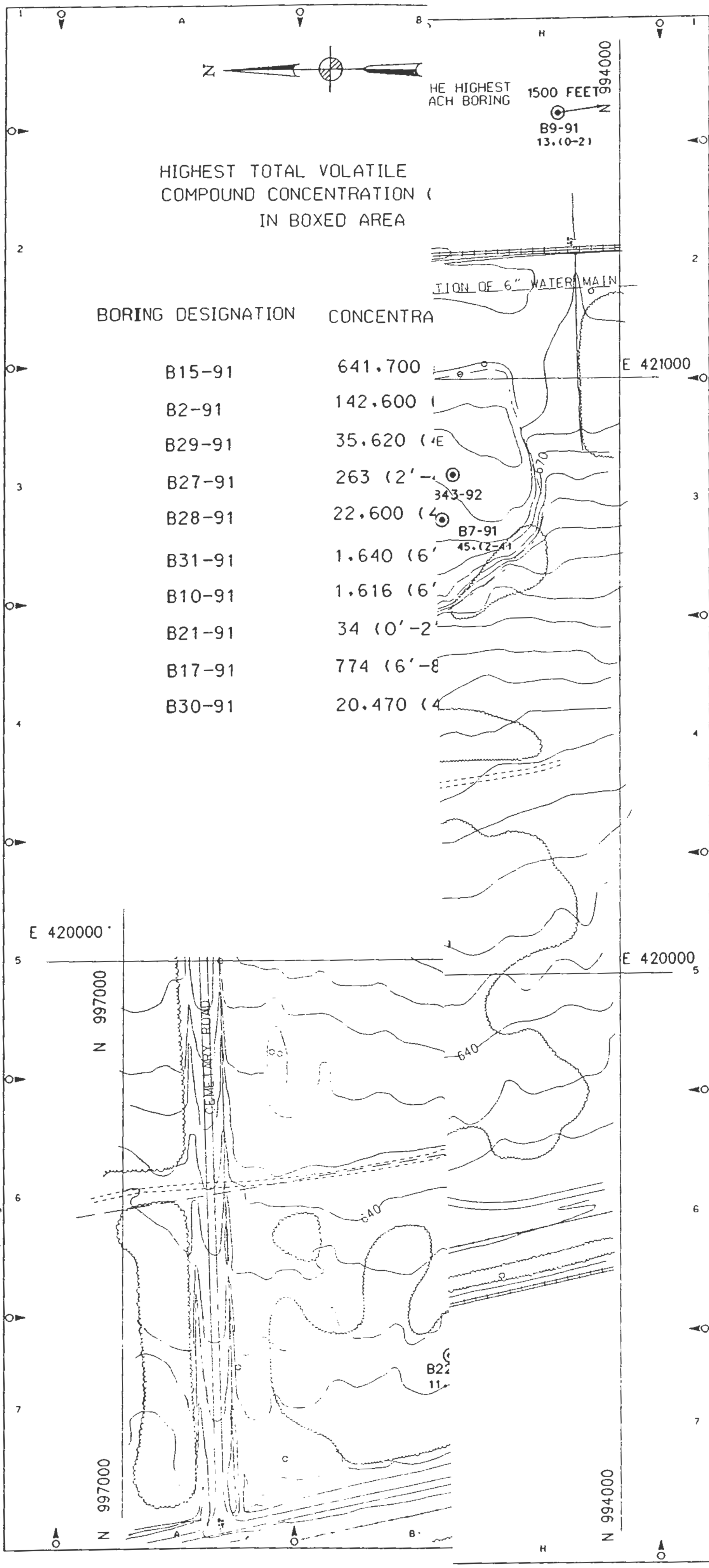
TABLE 2-2
SOIL HEADSPACE RESULTS USING
GAS CHROMATOGRAPHY

PHASE II

HEADSPACE POINT	INJECTION VOLUME (ml)	TCE (vs)	DCE (vs)	TCE ADJUSTED (vs)	DCE ADJUSTED (vs)	Total TCE+DCE (vs)
SG-00	0.1	26.0	24.1	260.0	241.0	501.0
DE-1	0.5	2.0	2.4	4.0	4.8	8.8
DE-2	1	16.6	43.6	16.6	43.6	60.2
DW-1	0.5	722.0	233.0	1,444.0	466.0	1,910.0
DW-1	0.5	703.0	139.0	1,406.0	278.0	1,684.0
DW-2	0.05	–	–	0.0	0.0	0.0
DW-2	0.5	–	–	0.0	0.0	0.0
DW-3	0.5	28.6	293.0	57.2	586.0	643.2
DW-4	0.25	2.9	111.0	11.6	444.0	455.6
DW-5	0.25	38.5	24.7	154.0	98.8	252.8
DW-6	0.5	4.5	4.8	9.0	9.6	18.6
DW-7	1	–	–	0.0	0.0	0.0
DW-1-S1	0.25	–	–	0.0	0.0	0.0
DW-1-S1	1	–	–	0.0	0.0	0.0
DW-2-S1	0.5	–	–	0.0	0.0	0.0
DW-3-SW1	0.25	38.4	77.8	153.6	311.2	464.8
DW-3-SW2	0.5	–	19.2	0.0	38.4	38.4
DW-3-SW3	0.5	–	–	0.0	0.0	0.0
DW-3-NW1	0.25	15.2	124.0	60.8	496.0	556.8
DW-3-NW2	0.25	3.3	7.1	13.2	28.4	41.6
DW-3-NW3	0.5	22.6	6.4	45.2	12.8	58.0
EN-1	0.1	4.1	52.7	41.0	527.0	568.0
EN-2	0.1	17.9	12.9	179.0	129.0	308.0
EN-3	0.5	–	–	0.0	0.0	0.0
EN-3-E1	0.5	–	–	0.0	0.0	0.0
ES-1	0.5	0.8	–	1.6	0.0	1.6
ES-2	1	–	–	0.0	0.0	0.0
FN-1	0.25	1.7	3.9	6.8	15.6	22.4
FN-2	0.25	18.1	5.6	72.4	22.4	94.8
FS-1	0.25	–	0.5	0.0	2.0	2.0
FS-2	1	3.4	0.5	3.4	0.5	3.9
GNE-1	0.05	–	1.6	0.0	32.0	32.0
GNE-2	0.25	–	193.0	0.0	772.0	772.0
GNE-3	0.25	–	0.2	0.0	0.8	0.8
GNE-4	0.5	2.2	14.8	4.4	29.6	34.0
GNE-5	0.5	–	–	0.0	0.0	0.0
GNE-6	not run	not run	not run	not run	not run	not run
GNE-7	0.5	–	–	0.0	0.0	0.0
GSW-1	0.1	1.7	98.7	17.0	987.0	1,004.0
GSW-2	0.25	2.4	162.0	9.6	648.0	657.6
GSW-3	0.5	5.7	149.0	11.4	298.0	309.4
GSW-4	0.5	–	0.7	0.0	1.4	1.4
GSW-4	1	–	1.6	0.0	1.6	1.6
GSW-5	0.5	15.8	118.0	31.6	236.0	267.6
GSW-6	0.5	18.0	94.8	36.0	189.6	225.6
GSW-7	1	25.0	187.0	25.0	187.0	212.0
GSW-8	0.5	5.6	13.7	11.2	27.4	38.6
GSW-4-SE1	0.5	–	18.5	0.0	37.0	37.0
GSW-4-NW1	0.5	1.3	28.0	2.6	56.0	58.6
GSW-6-NW1	0.5	7.6	8.5	15.2	17.0	32.2
GSW-6-NW2	0.5	3.8	0.8	7.6	1.5	9.1
GSW-9	0.5	13.7	72.9	27.4	145.8	173.2
18E	0.5	0.1	–	0.2	0.0	0.2
18W	0.25	0.1	–	0.4	0.0	0.4

Notes:

1) vs = volt seconds as measured on the gas chromatograph



LEGEND:

- PAVED ROAD
- DIRT ROAD
- 650 — GROUND CONTOUR AND ELEVATION
- TREE
- W-B — WETLAND & DESIGNATION
- APPROXIMATE EXTENT OF FILL
- OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
- APPROXIMATE EXTENT OF DEBRIS PILE
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- FUEL OR UNDERGROUND STORAGE TANK
- SEAD-1 EL.630.90' — SURVEY MONUMENT
- B7-91 45.(2-4) — BORING DESIGNATION AND HIGHEST TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATION IN UG/KG. SAMPLE DEPTH IS GIVEN IN PARENTHESES.

REV	DATE	DESCRIPTION
B	11/93	DRAFT AM/EECA
A	7/93	PRELIM. DRAFT AM/EECA

DRAWN BY G.A.KAELIN	CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAELIN	RESP. ENGR. M.CURRY
CHIEF DISC. ENGR. M.E.BAKER	MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER M.N.DUCHESNEAU	
MGR. OF PROJECTS J.P.CHAPLICK	
IN CHARGE W.D.PATTERSON	

DRAWN | CHECKED | DES.SUPV. | RESP.ENGR. | CH.DISC.ENG. | PROJ. MGR. | MF

ES

ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

ACTION MEMORANDUM
ASH LANDFILL

DEPT. ENVIRONMENTAL ENGINEERING | NO. 720489-01000

FIGURE 2-4
HIGHEST TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL

SCALE 1" = 250'

ES'S DWG. NO. 720489-01000-2-4 | REV B

The highest concentrations of total volatiles from two borings in the central-western portion of the Ash Landfill (B10-92 and B31-91) ranged from 1,600 to 1,700 μg/kg (**Figure 2-4**).

The western portion of the Ash Landfill and areas near the bend in the road and wetland B were determined to be the source areas for volatile organic compounds.

A comparison of VOCs (including 1,2-DCE and TCE) in selected soil samples from borings at areas of high soil gas is presented in **Table 2-3**. In most instances when VOCs are found in the soil gas they are also found in the soil, supporting the use of soil gas techniques to locate source areas for volatile organic compounds.

Semivolatile organics compounds were detected in 23 borings on the site, though many of these borings were not located near the bend in the road area which is the subject of this removal action. Data summary tables are included in the EE/CA (**Appendix A**). The highest total semivolatile concentrations and widest variety of compounds were found in samples from B4-91 and B7-91. B4-91 is located in the north-westernmost debris pile and B7-91 is located in the Non-Combustible Fill Landfill which are not part of this removal action.

Borings in the Ash Landfill and in the area near the bend in the road, near wetland B, generally contain semivolatiles from the surface to the bottom of the boring, although the concentrations in this area are not as high as those from the debris pile and Non-Combustible Fill Landfill. Detectable concentrations of semivolatiles from this area range between 61 μg/kg in borings B28-91 and 31,970 μg/kg in B10-91. The highest concentration of semivolatiles in this area are from two borings, B10-91 and B31-91.

Five pesticides and two PCBs were detected in several soil samples on-site. The pesticides include heptachlor, dieldrin, 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT. The PCBs are Aroclor-1242 and Aroclor-1260. Relatively low concentrations of pesticides (18 to 250 μg/kg) were found in borings B10-91, B15-91, B17-91, B30-91 and B31-91. The compounds 4,4'-DDE, 4-4'-DDD and 4,4-DDT are the most common pesticides found on-site, but of these, 4,4'-DDE is the most widespread. The highest concentration of total pesticides was found in B15-91 which had a concentration of 250 μg/kg (exclusively 4,4'-DDE).

PCBs, Aroclor-1242 and 1260, were found only in borings B2-91, B15-91, B28-91, B30-91 and B31-91 located in the Ash Landfill and the immediately to the northwest of the fill near the bend in the road. The highest total PCB concentration (1,000 μg/kg of Aroclor 1242) was

SENECA ARMY DEPOT
ASH LANDFILL

TABLE 2–3
COMPARISION OF VOLATILES DETECTED IN SOIL AND SOIL GAS FOR SELECTED LOCATIONS

PHASE I REMEDIAL INVESTIGATION

Boring Location	Sample Number	Depth (feet)	1,2–DCE in Soil	1,2–DCE in Soil Gas	TCE in Soil	TCE in Soil Gas	Total VOCs in Soil	Total VOCs in Soil Gas
B2–91*								
	S1031–4	0–2	12000		28000		45800	
	S1031–5	2–4	19000	<0.03	4400	<0.01	8190	0.39
	S1031–6	6–8	21000	(SG–15)	120000	(SG–15)	143580	(SG–15)
	S1031–7	8–10	<1400		69000		69000	
B3–91								
	S1031–8	0–2	<6		23		41	
	S1031–9	2–4	<6	<0.03	<6	0.06	8	0.11
	S1031–10	4–6	<6	(SG–55)	<6	(SG–55)	13	(SG–55)
	S1031–11	6–8	<6		5		21	
B4–91								
	S1101–12	0–2	<6		130		136	
	S1101–13	2–4	<6	<0.03	<6	0.19	8	0.25
	S1101–14	6–8	<5	(SG–58)	2	(SG–58)	10	(SG–58)
B6–91								
	S1104–19	0–2	<6	<0.03	<6	<0.01	7	0.07
	S1104–20	2–4	<6	(SG–24)	<6	(SG–24)	6	(SG–24)
B15–91								
	S1106–49	0–2	29000		110000		143977	
	S1106–50	2–4	40000	1.27	470000	1.76	534100	2.66
	S1106–51	2–4	79000	(SG–63)	540000	(SG–63)	669000	(SG–63)
	S1106–52	6–8	11000		38000		57190	
B25–91								
	S1203–82	0–2	<6		<6		2	
	S1203–83	2–4	<6	<0.03	<6	<0.01	BDL	0.42
	S1203–84	4–6	<5	(SG–18)	<5	(SG–18)	15	(SG–18)
B27–91								
	S1204–86	0–2	100	4.38	10	2.33	114	4.54
	S1204–87	2–4	250	(SG–74)	13	(SG–74)	263	(SG–74)
B28–91								
	S1204–88	0–2	160		18		190	
	S1204–89	2–4	440	1.84	83	0.31	2602	2.07
	S1204–89A	2–4	1600	(SG–69)	74	(SG–69)	1745	(SG–69)
	S1204–90	4–6	20000		2600		22980	
B30–91								
	S1204–94	0–2	45		5		51	
	S1204–94A	0–2	31		5		42	
	S1204–95	2–4	1400	92.4	110	4.02	1828	86.6
	S1204–96	4–6	18000	(SG–70)	450	(SG–70)	20180	(SG–70)
	S1204–96A	4–6	16000		390		25390	
B31–91								
	S1205–97	0–2	<6		23		34	
	S1205–97A	0–2	<6		110		119	
	S1205–98	2–4	5	4.76, 7.33	5	4.60, 4.52	12	49.99, 47.11
	S1205–99	4–6	660	(SG–14)	2400	(SG–14)	3454	(SG–14)
	S1205–100	6–8	630		640		1708	

Notes:
Soil gas locations are shown in parentheses beneath the concentration
Concentrations for soil analyses are ug/Kg
Concentrations for soil gas analyses are in ppmv

detected in the 2 to 4-foot sample in boring B31-91. Aroclor 1260 is prevalent from the surface to 8 feet below the land surface in borings B2-91 and B15-91, located near the northern extent of the Ash Landfill.

Three herbicides 2,4-DB, MCPP, and 2,4,5-TP (Silvex) were detected in a few samples on the site, however, 2,4-DB and MCPP are more prevalent. These herbicides are found only in locations where dumping of suspected solvents, debris and ash has taken place on the site. Specifically, they were found in suspected solvent dump areas, in all three borings in and near the three debris piles, and in the Ash Landfill area. The highest concentrations of 2,4-DB, MCPP, and 2,4,5-TP (Silvex), detected near the bend in the road area were 410 μg/kg (at B29-91), 13,000 μg/kg (at B10-91), and 10 μg/kg (at B10-91), respectively.

2.1.4.3 Groundwater

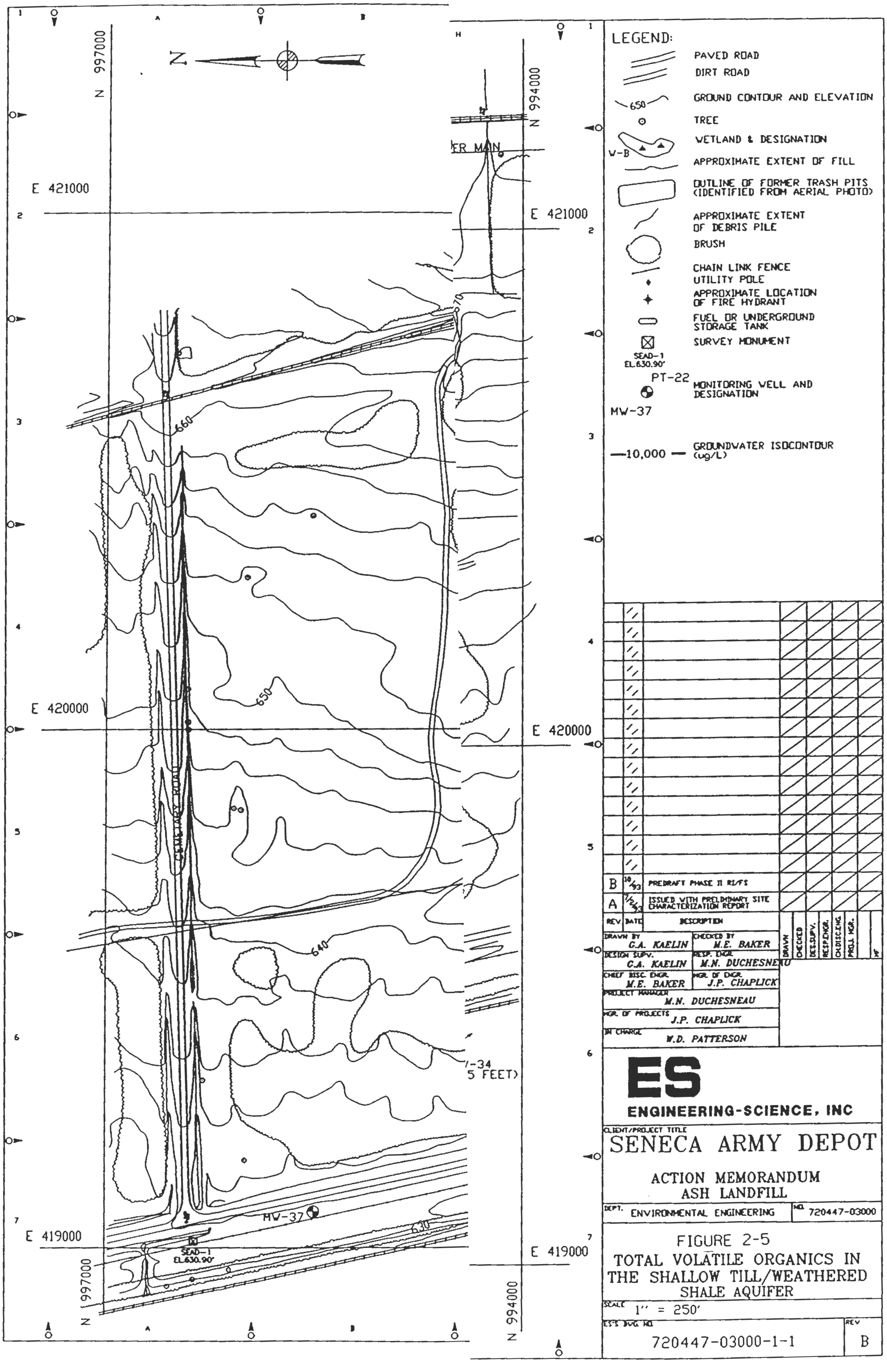
As with the soil samples, volatile organic compounds were the primary contaminants of concern detected in the groundwater at the site. These compounds were detected in nine of the 31 monitoring wells sampled on and off-site. The VOCs detected included TCE, 1,2-DCE (total), vinyl chloride, chloroform, 2-Butanone, xylene (total), methylene chloride, and acetone. The latter two compounds are believed to be laboratory contaminants in most instances. TCE and 1,2-DCE are the dominant volatile organics on the site.

The geographic distribution of total volatile organic compounds is shown in **Figure 2-5**. Ten (10), 100, 1,000, and 10,000 μg/L isocontours define a total volatiles plume that originates in the western portion of the Ash Landfill and extends to the west in the direction of groundwater flow.

TCE is considered as the dominant volatile organic compound on-site. Concentrations of TCE, up to 37,000 and 11,000 μg/L in the source area (MW-44 and PT-18 respectively) and as low as 4 and 1 μg/L near the western boundary of the site.

Several daughter products of the breakdown of TCE have been observed at the site. They include 1,2-dichloroethylene (1,2-DCE) and vinyl chloride.

At the downgradient, western end of the plume, 1,2-DCE is the dominant volatile organic compound where it is found at 100 and 71 μg/L in wells PT-24 and MW-29, respectively. The shift from TCE as the predominant volatile organic compound near the source areas to the


N 997000
N 994000
E 421000
E 420000
E 419000
CEMETARY ROAD
ER MAIN
660
650
640
630
MW-37
SEAD-1
EL.630.90'
/-34
5 FEET)
LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
650
TREE
WETLAND & DESIGNATION
W-B
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER TRASH PITS (IDENTIFIED FROM AERIAL PHOTO)
APPROXIMATE EXTENT OF DEBRIS PILE
BRUSH
CHAIN LINK FENCE
UTILITY POLE
APPROXIMATE LOCATION OF FIRE HYDRANT
FUEL OR UNDERGROUND STORAGE TANK
SURVEY MONUMENT
SEAD-1
EL.630.90'
PT-22
MONITORING WELL AND DESIGNATION
MW-37
—10,000— GROUNDWATER ISOCONTOUR (ug/L)
B 10/93 PREDRAFT PHASE II RI/FS
A 7/93 ISSUED WITH PRELIMINARY SITE CHARACTERIZATION REPORT
REV DATE DESCRIPTION
DRAWN BY G.A. KAELIN
CHECKED BY M.E. BAKER
DESIGN SUPV. G.A. KAELIN
RESP. ENGR. M.N. DUCHESNEAU
CHIEF DISC. ENGR. M.E. BAKER
MGR. OF ENGR. J.P. CHAPLICK
PROJECT MANAGER M.N. DUCHESNEAU
MGR. OF PROJECTS J.P. CHAPLICK
IN CHARGE W.D. PATTERSON
ES
ENGINEERING-SCIENCE, INC
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL
DEPT. ENVIRONMENTAL ENGINEERING
NO. 720447-03000
FIGURE 2-5
TOTAL VOLATILE ORGANICS IN THE SHALLOW TILL/WEATHERED SHALE AQUIFER
SCALE 1" = 250'
ES'S DWG NO 720447-03000-1-1
REV B

dominance of the breakdown daughter compound 1,2-DCE at downgradient locations is consistent with the environmental chemistry of TCE.

No semivolatile organic compounds, pesticides, PCBs, or herbicides were detected in any of the well samples collected on and off-site.

Both unfiltered (total) and filtered (dissolved) groundwater samples were collected. Generally, filtered metals concentrations are less than concentrations in unfiltered samples, with most metals concentrations below the detection limit in the filtered samples.

Some of the highest unfiltered metals concentrations were obtained in well, PT-26, near the Seneca airfield. PT-18 in the Ash Landfill also exhibits some high unfiltered concentrations of metals, including lead (17.8 μg/L), zinc (496 μg/L), manganese (1,530 μg/L) and mercury (0.42 μg/L). Concentrations of barium, beryllium, cadmium, chromium, lead, manganese, vanadium and zinc occur in unfiltered samples from wells MW-29 and MW-31.

Cyanide concentrations (unfiltered only) were all below the detection limit except in PT-10 where 11.2 μg/L (just above the detection limit) were detected.

2.1.4.4 Test Pits

Several test pits were dug in and around the landfill in locations where GPR characterization of EM-31 anomalies indicated a possible pipe or drum signature. Five excavations were performed on the Non-Combustible Fill Landfill, and five test pits were performed in and around the Ash Landfill. Test pits completed in the bend in the road area were TP-6 and TP-7.

Test pits were excavated to up to five feet deep using a backhoe. Upon completion all excavated material was returned to the pit and covered. Test pit logs are included in the RI report.

The logs from TP-6 and TP-7 indicate that the debris is mainly in the 0.5 to 4-foot range in the soil. About 0.5 feet of topsoil covers the debris, and 3 to 5 feet of soil lie between the bottom of the debris and the top of the shale bedrock. Much of the debris is scattered within the soil cover in the 0.5 to 4 foot range.

2.1.5 Contamination Assessment Summary

As discussed, the primary constituents of concern at the site are TCE and DCE. These are the most prevalent compound in the soil, and the major analytes present in the groundwater. Impacts from other chemicals such as the petroleum residues, PCBs, pesticides, and herbicides appears to be limited to a small area near the bend in the road, since these compounds were generally found in only a few samples.

The focus of this removal action will be to mitigate the impacts of TCE and DCE since these are the main groundwater contaminants, and since these compounds were found in almost all of the soil samples collected at the bend in the road. The goal of this removal action is to remove the source of groundwater contamination. The other constituents at the site will be addressed in the RI/FS process, which will include a baseline risk assessment.

After the soil headspace survey was completed, eight soil borings were collected just outside the two areas identified by the soil headspace survey as the primary source of the volatile organics. The locations of these eight borings are shown on **Figure 2-4**. While there were volatile organics present in several of the soil samples collected from these borings, the concentrations were generally well below the soil treatment criteria **(see Section 3)**. In fact, only one soil sample had a concentration greater than the soil cleanup objective concentration. The soil headspace survey was effective in delineating the source area of the volatile organic contamination.

2.1.6 National Priorities List Status

The SEDA is included on the federal facilities National Priorities List (NPL). This facility was first listed July 13, 1989.

2.2 ACTIONS TO DATE

2.2.1 Previous Actions

To date, activities at the site have been limited to investigative tasks. No remedial actions have been implemented at the Ash Landfill as part of the IRP. The previous investigations are summarized below and described in detail in the RI.

2.2.2 Army Pollution Abatement Program Study (USAEHA 1979)

The goal of this study was to determine the extent of leachate production and the impacts caused by activities at the Ash Landfill site. The study included installation and sampling of six (6) monitoring wells. The study concluded that groundwater samples from the wells adjacent to the two disposal areas showed evidence of leachate. Maximum contaminant levels for drinking water supplies as defined in the New York State Sanitary code were exceeded for sulfate and color. It was also concluded that these contaminants affect aesthetic quality, but did not represent a health hazard. Maximum contaminant levels were not exceeded for wells downgradient from these wells. Recommendations were made to establish a monitoring program for leachate.

2.2.3 Installation Assessment Report (USATHAMA 1980)

Areas of known or suspected waste disposal at SEDA were delineated in an Installation Assessment (1980) performed by USATHAMA. The investigation included a records search and interviews with current and former SEDA employees. The report identified the Ash Landfill site as having potential for contaminant migration.

Between 1980 and 1987 USAEHA installed five additional groundwater monitoring wells in the area of the Ash Landfill. The wells were installed to investigate the possibility of leachate entering the groundwater. It was reported that several indicator parameters (i.e., sulfate, chloride, specific conductance) were found in the groundwater samples collected from these wells indicating that the landfill had impacted the groundwater quality. Groundwater monitoring results (1986) submitted by USAEHA found that total organic halogens (TOX) was present in a downgradient well on the Ash Landfill site.

2.2.4 Evaluation of SWMU's (USAEHA 1987)

In July 1987, a Groundwater Contamination Survey, was conducted by USAEHA to identify, describe, and evaluate solid waste management units at SEDA. The Ash Landfill site was identified in this report as having a potential for impacting groundwater. Groundwater samples collected in March 1987 contained TCE and 1,2-DCE. It was speculated that these compounds were probably not due to the Ash Landfill contents but more likely associated with the refuse burning pits. Groundwater samples from three off-site wells located less than a quarter mile downgradient from the contaminated monitoring wells did not contain volatile organic compounds.

2.2.5 Quarterly Groundwater Monitoring (1987-Present)

Quarterly monitoring of the wells at the Ash Landfill was conducted from 1987 through the present. The study concluded that a plume with two main constituents, TCE and 1,2-DCE, was present. Compounds such as chloroform, 1,2-dichloroethane, and vinyl chloride were also detected. Subsequent groundwater sampling events from January 1990 through the present have confirmed the presence of these volatile organic compounds in the selected wells on the Ash Landfill site.

2.2.6 Geohydrologic Study (USAEHA 1987)

Soil samples were collected from eleven (11) soil borings during the USAEHA October 1987 study. Several volatile organic compounds were detected in these samples including TCE, 1-2-DCE and vinyl chloride. The highest concentration of volatile organics was detected in BH-29, approximately 300 feet north of the incinerator building.

2.2.7 RI/FS (USATHAMA 1989)

ICF (1989), retained by USATHAMA, undertook a Phase I Remedial Investigation (RI) of the landfill area for USATHAMA from September 1988 to February 1989. The scope of the site investigation included the following:

1. Soil sampling within the landfill area for volatile and metals analyses;
2. Groundwater sampling from 10 existing wells for volatile and metals analyses;
3. Surface water sampling;
4. Slug testing on several of the existing wells;
5. A soil-gas investigation; and
6. Terrain conductivity surveys using low-frequency electromagnetic (EM) induction and ground-penetrating radar (GPR).

The results of the investigation are discussed in the RI, in the EE/CA **(Appendix A)** and above. In general, the investigation indicated that the landfill contained fill materials and numerous buried metal debris. Volatile chlorinated compounds such as TCE, trans-1,2-DCE, and chloroform were detected in the soils. Metals were detected in the soils. Groundwater within the landfill contains volatile chlorinated hydrocarbons at levels that appear to have caused the formation of a downgradient plume extending at least to the western limits of SEDA property. The groundwater was investigated only in the shallow aquifer extending down to competent bedrock at a depth of approximately 10 feet below land surface (ft-bls.) The results of the investigation also indicated the potential presence of additional source areas to the north of the projected limits of the landfill.

2.2.8 RI/FS (MAIN/ES, 1990 through present)

In 1990, Chas. T. Main, Inc. (MAIN), retained by the COE, implemented an RI Workplan. The environmental division of MAIN became the Boston office of ES, a sister company of the Parsons Corporation in 1991. These techniques were used to further refine the magnitude of the contamination present, and to provide data to be used for the feasibility study. Much of the work conducted for the Phase II is described in the PSCR. The RI/FS report is currently in preparation.

2.3 STATE AND LOCAL ACTIONS TO DATE

There have been no related state or local actions to date at the SEDA Ash Landfill. However, state and local authorities have been active in reviewing the RI work plans and reports, and have provided oversight for the field work.

2.4 POTENTIAL FOR CONTINUED STATE/LOCAL RESPONSE

There are no known plans for state or local response at the site. The removal action proposed in this action memorandum will be conducted by the Army. State authorities will continue to be given the opportunity to review and comment on site documents.

3.0 THREATS TO PUBLIC HEALTH, WELFARE OR THE ENVIRONMENT; STATUTORY AND REGULATORY AUTHORITIES

The removal action program discussed in this action memorandum is proposed to address the potential threats discussed below.

3.1 THREATS TO PUBLIC HEALTH OR WELFARE

The contamination at the SEDA Ash Landfill poses a threat to public health or welfare through several mechanisms. The primary threat is through exposure to contaminated groundwater. TCE and its breakdown products are already present in the groundwater, and the contamination plume is believed to have migrated off the site. The presence of TCE and other contaminants in the soil also pose a potential threat of airborne exposure through volatilization or airborne particulate matter. Finally, the contaminated soil may pose a threat through soil exposure to SEDA post personnel, or to the general public in the future should the post property be opened to public use. **Tables 2-5 and 2-7** in the EE/CA **(Appendix A)** summarize the analytical results for the soil samples collected in the "bend in the road" area as part of the RI. These tables include results for volatile and semivolatile organic compounds, and metals.

3.2 THREATS TO THE ENVIRONMENT

The threats to the environment posed by the site have not been quantified. It is believed that there is a threat of exposure through the air pathway or soil exposure to the significant animal population on the site. In addition, surface water contamination from site runoff or groundwater surface water contamination poses a threat to aquatic life.

3.3 STATUTORY AUTHORITY

Authority for responding to releases or threats of releases from a hazardous waste site is addressed in section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended. The Army has been delegated the response authority for Army sites, whether or not the sites are on the National Priorities List of the U.S. Environmental Protection Agency (EPA). Under CERCLA section 104(b), the Army is authorized to investigate, survey, test, or gather other data required to identify the existence, extent, and nature of contaminants, including the extent of danger to human health or welfare and the environment. In addition, the Army is authorized to undertake planning, engineering, and other studies or investigations appropriate to directing response actions that prevent, limit, or mitigate the risk to human health or welfare and the environment.

3.4 ADDITIONAL JUSTIFICATION FOR REMOVAL ACTION

In addition to potential risks identified above, the following justification is offered for the proposed removal action:

- The State of New York has established cleanup criteria for remediation of contaminated soils. Those guidelines indicate that remediation is appropriate for this site since several constituents, most notably TCE and DCE exceed these criteria.

Upon completion of the removal action, the site would still be subjected to further investigatory activities within the CERCLA process to confirm acceptable cleanup, or to determine the requirement for additional remedial actions.

4.0 ENDANGERMENT DETERMINATION

Actual or threatened releases of pollutants and contaminants from this site, if not addressed by implementing the response action selected in this action memorandum, may present an endangerment to public health, welfare, or the environment.

5.0 PROPOSED ACTIONS AND ESTIMATED COSTS

5.1 PROPOSED ACTIONS

5.1.1 General Statement of the Removal Action Objectives

The establishment of action objectives and site-specific considerations forms a basis for identifying and selecting appropriate action alternatives. Action objectives must:

- Protect human health and the environment
- Address contaminants of concern, exposure routes, and receptors.

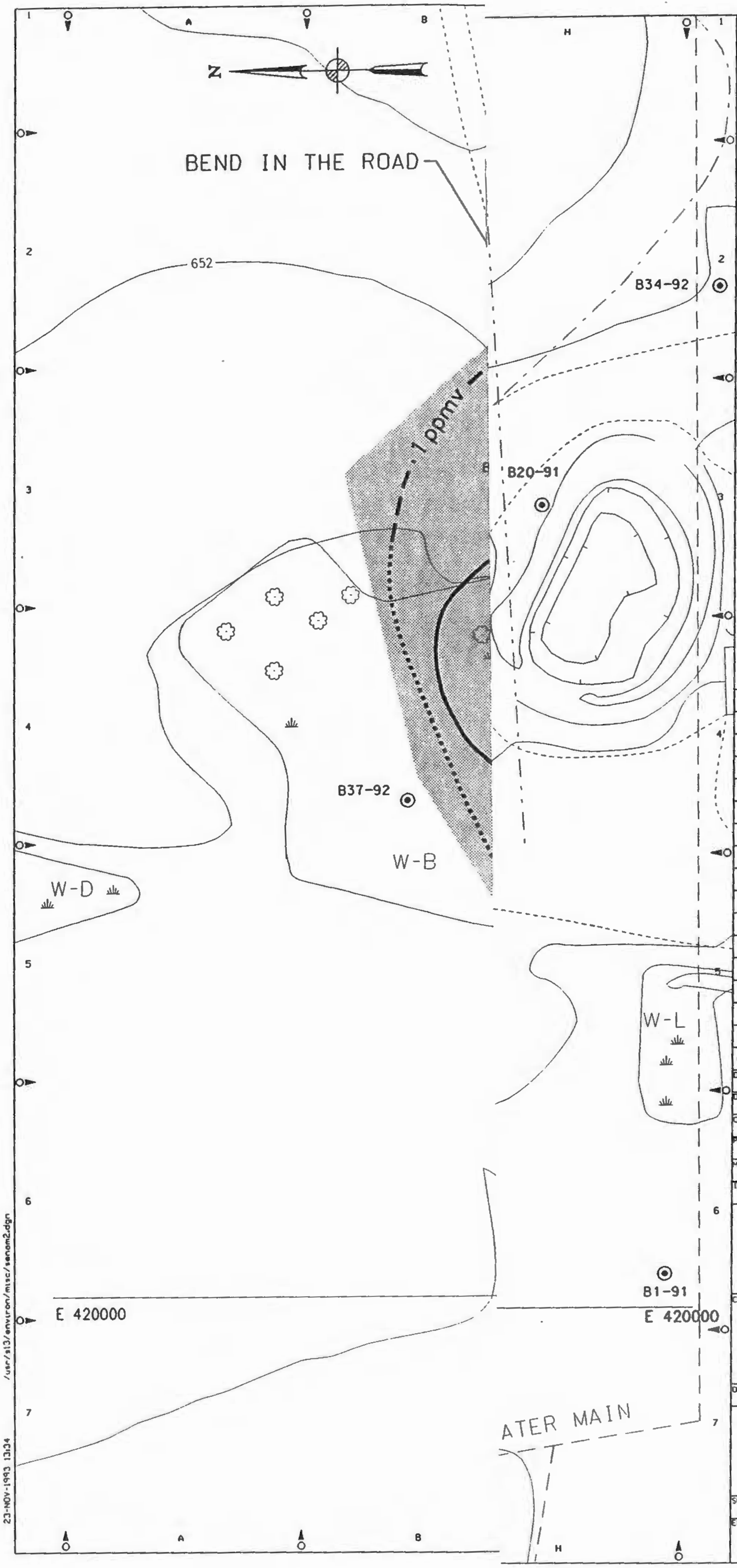
Applicable or relevant and appropriate requirements (ARARs) establish cleanup standards that can be used to define action objectives.

Several general objectives can be defined for the proposed action at the SEDA Ash Landfill. The primary objective is to eliminate the threat of continued groundwater contamination by removing the source of the contamination. Secondary objectives include completing all remedial activities on site, and in a manner which minimizes exposure to workers and the general public during the remedial activities.

5.1.2 Proposed Action Description

This section provides a brief summary of the removal action program and thermal desorption, the primary technology proposed for the removal action. A more detailed discussion appears in the EE/CA **(Appendix A)**.

The area to be remediated is highlighted in **Figure 5-1**. This area was determined during the soil headspace survey conducted by ES in April 1993. Confirmation of this area was obtained by the collection of eight soil borings, as described in Section 2. Areas outside the contours defined by the soil headspace survey were shown not to contain TCE, DCE, or vinyl chloride in excess of the NYSDEC SCGs.



LEGEND:

- PAVED ROAD
- DIRT ROAD
- GROUND CONTOUR AND ELEVATION (650)
- TREE
- WETLAND & DESIGNATION (W-B)
- APPROXIMATE EXTENT OF FILL
- OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
- PT-12 MONITORING WELL AND DESIGNATION
- B17-91 SOIL BORING & DESIGNATION
- TP-9 TEST PIT & DESIGNATION
- 1 ppmv SOIL GAS SURVEY CONTOUR FROM PHASE 1 REMEDIAL INVESTIGATION (DOTTED WHERE INFERRED)
- 50 Vs SOIL HEADSPACE SURVEY CONTOUR
- ICF (1989) SOIL GAS SURVEY >100ug/L TOTAL VOLATILES

REV	DATE	DESCRIPTION
B	11/93	DRAFT AM/EECA
A	7/93	PRELIM. DRAFT AM/EECA

DRAWN BY G.A.KAEUN — CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAEUN — RESP. ENGR. M.CURRY
CHIEF DISC. ENGR. M.E.BAKER — MGR. OF ENGR. J.P.CHAPUCK
PROJECT MANAGER M.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPUCK
IN CHARGE W.D.PATTERSON

DRAWN / CHECKED / DES.SUPV. / RESP.ENGR. / CH.DISC.ENG. / PROJ. MGR. / MF

ES
ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL

DEPT. ENVIRONMENTAL ENGINEERING — NO. 720489-01000

FIGURE 5-1
AREA OF CONCERN
REMEDIATION PLAN

SCALE 1" = 50'

ES'S DWG. NO. 720489-01000-5-1 — REV B

The removal action will be conducted in several steps. First, the soil and debris will be excavated, and the material stockpiled. Soil samples will be collected from the bottom and sides of the excavation and analyzed for volatile and semivolatile organics in order to ensure that no soil remaining in the ground exceeds the NYSDEC soil cleanup criteria. The stockpiled material will then be sized, and material too large to pass through the thermal desorption unit will be segregated. The large material will then be washed in a debris washing area. After being washed, the debris will be sent off-site to an approved nonhazardous waste landfill.

The material which is small enough for the thermal desorption unit will be passed through the treatment unit. The temperature in the unit will be maintained at a minimum of 400°F. The treated soil will be stockpiled after passing through the unit, and allowed to cool prior to sampling. If the treated material passes the post-treatment sampling, it will be ready to be backfilled. Any soil which fails the post-treatment sampling will be reprocessed. The treated soil will be analyzed for volatiles and semivolatile organics, and will be sampled at a rate of one sample per every 100 cubic yards of soil.

The offgas from the treatment unit will pass through several treatment units. The exact type and order of these units will vary depending on the contractor, but in general there will be an organic treatment unit and a particulate treatment unit. The organic treatment unit will likely be an afterburner, or a catalytic or thermal oxidizer. Particulate control will likely consist of a baghouse.

The treated soils will be backfilled into the excavation. Clean fill will be brought on site to account for the debris sent off site and any other volume reductions which may occur during treatment. The site will be brought to grade, and seeded with native vegetation.

5.1.3 Contribution to Remedial Performance

The purpose of this action is to remove the source of TCE and DCE contamination at the site and thereby reduce the potential for further contamination of soils and groundwater. While not the primary concern of the removal action, other organics present at the site, including semivolatiles can be treated by thermal desorption. This technology should minimize the potential for future remedial actions.

5.1.4 Description of Alternative Technologies

The NCP requires that alternative technologies (technologies which are not land disposal) be evaluated. Two treatment technologies which are alternative technologies to land disposal were evaluated in detail for potential use at the SEDA Ash Landfill. These were thermal desorption and incineration, two technologies which use heat to treat volatile organic contamination. Offsite disposal, which was also evaluated in detail is considered a land disposal technology. A complete description of these technologies, along with the rationale for selecting Low Temperature Thermal Desorption is in the EE/CA **(Appendix A).**

5.1.5 Engineering Evaluation/Cost Analysis

In order to determine the appropriate remedial technology for the SEDA Ash Landfill, an EE/CA was conducted. The EE/CA is included as **Appendix A** of this report. The EE/CA contains a brief summary of the site history and the results of previous investigations.

The main focus of the EE/CA is an evaluation of the different remedial technologies. A number of technologies were considered, with thermal desorption, SVE, incineration, and offsite disposal evaluated in detail. A complete discussion of the evaluation process is included in the EE/CA **(Appendix A).** A brief overview of thermal desorption is provided above.

5.1.6 Institutional Controls

There are no institutional controls required for this action. The requirement for institutional controls will be addressed as part of the overall remedial action.

5.1.7 Off-Site Disposal Policy

It is anticipated that no materials classified as hazardous waste will be generated during this removal action. All nonhazardous waste (construction debris, etc.) will be disposed in an approved nonhazardous waste landfill.

5.1.8 Post-Removal Site Control Activities

The depot is fenced and patrolled by armed guards to limit access.

5.1.9 QA/QC Plan

The remedial contractor will be required to develop a QA/QC plan which will be submitted to the appropriate agencies for approval. This plan will address both detailed and broad QA/QC issues. Detailed requirements include sampling and analytical protocols. The broader aspects will address the procedures necessary to ensure that the excavation, sizing, debris washing, and thermal desorption procedures are conducted for accordance with the specifications.

Additional QA/QC will be provided by a 3rd party oversite contractor. The oversight contractor will be responsible for monitoring the removal action activities, including taking confirmation soil samples.

5.2 ARARs

Pursuant to section 300.415(i) of the NCP, the removal action for the site "shall,to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws." ARARs are used to identify removal action objectives, formulate removal action alternatives, govern the implementation and operation of a selected removal action, and evaluate the appropriate extent of site cleanup.

In 40 CFR 300.5 EPA defines applicable requirements as those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are defined as those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

Any standard, requirement, criterion, or limitation under any federal environmental or state environmental or facility siting law may be either applicable or relevant and appropriate to a specific action. The only state laws that may become ARARs are those promulgated such that they are legally enforceable and generally applicable and equivalent to or more stringent than federal laws. A determination of applicability is made for the requirements as a whole, whereas a determination of relevance and appropriateness may be made for only specific portions of a requirement. An action must comply with relevant and appropriate requirements to the same extent as an applicable requirement with regard to substantive conditions, but need not comply with the administrative conditions of the requirement.

Three categories of ARARs have been analyzed: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs address certain contaminants or a class of contaminants and relate to the level of contamination allowed for a specific pollutant in various environmental media (water, soil, air). Location-specific ARARs are based on the specific setting and nature of the site. Action-specific ARARs relate to specific actions proposed for implementation at a site, include SVE technology for the treatment of soils, filtration and carbon adsorption for the treatment of groundwater and carbon adsorption of catalytic incineration for the treatment of air. A full discussion of the potential ARARs for this removal action are in the EE/CA **(Appendix A)**. Listed below are the ARARs specific to the selected technology.

5.2.1 Chemical-Specific ARARs

Chemical-specific ARARs are usually health or risk-based standards limiting the concentration of a chemical found in or discharged to the environment. They govern the extent of site remediation by providing actual cleanup levels, or the basis for calculating such levels for specific media. These requirements also apply to air emissions during the removal action. A number of federal and state regulations may be used for this site. These include the following:

Air Quality

- 40 CFR part 50.12 (applicable): Ambient Air Quality Standard for Lead. Lead concentrations in the ambient air shall not exceed 1.5 micrograms lead per cubic meter of air, 90-day average.

- 40 CFR part 50.6 (applicable): Ambient Air Quality Standard for PM-10. PM-10 concentrations in the ambient air shall not exceed the following: 24—hour average, 150 micrograms per cubic meter of air; annual average, 50 micrograms per cubic meter of air.

- 40 CFR part 61 (applicable and relevant and appropriate): National Emission Standards for Hazardous Air Pollutants. This regulation requires the minimization of emissions, specifies emissions tests and monitoring requirements, and sets limits on several hazardous air pollutants.

- 40 CFR part 58 (applicable): Ambient Air Quality Surveillance. This part defines quality assurance requirements, monitoring methods, instrument siting, and operating schedule for ambient air quality surveillance.

- 40 CFR part 52 (applicable): Approval and Promulgation of Implementation Plans. This part defines general provisions for the contents of state implementation plans (SIPs).

- 6 NYCRR part 256 (applicable): Air Quality Classification System. This regulation defines four general levels of social and economic development for geographical areas in New York. SEDA is Level II.

- 6 NYCRR subpart 257-1 (applicable): Air Quality Standards General.

- 6 NYCRR subpart 257-3 (applicable): Air Quality Standards-Particulates. Suspended particulates shall not exceed 250 mg/m^3 more than once a year. Annual standard -55 $\mu g/m^3$, 30-day standard - 100 $\mu g/m^3$, 60-day standard - 85 $\mu g/m^3$, 90-day standard - 80 $\mu g/m^3$, standard for settleable solids - 50 percent of the values of the 30 day average concentrations shall not exceed 0.30 $mg/cm^2/mo$; - 84 percent shall not except 0.45 $mg/cm^2/mo$.

- 6 NYCRR subpart 257-6 (applicable): Air Quality Standards - Hydrocarbons (non methane). Three hour standard measured from 6 to 9 am - 0.24 ppm.

- NYSDEC Air Guide - 1 (TBC): This document provides guidance for the control of toxic ambient air contaminants in New York state including guidance on the following contaminants of concern.

  Trichloroethene - 33,000 $\mu g/m^3$ SGC; 4.5 E-01 $\mu g/m^3$ AGC
  Dichloroethene - 14,000 $\mu g/m^3$ SGC; 1900.0 $\mu g/m^3$ AGC
  Vinyl Chloride - 1300 $\mu g/m^3$ SGC; 2.0 E -02 $\mu g/m^3$ AGC

Water Quality

There are a number of water quality standards which are potential ARARs for this removal action. These are summarized in **Table 3-1** of the EE/CA **(Appendix A)** and described below.

- 40 CFR part 131 (applicable): Water Quality Standards. This part implements section 101 of the Clean Water Act (CWA), which specifies the national goals of eliminating the discharge of pollutants, prohibiting the discharge of toxic pollutants in toxic amounts, and implementing programs for control of nonpoint sources.

- 40 CFR part 131.12 (applicable): Antidegradation Policy. Establishes standards to prevent a body of water which has an existing high standard from degrading to a lower standard.

- 40 CFR part 141 (applicable): National Primary Drinking Water Regulations. This part establishes primary drinking water regulators pursuant to Section 1412 of the Public Health Service Act as amended by the Safe Drinking Water Act.

- 40 CFR part 141.11 (applicable): Maximum Inorganic Chemical Contaminant Levels. This section establishes maximum contaminant levels (MCLs) for inorganic chemicals including the following:

Constituent	Level mg/L
Arsenic	0.05
Barium	1.0
Cadmium	0.010
Chromium	0.05
Lead	0.05

Mercury	0.002
Selenium	0.01

- 40 CFR part 141.12 (applicable): Maximum Organic Chemical Contaminant Levels. This section establishes MCLs for organic chemicals including the following:

Constituent	Level mg/L
TCE	0.005
Benzene	0.005
Total trihalomethanes	0.10

- 40 CFR part 264 subpart F (relevant and appropriate): Releases from Solid Waste Management Units. Standards for protection of groundwater are established under this citation.

- 40 CFR Part 403 (applicable): Pretreatment Standards for the Discharge of Treated Site Water to a Publicly Owned Treatment Works (POTW). This part establish pretreatment standards for the discharge of wastewater to POTWs.

- 6 NYCRR Chapter X (relevant and appropriate): This chapter establishes the requirements of the State Pollutant Discharge Elimination System.

- 6 NYCRR Subparts 701 and 702 (applicable): These subparts establish surface water standards for protection of drinking water and aquatic life.

- 6 NYCRR Subpart 703 (applicable): This subpart establishes groundwater standards specified to protect groundwater for drinking water purposes.

- 6 NYCRR Subpart 375 (relevant and appropriate): This subpart contains the New York State rules for inactive hazardous waste disposal sites.

- 6 NYCRR Subpart 373-2.6 and 373-2.11 (applicable): This regulation requires groundwater monitoring for releases from solid waste management units.

- 6 NYCRR Subpart 373-2 (relevant and appropriate): This regulation establishes postclosure care and groundwater monitoring requirements.

- 10 NYCRR Part 5 (relevant and appropriate): This regulation establishes criteria for drinking water supplies.

- NYSDEC Tags 1.1.1 (relevant and appropriate): This document compiles water quality standards and guidance values for use in NYSDEC program.

Soil Quality

- 6 NYCRR Subpart 375 (relevant and appropriate): This subpart contains the New York State rules for inactive hazardous waste disposal sites. Specifically, cleanup levels for hazardous constituents in soil have been proposed by the State of New York (NYSDEC TAGM #HWR-92-4046). These levels are shown in **Table 3-2** in the EE/CA **(Appendix A)** for constituents detected at the Ash Landfill. The primary chemicals of concern at the SEDA Ash Landfill for this removal action are chlorinated hydrocarbons, specifically TCE, DCE, and vinyl chloride, though several other compounds exceed the target cleanup levels.

  The potential ARARs for soils for this removal action are summarized in **Tables 3-2 and 3-3** in the EE/CA **(Appendix A)**. Specifically for this action this subpart will be used to establish the removal action clean up goals for TCE and DCE.

5.2.2 Location-Specific ARARs

Location-specific ARARs govern natural site features such as wetlands, floodplains, and sensitive ecosystems, and manmade features such as landfills, disposal areas, and places of historic or archaeological significance. These ARARs generally restrict the concentration of hazardous substances or the conduct of activities based solely on the particular characteristics or location of the site. Federal and State regulations which may apply to this removal action include the following:

Endangered Species

- 40 CFR part 257.3-2 (relevant and appropriate): Facilities or practices shall not cause or contribute to the taking of any endangered or threatened species.

Location Standards

- 40 CFR part 264.18 (relevant and appropriate): Location Standards for Hazardous Waste Facilities. The general requirements for locating a hazardous treatment, storage, or disposal facility are found in this section. They include provisions for seismic considerations and floodplains.

- 40 CFR part 241.202 (applicable): Site selection shall be consistent with public health and welfare. It shall also be consistent with land-use plans and air and water quality standards.

Antiquities

- 16 USC part 469a-1 (applicable): The Archaeological and Historic Preservation Act requires that action be taken to recover and preserve artifacts.

- 36 CFR part 800 (relevant and appropriate): Action must be taken to preserve historic properties. Actions must be planned to minimize harm to national historic landmarks.

5.2.3 Action-Specific ARARs

Action-specific ARARs are usually technology- or activity-based- limitations that control actions at hazardous waste sites. Action-specific ARARs generally set performance or design standards, controls, or restrictions on particular types of activities. To develop technically feasible alternatives, applicable performance or design standards must be considered during the development of all removal alternatives. Action-specific ARARs are applicable to this site. The action-specific ARARs to be used will be determined by the Army based upon the technology chosen. Federal and State regulations which may apply include the following:

Solid Waste Management

There should be very little solid waste generated as a result of this removal action. One possible waste would be spent carbon canisters. The remedial contractor would be responsible to dispose or regenerate the canisters off-site.

Hazardous Waste Management

No hazardous wastes should be generated as a result of this action; however, if hazardous wastes were generated, they would be disposed of in accordance with 40 CFR Parts 264 and 265.

Occupational Health and Safety Administration

- 29 CFR part 1910.50 (applicable): Occupational Noise. No worker shall be exposed to noise levels in excess of the levels specified in this regulation.

Transportation of Hazardous Waste

- 49 CFR Part 171 (applicable): General information, regulations, and definitions. This regulation prescribes the requirements of the DOT governing the transportation of hazardous material.

- 40 CFR Part 172 (applicable): Hazardous materials table, special provisions, Hazardous Materials Communications, Emergency Response Information, and Training requirements. This regulation lists and classifies those materials which the DOT has designated to be hazardous materials for the purpose of transportation and prescribes the requirements for shipping papers, package marking, labeling and transport vehicle placarding applicable to the shipment and transportation of those hazardous materials.

- 49 CFR Part 177 (applicable): Carriage by Public Highway. This regulation prescribes requirements that are applicable to the acceptance and transportation of hazardous materials by private, common, or contract carriers by motor vehicle.

Incineration

- 40 CFR Part 264 Subpart O and 6 NYCRR Subpart 373-2.15 are not applicable or relevant and appropriate for the catalytic incineration of SVE off-gases.

5.3 PROJECT SCHEDULE

The overall project schedule is shown in **Figure 5-2** of the EE/CA. The total duration for the removal action after regulatory approval is several months. It is anticipated that this project will be put out for bid in February 1994 and that removal action will be completed by October

5.4 ESTIMATED COSTS

The following cost estimate for thermal desorption is based upon a preliminary estimate provided by Canonie which was one of three (3) vendors that provided a cost estimate. A more detailed cost estimate will be prepared in accordance with details and format of the Huntsville Division Design Manual for Architect Engineers.

	Task	Cost
1.	Work Plan, Health and Safety Plan	
2.	Permitting, Mobilization	
3.	Offsite Disposal of Spent Carbon	
4.	Site Restoration	
5.	Demobilization	
	SUBTOTAL (items 1 through 5)	$450,000
6.	Excavation	
7.	Material Handling	
8.	Thermal Treatment	
9.	Confirmational Sampling	
10.	Air Monitoring	
	SUBTOTAL (items 6 through 10)	$2,280,000
	SUBTOTAL	$2,730,000
	Contingency (10%)	273,000
	Oversight	150,000
	TOTAL	**$3,153,000**

6.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If this removal action is delayed or not taken, several changes in site conditions would occur:

- Some lateral and vertical migration of the contaminants can be expected. The migration could occur through several mechanisms, including transport of water-soluble constituents through infiltration or runoff. Groundwater at the site is already contaminated, and this contamination will likely worsen over time should the source remain in the soils.

- The contamination in the soil is likely to migrate slowly over time. Much of the contamination is at or near the water table, and can be carried in the water.

7.0 OUTSTANDING POLICY ISSUES

This section is not applicable to this removal action since the lead agency for this site is the Army, and not the EPA or NYSDEC.

8.0 ENFORCEMENT

This section is not applicable to this removal action since the lead agency, the Army is the Principle Responsible Party for this site, and is taking responsibility for the removal action.

9.0 RECOMMENDATION

The remedial technique recommended for this site is thermal desorption. This technology has been effective at other sites with similar contamination. In addition, this technology can be implemented quickly, is cost-effective, can treat the other constituents present at the site, and can be completed in a timely manner.

This decision document represents the selected removal action for the Seneca Army Depot Ash Landfill located in Romulus, New York, developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the site.

APPENDIX A

EE/CA

PRELIMINARY DRAFT EE/CA
TABLE OF CONTENTS

FIGURES

TABLES

ABBREVIATIONS AND ACRONYMS

AM	Action memorandum
ARAR	Applicable or relevant and appropriate requirements
AQCR	Air Quality Control Region
B	Soil Boring Designation
bgl	Below ground level
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cm/sec	Centimeter per second
CWA	Clean Water Act
2,4-DB	4-(2,4-Dichlorophenoxy) butanoic acid
DCE	Dichloroethene
DDD	1,1-dichloro-2,2-bis(p-chlorophenyl)ethane
DDT	1,1-(2,2,2-Trichloroethylidene)bis[4-chlorobenzene]
DOD	Department of Defense
DOT	Department of Transportation
EE/CA	Engineering evaluation/cost analysis
EPA	United States Environmental Protection Agency
ES	Engineering-Science, Inc.
FS	Feasibility Study
GC	Gas chromatograph
IRP	Installation restoration program
m	meter
m/s	meter per second
MAIN	Parsons-Main, Inc.
MCL	Maximum Contaminant Level
MCPP	($\pm$)-2-(4-chloro-2-methylphenoxy)-propanoic acid
μg/kg	micrograms per kilogram
μg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ML	Non Plastic or Low Plasticity Fines Low Liquid Limit
MW	Monitoring well
MSL	Mean Sea Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOAA	National Oceanic and Atmospheric Administration

ABBREVIATIONS AND ACRONYMS - Continued

NPDES	National Pollutant Discharge Elimination System
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
O&M	Operations and maintenance
OSHA	Occupational Safety and Health Administration
PA	Preliminary assessment
PAH	Polynuclear aromatic hydrocarbon
PA/SI	Preliminary assessment/site investigation
PCB	Polychlorinated biphenyl
PM	Particulate Matter
ppmv	Part Per Million by Volume
ppmw	Part Per Million by Weight
POTW	Publically-Owned Treatment Works
PSCR	Preliminary Site Characterization Report
PT	Monitoring well designation
RCRA	Resource Conservation and Recovery Act
RETEC	Remediation Technologies Incorporated
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
RQD	Rock quality designation
SB	Soil boring
SCG	Standards, Criteria, or Guidelines
SCS	Soil Conservation Service
SDWA	Safe Drinking Water Act
SEAD	Seneca Army Depot
SG	Soil gas survey designation
SI	Site investigation
SIP	State Implementation Plan
SOV	Soil organic vapor
SPDES	State Pollutant Discharge Elimination System
SVE	Soil vapor extraction
TAGM	Technical and Guidance Memorandum
TARGET	Target Environmental, Inc.
TBC	To be considered
TCE	Trichloroethene
TP	Test pit
TPH	Total petroleum hydrocarbons

ABBREVIATIONS AND ACRONYMS - Continued

USACE	U.S. Army Corps of Engineers
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
UST	Underground storage tank
VOA	Volatile organic analysis
VOC	Volatile organic compounds
Vs	Volt-second

1.0 INTRODUCTION

1.1 PURPOSE, SCOPE, AND OBJECTIVES

This Engineering Evaluation/Cost Analysis (EE/CA) has been prepared for the Ash Landfill site at the Seneca Army Depot (SEDA) by Engineering-Science (ES) in support of the proposed removal action for soils at the SEDA Ash Landfill. ES has been retained by the United States Army Corps of Engineers (USACE) Huntsville Division as part of their remedial response activities under the Comprehensive Environmental Responsibility, Compensation, and Liability Act (CERCLA) to perform these activities.

This report is based on the finding of the remedial investigation (RI) conducted at the SEDA Ash Landfill. Activities conducted as part of the RI included: soil gas surveys, soil borings to gather stratigraphic information, soil samples for analytical testing, construction of piezometers to determine groundwater flow direction, and construction and sampling of overburden and bedrock groundwater monitoring wells.

The purpose of this remedial action is to mitigate the soure of Trichloroethene (TCE) and Dichloroethene (DCE) in the "bend-in-the-road" area adjacent to the Ash Landfill and thereby reduce the chance of further degradation of soils and groundwater. Other potential constituents of concern identified in the RI, including metals and PAHs are not the focus on this action.

The removal action will be completed in parallel to the RI/FS process, between the RI and the Feasibility Study (FS). Once this remedial action is complete, this site will return to the RI/FS process. This expidited remedial action is part of an Army approach to streamline the RI/FS process where possible. The outcome of this action will then be incorporated into the final Record of Decision (ROD) document. If following the risk assessment, unacceptable risk remains, additional remedial actions may be considered.

As an expedited FS, the EE/CA is an evaluation of the removal action alternatives for a site. The purpose of the EE/CA is to present the following:

- Assess the study area characteristics and justify the need for a removal action
- Identify removal action objectives

- Identify removal action technologies
- Evaluate removal action technologies
- Propose a removal action which will achieve the removal action objectives.

Additionally, the EE/CA serves as a basis for the action memorandum and the design the removal action. The action memorandum documents the need for a removal action and the decision process leading to a removal action.

The overall objective of a removal action is to eliminate or reduce the threats to human health or to the environment. The primary threat from the soil at this site is the potential for uncontrolled releases of hazardous constituents from the subsoils to the groundwater. The removal and/or proper treatment of these soils are necessary for the protection of human health and the environment.

1.2 STATUTORY AUTHORITY

Authority for responding to releases or threats of releases from a hazardous waste site is addressed in section 104 of CERCLA, as amended. The Army has been delegated the response authority for Army sites, whether or not the sites are on the National Priorities List of the U.S. Environmental Protection Agency (EPA). Under CERCLA Section 104(b), the Army is authorized to investigate, survey, test, or gather other data required to identify the existence, extent, and nature of contaminants, including the extent of danger to human health or welfare and the environment. In addition, the Army is authorized to undertake planning, engineering, and other studies or investigations appropriate to directing response actions that prevent, limit, or mitigate the risk to human health or welfare and the environment.

2.0 SITE CHARACTERIZATION

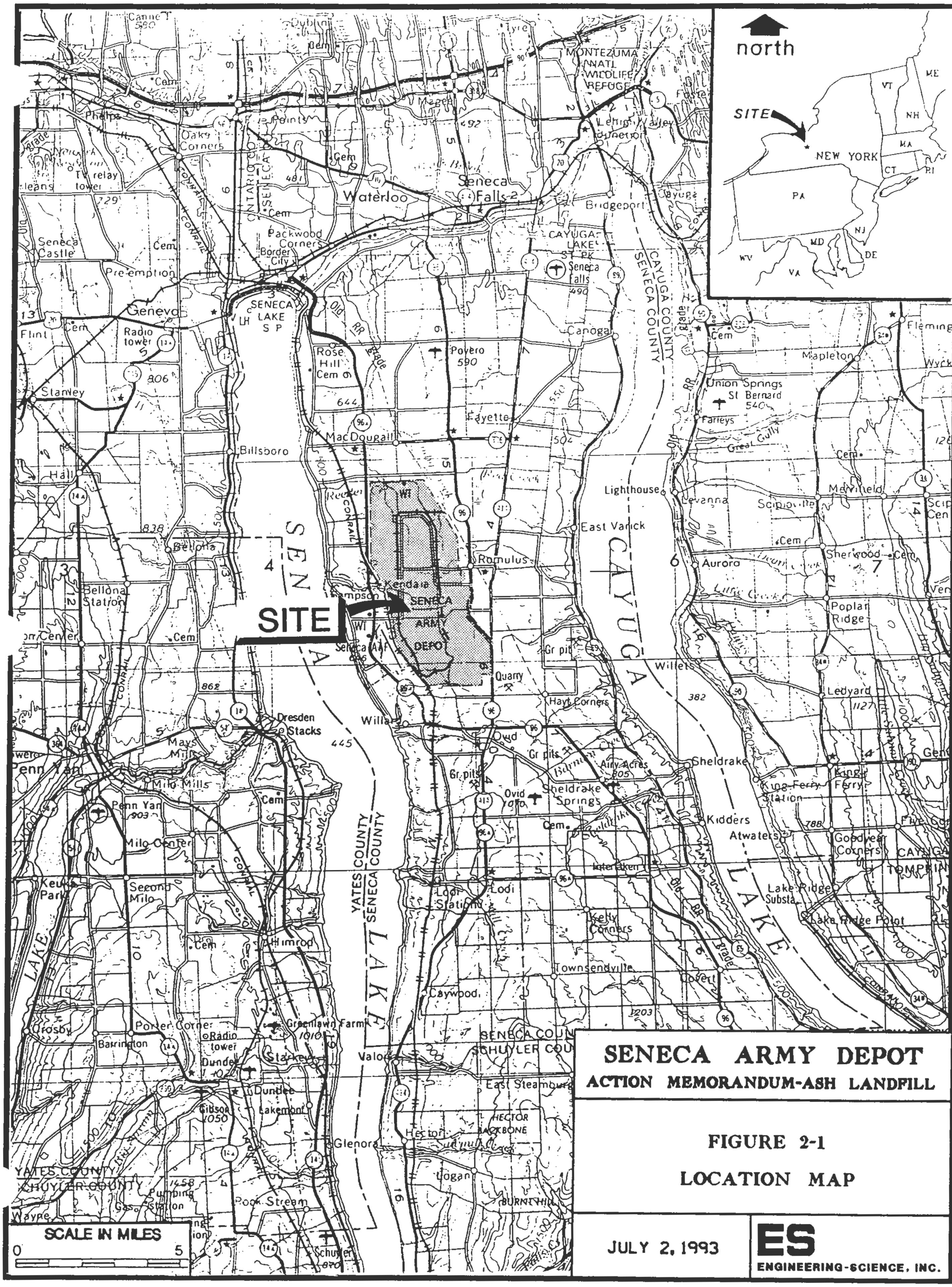
2.1 BASE DESCRIPTION AND HISTORY

This section provides a brief overview of SEDA and site background information. A more detailed discussion can be found in the RI report (USATHAMA, 1989) and the Remedial Investigation (RI) for the Ash Landfill (ES, 1993).

The SEDA facility is situated on the western flank of a topographic high between Cayuga and Seneca lakes in the Finger Lakes region of central New York **(Figure 2-1)**. Within the SEDA is the approximately 130 acre Ash Landfill site, located about 2,000 feet east of the northwestern extension of the SEDA airstrip in the southwestern portion of the 10,587-acre SEDA facility in Romulus, New York **(Figure 2-2)**. The 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. The post generally consists of an elongated central area for storage of ammunitions and weaponry in quonset-style buildings, an operations and administration area in the eastern portion, and an army barracks area at the north end of the depot. The base was expanded to encompass a 1,524-meter airstrip, formerly the Sampson Air Force Base. The mission of the SEDA has been primarily the management of munitions. Currently, SEDA is used for the following purposes: 1) receiving, storing, and distributing ammunition and explosives, 2) providing receipt, storage, and distribution of items that support special weapons and 3) performing depot-level maintenance, demilitarization, and surveillance on conventional ammunition and special weapons. The depot formerly employed approximately 1,000 civilian and military personnel. Within the last year the facility has undergone a downsizing and no longer houses a large contingent of military personnel.

The site consists of an abandoned incinerator building and stack (Building 2207), a former cooling pond, an ash landfill, and a nearby Non-Combustible Fill Landfill **(Figure 2-3)**. The site is bounded on the north by Cemetery Road, on the east by a SEDA railroad line, on the south by undeveloped SEDA land, and on the west by the depot's boundary. Beyond the depot's western boundary are farmland and residences on Smith Farm Road and along Route 96A. Sampson State Park near Seneca Lake is further to the west.

From 1941 to 1974, uncontaminated trash was burned in a series of burn areas east of the abandoned incinerator building. According to the AEHA Interim Final Report, Groundwater Contamination Survey No. 38-26-0868-88 (July 1987), during this same period

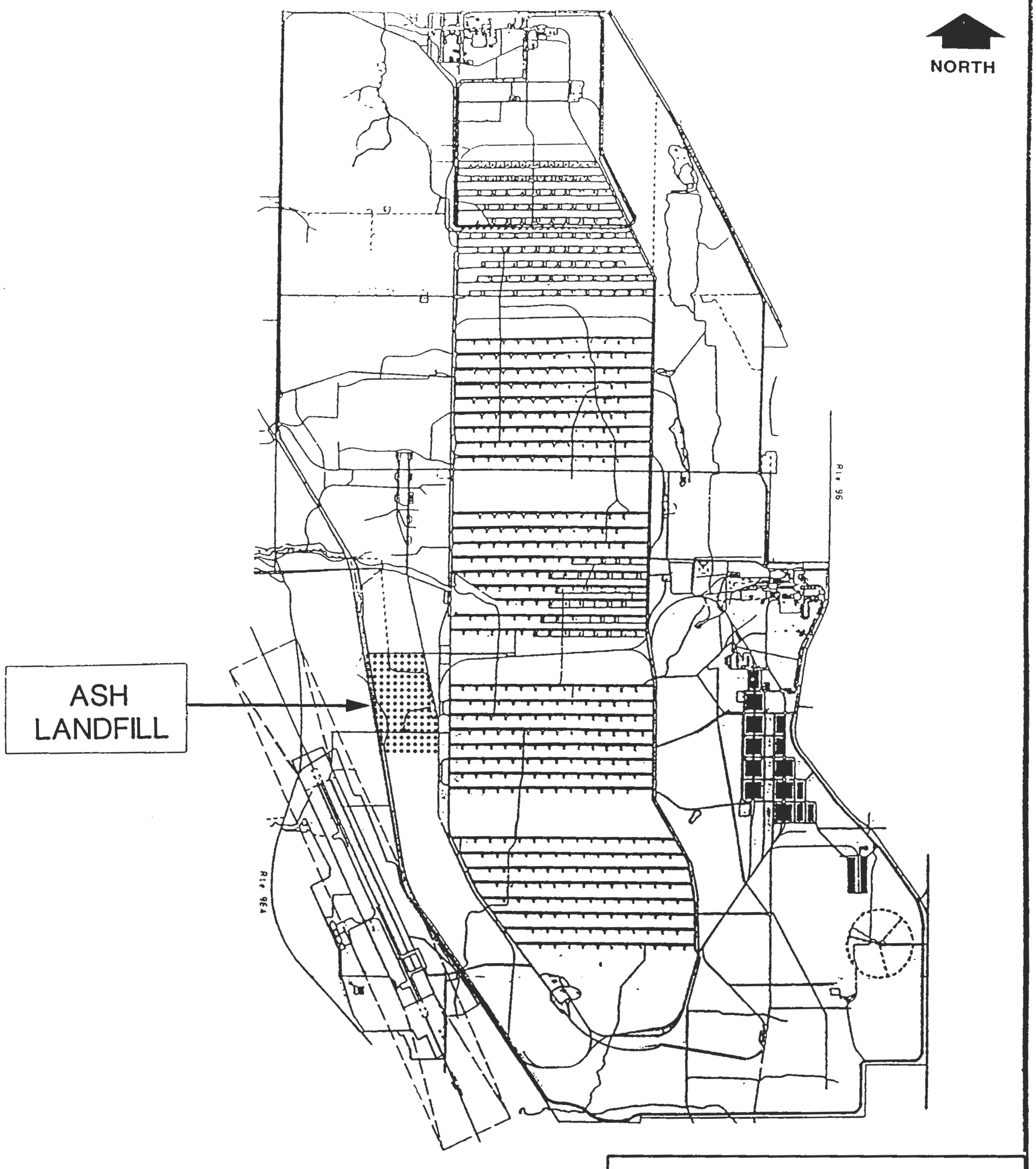


SENECA ARMY DEPOT
ACTION MEMORANDUM-ASH LANDFILL

FIGURE 2-1
LOCATION MAP

JULY 2, 1993

ES
ENGINEERING-SCIENCE, INC.

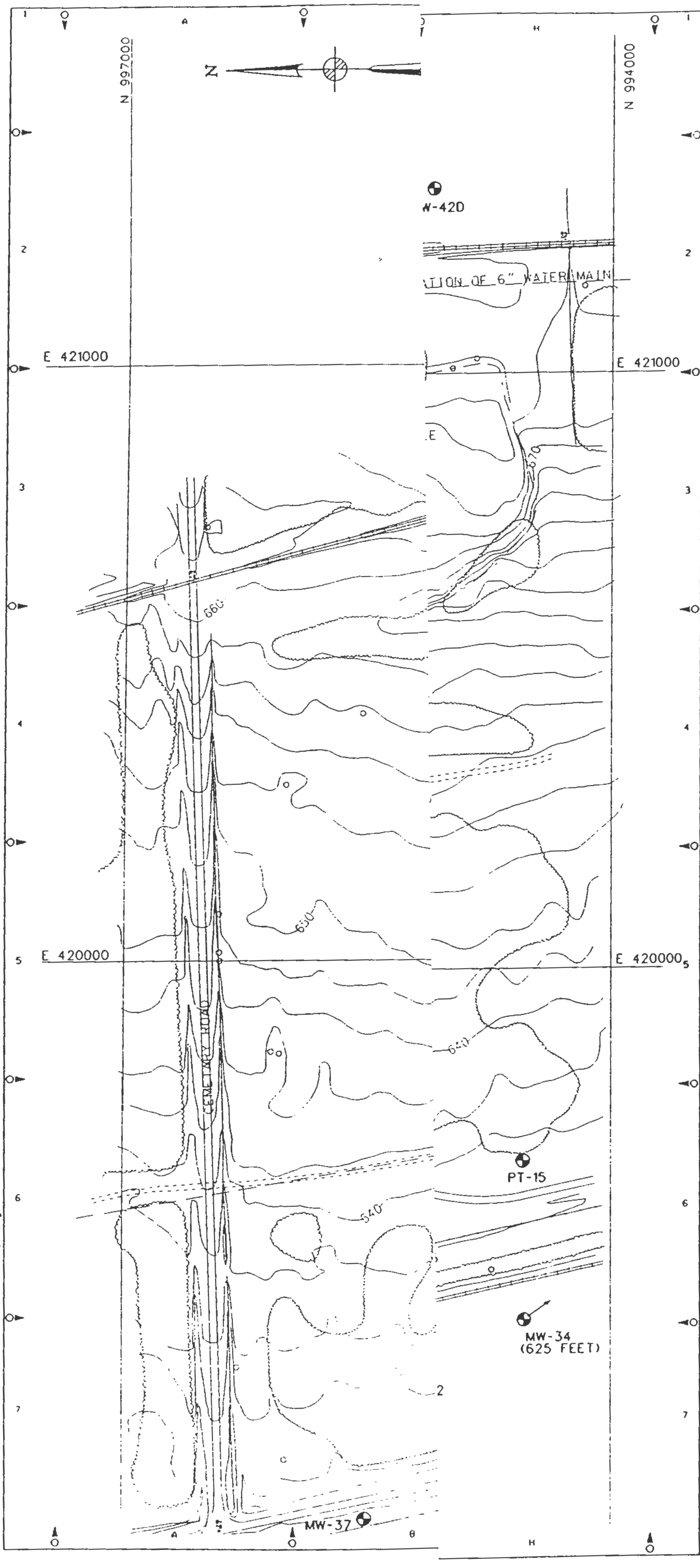


SENECA ARMY DEPOT
ACTION MEMORANDUM-ASH LANDFILL

FIGURE 2-2
LOCATION OF ASH LANDFILL
AT THE SENECA ARMY DEPOT

JULY 2, 1993

ES
ENGINEERING-SCIENCE, INC.



LEGEND:

- PAVED ROAD
- DIRT ROAD
- GROUND CONTOUR AND ELEVATION
- TREE
- WETLAND & DESIGNATION (W-6)
- APPROXIMATE EXTENT OF FILL
- OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
- APPROXIMATE EXTENT OF DEBRIS PILE
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- FUEL OR UNDERGROUND STORAGE TANK
- SURVEY MONUMENT (SEAD-1 EL. 630.90')
- MONITORING WELL & DESIGNATION (MW-40)

REV	DATE	DESCRIPTION
B	11/93	DRAFT AM/EECA
A	7/24/93	PRELIM. DRAFT AM/EECA

DRAWN BY G.A.KAELIN — CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAELIN — RESP. ENGR. M.CURRY
CHIEF DISC. ENGR. M.E.BAKER — MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER M.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPLICK
IN CHARGE W.D.PATTERSON

ES
ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL

DEPT. ENVIRONMENTAL ENGINEERING — NO. 720489-01000

FIGURE 2-3
ASH LANDFILL AREA
SITE PLAN

SCALE 1" = 250'

ES DWG. NO. 720489-01000-2-3 — REV B

of time (1941 until the late 1950's or early 1960's) the ash from the refuse burning areas was buried in the landfill.

The incinerator, built in 1974, was a multiple chamber, batch-fed unit which burned rubbish and garbage. Nearly all of the approximately 18 tons of refuse generated per week on the depot were incinerated. The source for the refuse was domestic waste from depot activities and family housing. Large items which could not be burned were disposed of at the Non-Combustible Fill Landfill. The Non-Combustible Fill Landfill was used from 1969 through 1977.

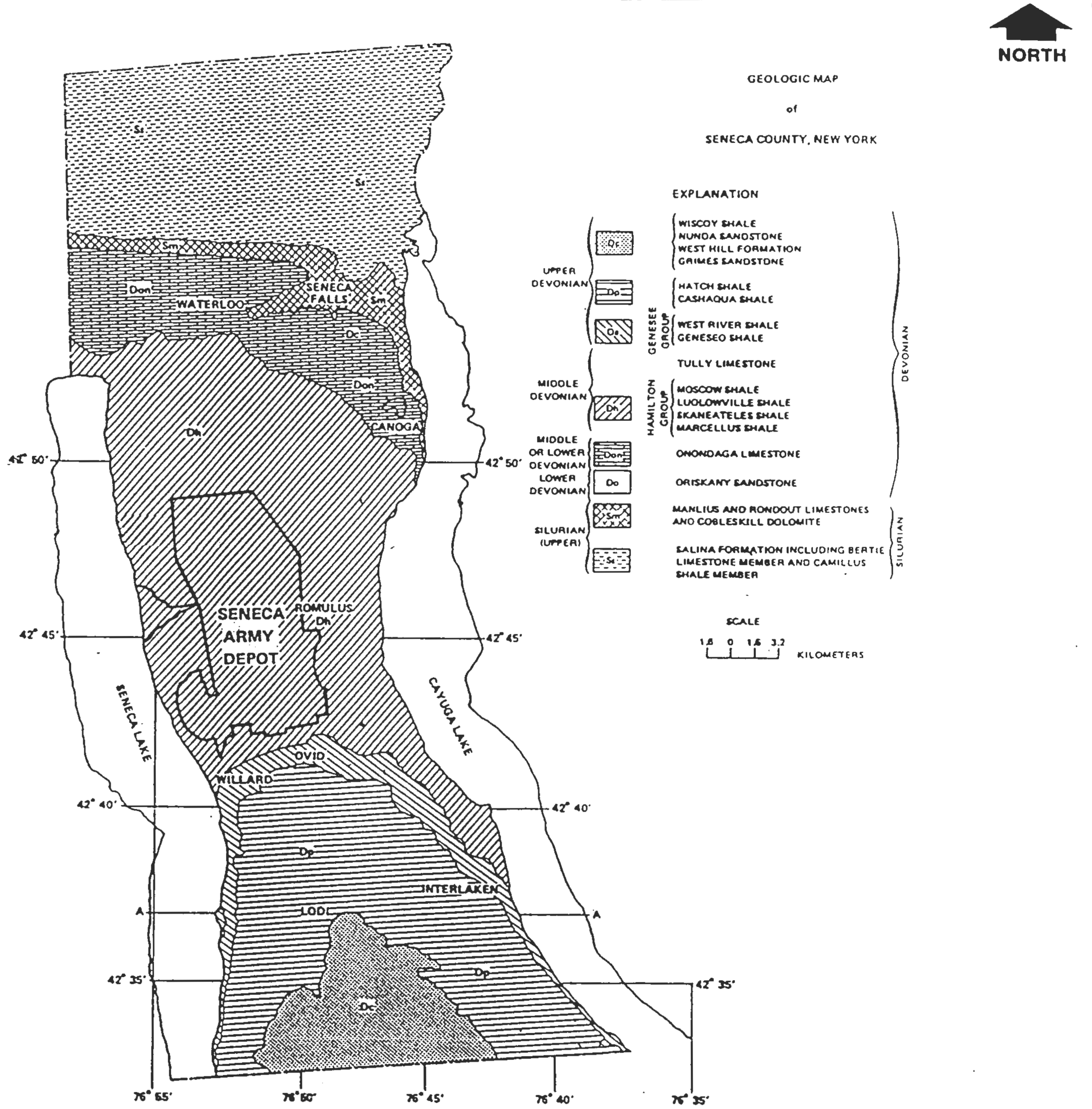
Ashes and other residues from the incinerator were temporarily disposed of in an unlined cooling pond immediately north of the incinerator building. The cooling pond consisted of an unlined depression approximately 50 feet in diameter and approximately 6 to 8 feet deep. When the pond filled (approximately every 18 months), the fly ash and residues were removed, transported, and buried in the adjacent landfill east of the cooling pond. The refuse was dumped in piles and occasionally spread and compacted. The active area of the Ash Landfill extended at least 500 feet north at the incinerator building near a bend in a dirt road, based on an undated aerial photograph of the incinerator during operation. Parallel grooves at the northernmost extent of the filled area are visible in the aerial view of the incinerator and adjacent fill area during active operation and indicate that the fill was spread using a bulldozer or similar equipment. The incinerator was destroyed by a fire on May 8, 1979, and the landfill was subsequently closed. The landfill was covered with native soils of various thicknesses but has not been closed with an engineered cover or cap.

A grease pit disposal area near the eastern boundary of the site was used for disposal of cooking grease.

2.2 REGIONAL GEOLOGICAL AND HYDROGEOLOGICAL SETTING

2.2.1 Regional Geology

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. **Figure 2-4** shows the regional geology of Seneca



SENECA ARMY DEPOT
ACTION MEMORANDUM-ASH LANDFILL

FIGURE 2-4
GEOLOGIC MAP OF
SENECA COUNTY

JULY 2, 1993

ES
ENGINEERING-SCIENCE, INC.

County. In the vicinity of SEDA, Devonian age (385 million years bp) black shale of the Hamilton group is monoclinally folded and dips gently to the south. No evidence of faulting or folding of the sediments is present.

Pleistocene age glacial till deposits overlie the shales. The till matrix, the result of glaciation, varies locally but generally consists of horizons of unsorted silt, clay, sand, and gravel. In the Finger Lakes region of New York, the till thickness varies from 1 to 50 meters. However, on the till plain between Seneca and Cayuga Lake it is near the surface and generally thin (Muller and Cadwell, 1986). In the central and eastern portions of SEDA the till is thin and bedrock is exposed or within 1 meter of the surface in some locations. The soils at the site are classified as unsorted inorganic clays, inorganic silts, and silty sands. In general, the topographic relief associated with these soils is 3 to 8%.

2.2.2 Regional Hydrogeology

Regionally, four (4) distinct hydrologic units have been identified within Seneca County. These include two (2) distinct shale formations, a series of limestone units, and unconsolidated beds of Pleistocene glacial till. Overall, the groundwater in the county is very hard, and therefore, the quality is minimally acceptable for use as potable water. Approximately 95 percent of the wells are used for domestic or farm supply and the average daily withdrawal is approximately 500 gallons. About 5 percent of the wells in the county are used for commercial, industrial, or municipal purposes. Seneca Falls and Waterloo, the two largest communities in the county, are in the hydrogeologic region which is most favorable for the development of a groundwater supply. Because the hardness of the groundwater is objectionable to the industrial and commercial establishments operating within the villages, both villages utilize surface water as their municipal supplies. The villages of Ovid and Interlaken, both of which are without substantial industrial establishments, utilize groundwater as their public water supplies. Ovid obtains its supply from two shallow gravel-packed wells, and Interlaken is served by a developed seepage-spring area.

Regionally, the till aquifer would be expected to flow in a direction consistent with the ground surface elevations. Geologic cross-sections from Seneca Lake and Cayuga Lake have been constructed by the State of New York, (Mazola, A.J., 1951 and Crain, L.J., 1974). This information suggests that a groundwater divide exists approximately halfway between the two finger lakes. SEDA is located on the western slope of this divide and, therefore, regional surficial groundwater is expected to flow westward toward Seneca Lake.

Most of the groundwater in Seneca County is derived from precipitation that falls on the land surface and percolates into surficial deposits (Mazola, 1951). Three (3) geologic strata have been used to produce water for both domestic and agricultural purposes. These include the following: 1) a bedrock aquifer, which in this area is predominantly shale; 2) an overburden aquifer, which includes Pleistocene deposits (glacial till); and 3) a deep aquifer present within beds of limestone present within the underlying shale.

The geologic information reviewed indicates that the upper portions of the shale formation would be expected to yield small supplies of water which would be adequate for domestic use. For mid-Devonian shales such as those of Hamilton group, the average yields (i.e., less than 15 gpm), are consistent with what would be expected for shales (LaSala, 1968). The deeper portions of the shale formation, have provided yields up to 150 gpm due to the occurrence of limestone cavities. 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. Drilling depths of 600 to 700 feet are required to obtain water from the limestone.

2.3 SITE-SPECIFIC GEOLOGY

The site geology is characterized by gray Devonian shale with a thin weathered zone where it contacts the overlying mantle of Pleistocene glacial till. This stratigraphy is consistent over the entire site.

2.3.1 Competent and Weathered Shale

Gray competent shale was encountered between 6 and 14 feet below the land surface in all borings on the site and in the off-site surrounding areas. The bedrock topography slopes consistently to the west from an elevation of 720 feet in the eastern portion of the site to 614 feet MSL in the western portion of the site. Bedrock topographic gradients are steepest in the eastern portion of the site (as is the land surface topography).

A thin (1.5 to 12 feet thick) zone of gray weathered shale was encountered in all locations drilled on-site. This zone is characterized by fissile shale with a large amount of brown interstitial silt and clay. The thickness of the weathered shale varies throughout the site with the greatest thickness occurring approximately 260 feet west of the incinerator building and the least thick area occurring approximately 400 feet north of the incinerator building. A small weathered shale trough with a northeast-southeast oriented axis is located south of the incinerator building area and culminates at the thickest portion of the weathered shale near monitoring well PT-20 **(Figure 2-3)**. The transition from the competent weathered shale is sharp based on drilling characteristics. No outcrops of weathered or competent shale are exposed on the site.

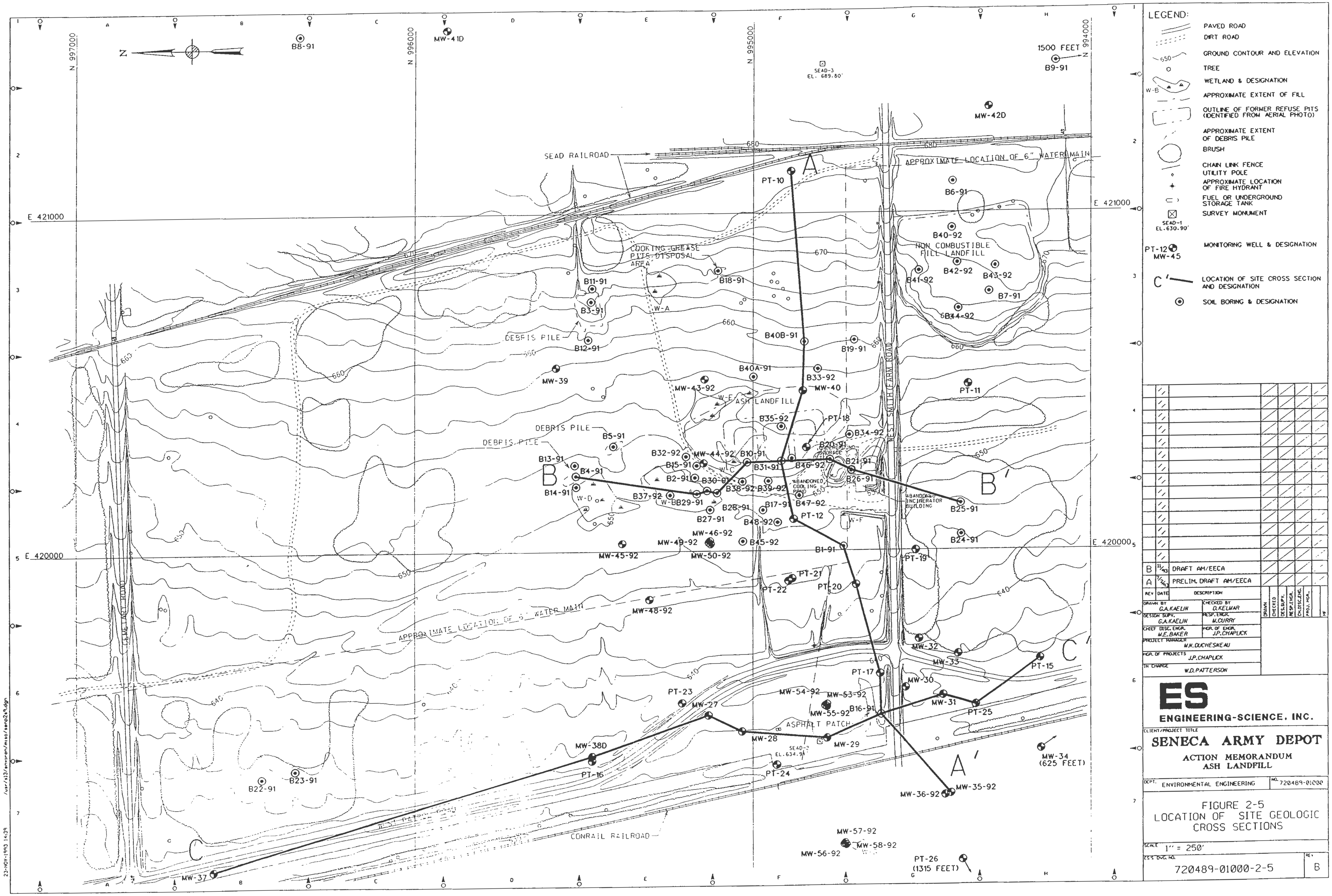
2.3.2 Glacial Till

A 2 to 11 foot thick mantle of dense glacial till covers the shale on-site. The till is generally characterized by brown to gray-brown silt, clay, and fine sand with few fine to coarse gravel-sized inclusions of weathered shale. Larger diameter weathered shale clasts (as large as 6 inches in diameter) are more prevalent in basal portions of the till and are probably ripped-up clasts removed by the once active glacier. The general Unified Soil Classification System description of the till on-site is as follows: clay-silt, brown; slightly plastic, small percentage of fine to medium sand, small percentage of fine to coarse gravel-sized gray shale clasts, dense, and mostly dry in place, till (ML) - USCS Designation.

Darian silt-loam soils, 0 to 18 inches thick, are developed over the till on-site; however, in some locations the till is exposed at the surface. The surficial soils are somewhat poorly drained and have a silt clay loam and clay subsoil. The topographic relief associated with these soils is 3 to 8%.

2.3.3 Cross-Sections

Three site-wide geologic cross-sections were constructed, along with two cross-sections devoted exclusively to the bend in the road area. The locations of the site-wide cross-sections are shown in **Figure 2-5**. East-west Cross sections A-A' and north-south Cross-sections B-B' and C-C' show the consistent till-weathered shale-competent shale stratigraphy beneath the site based on data from borings and monitoring wells **(Figure 2-6 through 2-8)**. The scale of the sections did not permit identification of the soil horizon. Cross-section A-A' illustrates the variable thickness of the weathered shale and the relatively uniform thickness of the till, which



REV	DATE	DESCRIPTION
B	11/93	DRAFT AM/EECA
A	7/93	PRELIM. DRAFT AM/EECA

DRAWN BY: G.A.KAELIN	CHECKED BY: D.KELMAR
DESIGN SUPV.: G.A.KAELIN	RESP. ENGR.: M.CURRY
CHIEF DISC. ENGR.: M.E.BAKER	MGR. OF ENGR.: J.P.CHAPLICK
PROJECT MANAGER: M.N.DUCHESNEAU	
MGR. OF PROJECTS: J.P.CHAPLICK	
IN CHARGE: W.D.PATTERSON	

ES
ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL

DEPT. ENVIRONMENTAL ENGINEERING — NO. 720489-01000

FIGURE 2-5
LOCATION OF SITE GEOLOGIC CROSS SECTIONS

SCALE 1" = 250'

E.S. DWG. NO. 720489-01000-2-5 — REV. B

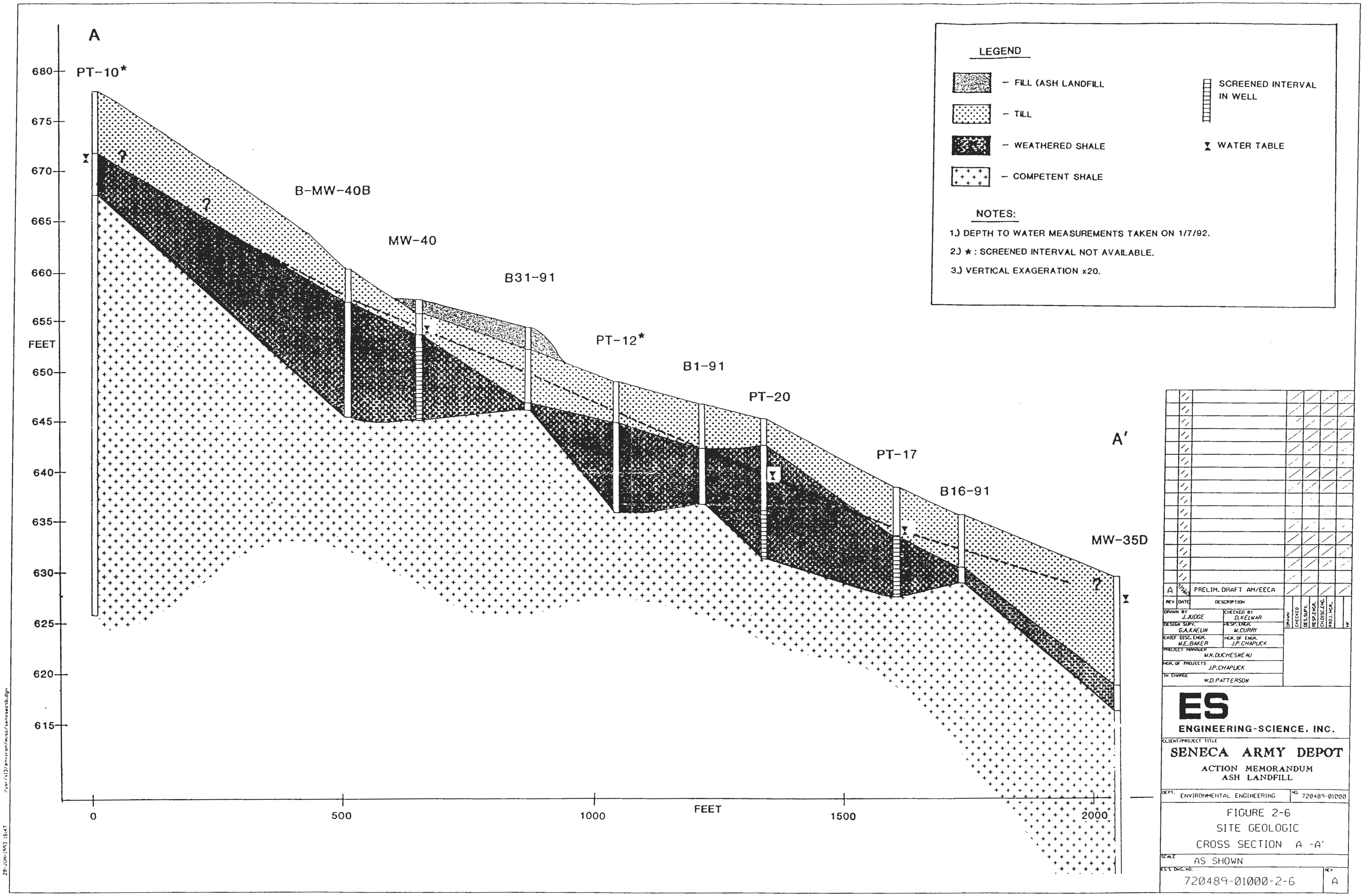
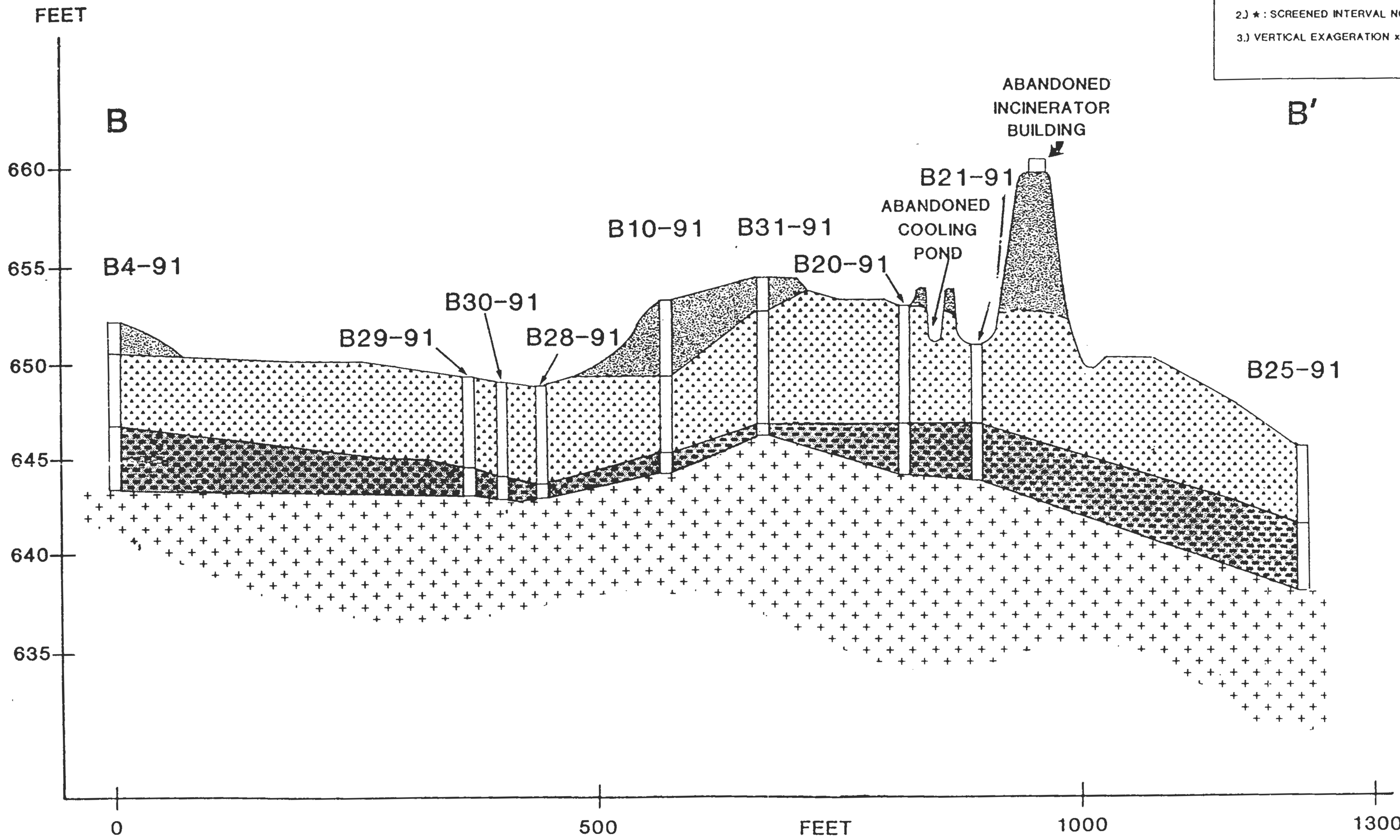


FIGURE 2-6
SITE GEOLOGIC
CROSS SECTION A -A'



LEGEND

- FILL (ASH LANDFILL
- TILL
- WEATHERED SHALE
- COMPETENT SHALE
- SCREENED INTERVAL IN WELL
- WATER TABLE

NOTES:

1.) DEPTH TO WATER MEASUREMENTS TAKEN ON 1/7/92.

2.) ★ : SCREENED INTERVAL NOT AVAILABLE.

3.) VERTICAL EXAGERATION x20.

REV	DATE	DESCRIPTION
A	7/2/93	PRELIM. DRAFT AM/EECA

DRAWN BY: J.JUDGE	CHECKED BY: D.KELMAR
DESIGN SUPV.: G.A.KAELIN	RESP. ENGR.: M.CURRY
CHIEF DISC. ENGR.: M.E.BAKER	MGR. OF ENGR.: J.P.CHAPLICK
PROJECT MANAGER: M.N.DUCHESNEAU	
MGR. OF PROJECTS: J.P.CHAPLICK	
IN CHARGE: W.D.PATTERSON	

ES
ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

ACTION MEMORANDUM
ASH LANDFILL

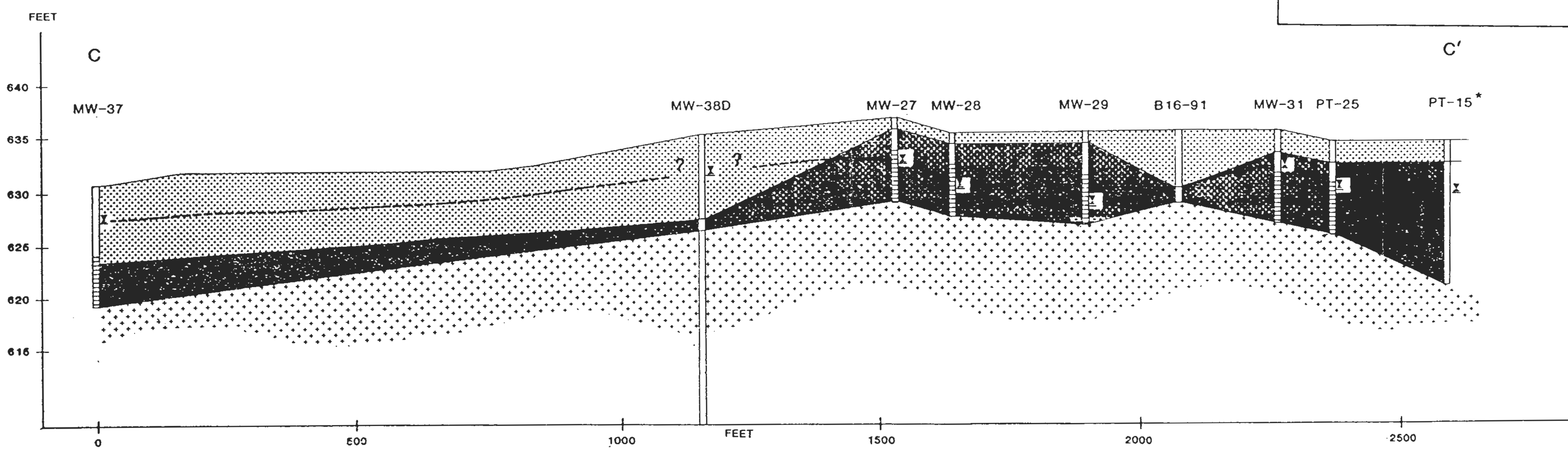
DEPT. ENVIRONMENTAL ENGINEERING — NO. 720489-01000

FIGURE 2-7
SITE GEOLOGIC
CROSS SECTION B-B'

SCALE: AS SHOWN

ES'S DWG. NO. 720489-01000-2-7 — REV A

28-JUN-1993 16:25



LEGEND

- FILL (ASH LANDFILL
- TILL
- WEATHERED SHALE
- COMPETENT SHALE
- SCREENED INTERVAL IN WELL
- WATER TABLE

NOTES:

1.) DEPTH TO WATER MEASUREMENTS TAKEN ON 1/7/92.

2.) ★ : SCREENED INTERVAL NOT AVAILABLE.

3.) VERTICAL EXAGERATION x20.

REV	DATE	DESCRIPTION
A	7/2/93	PRELIM. DRAFT AM/EECA

DRAWN BY J. JUDGE	CHECKED BY D. KELMAR
DESIGN SUPV. G.A. KAEUN	RESP. ENGR. M. CURRY
CHIEF DISC. ENGR. M.E. BAKER	MGR. OF ENGR. J.P. CHAPLICK
PROJECT MANAGER M.N. DUCHESNEAU	
MGR. OF PROJECTS J.P. CHAPLICK	
IN CHARGE W.D. PATTERSON	

DRAWN / CHECKED / DES. SUPV. / RESP. ENGR. / CH. DISC. ENG. / PROJ. MGR. / MF

ES

ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

ACTION MEMORANDUM ASH LANDFILL

DEPT. ENVIRONMENTAL ENGINEERING — NO. 720489-01000

FIGURE 2-8
SITE GEOLOGIC
CROSS SECTION C-C′

SCALE AS SHOWN

ES'S DWG. NO. 720489-01000-2-8 — REV A

appears to thicken in the western portion of the site. The actual ash landfill containing incinerator ash, and up to 4 feet-thick, is shown on Sections A-A' and B-B'.

The locations of the bend in the road cross-sections are shown on **Figure 2-9**. These sections **(Figures 2-10 and 2-11)** cut north-south, E-E and northeast-southwest, D-D, across the areas of interest. The depth to bedrock is approximately 8 feet in the bend in the road area and identify the extent of the fill from the Ash Landfill. The material to be remediated consists primarily of glacial till and weathered shale, with small quantities of fill in the former ash landfill.

2.3.4 Filled Areas

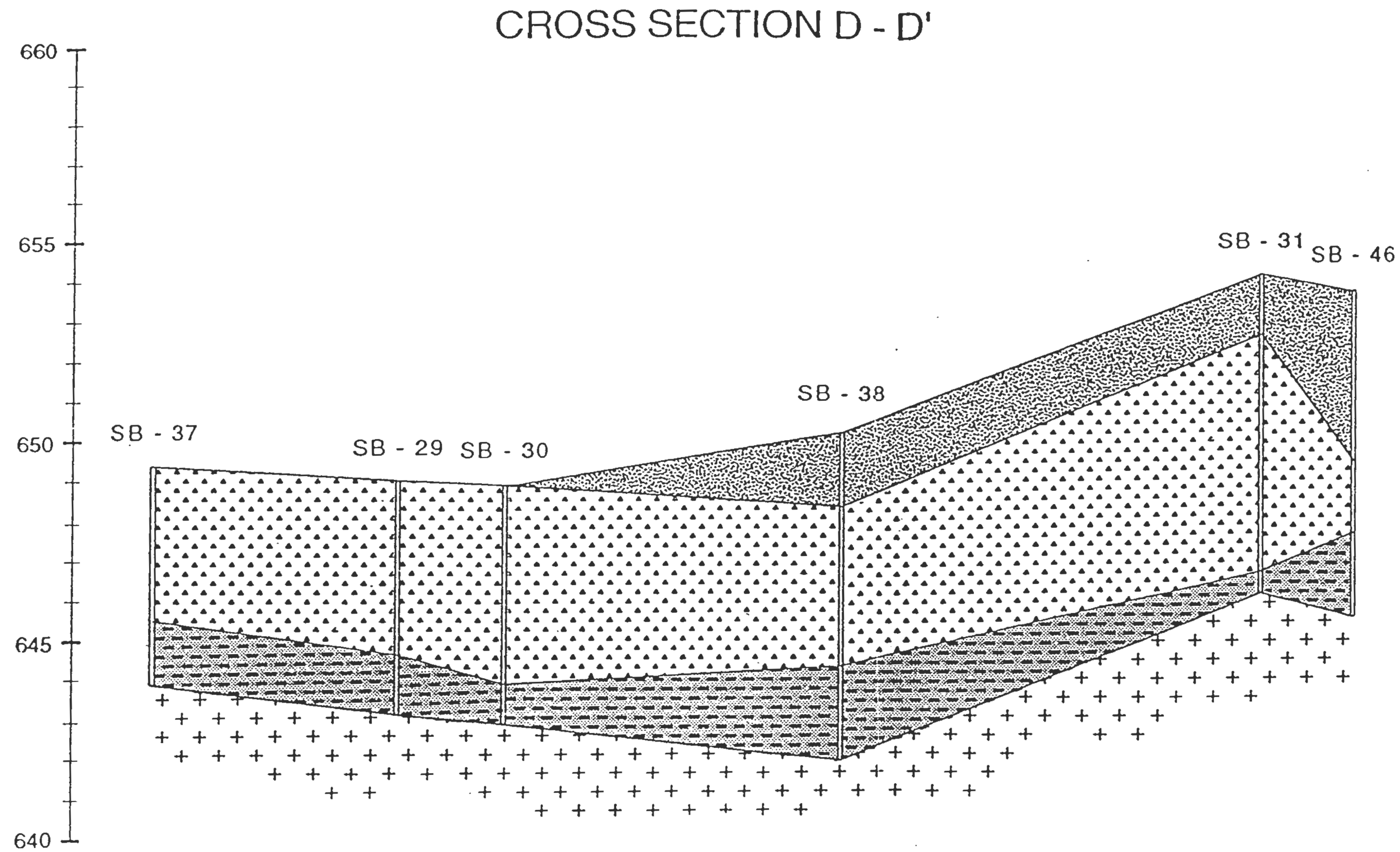
Several filled areas exist on the site. These include the former Ash Landfill, numerous debris piles and the Non-Combustible Fill Landfill. The approximately 600 by 300 foot Ash Landfill is presented in cross-section on **Figure 2-6**. This ash fill is defined by the slightly higher elevation in this area. The three debris piles north and northeast of the Ash Landfill are at slightly higher elevations (1 to 2 feet) relative to the surrounding areas; this is especially evident at the easternmost debris pile. The Non-Combustible Fill Landfill, located across West Smith Farm Road, is a wedge of fill that originates south of boring B6-91 and thickens to the west to a point approximately 150 feet beyond boring B7-91. It is defined by the topographic expression of the fill which has a total relief of about 14 feet at the western toe. This fill is underlain by thin horizons of till and weathered shale, below which is competent shale.

2.4 SITE-SPECIFIC HYDROGEOLOGY

2.4.1 Introduction

The hydrogeologic properties of the site were characterized during the RI. This section presents these results and addresses topics such as saturated thickness, horizontal and vertical direction of groundwater flow, groundwater gradients, hydraulic conductivities of shallow and deep aquifers, and groundwater velocity on-site.


LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
TREE
WETLAND & DESIGNATION
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
MONITORING WELL & DESIGNATION
SOIL BORING & DESIGNATION
TEST PIT & DESIGNATION
LOCATION OF CROSS SECTION AND DESIGNATION
MW-46-92
B35-92
TP-10
D'
ASH LANDFILL
BEND IN THE ROAD
N 995000
E 420000
W-E
W-C
W-B
W-D
W-L
TP-8
TP-7
TP-6
TP-9
TP-10
B35-92
B34-92
PT-18
D'
D
E
E'
B20-91
B32-92
MW-44-92
B36-92
B10-91
B31-91
B46-92
B15-91
B2-91
B38-92
B39-92
B37-92
B29-91
B30-91
B28-91
B47-92
B27-91
B48-92
B17-91
PT-12
MW-46-92
MW-49-92
MW-50-92
B45-92
B1-91
652
656
650
648
APPROXIMATE LOCATION OF 6" WATER MAIN
B 11/93 DRAFT AM/EECA
A PRELIM. DRAFT AM/EECA
REV DATE DESCRIPTION
DRAWN BY G.A.KAEUN
CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAEUN
RESP. ENGR. W.CURRY
CHIEF DISC. ENGR. M.E.BAKER
MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER W.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPLICK
IN CHARGE W.D.PATTERSON
ES
ENGINEERING-SCIENCE, INC.
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL
DEPT. ENVIRONMENTAL ENGINEERING
NO. 720489-01000
FIGURE 2-9
AREA OF CONCERN
LOCATION OF
CROSS SECTIONS
SCALE 1" = 50'
E-S DWG NO. 720489-01000-2-9
B



LEGEND:

- FILL
- TILL
- WEATHERED SHALE
- COMPETENT SHALE

HORIZONTAL SCALE: 1" = 50'

0 25 50 100 150

VERTICAL SCALE: 1" = 4'

NOTES:

1. SB - 30 is the common boring for Sections D - D' and E - E'
2. Lithologic units based on descriptions supplied by Engineering-Science, Inc. Interpretations are based on interpolations between widely spaced boreholes, actual conditions may vary.

ES ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE: SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL

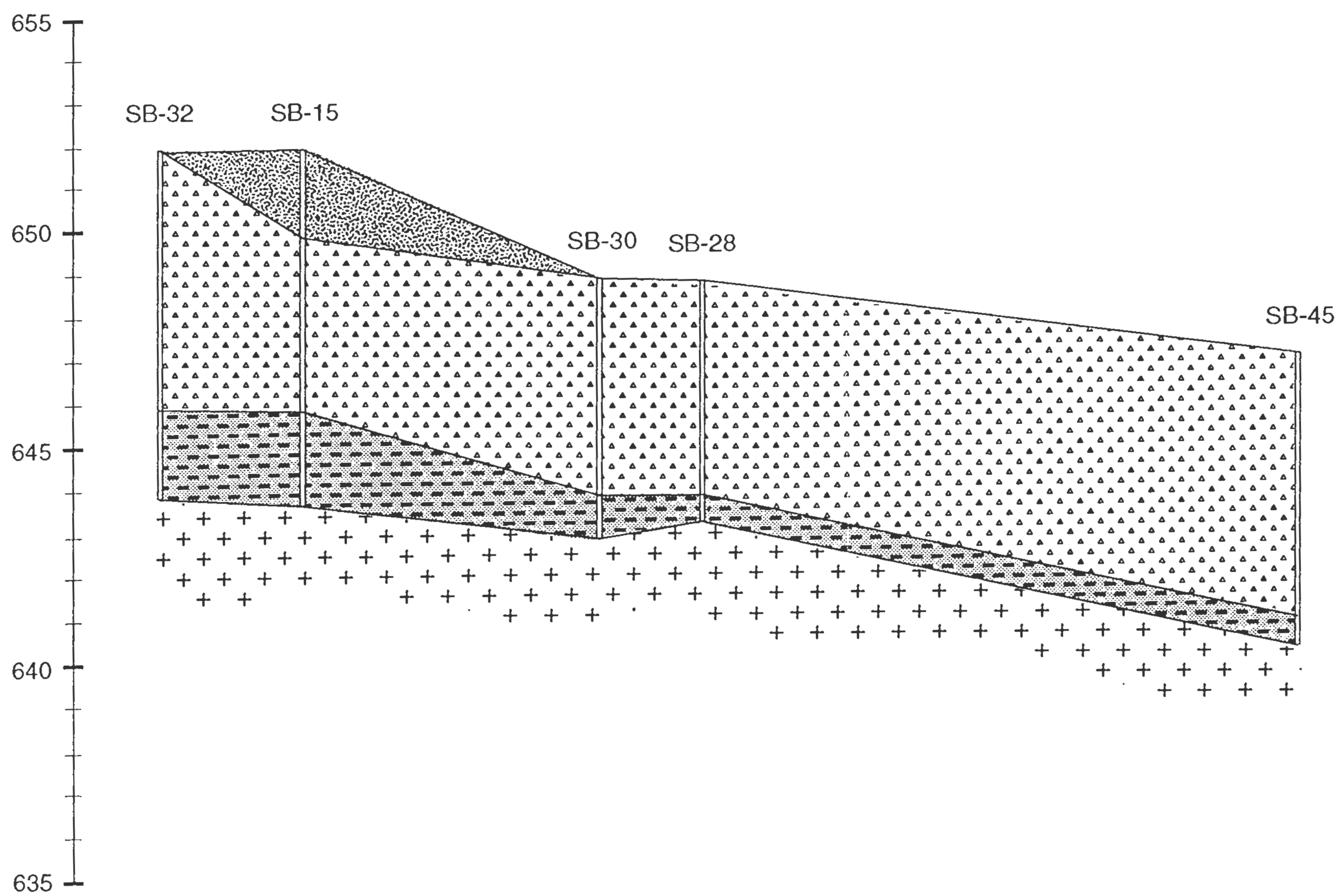
DEPT: ENVIRONMENTAL ENGINEERING | NO: 720489-01000

FIGURE 2-10
CROSS-SECTION D - D'

SCALE: 1" = 50'

ES'S DWG NO: 720489-01000-2-10 | REV: A

CROSS SECTION E - E'



NOTES:

1. SB - 30 is the common boring for Sections D - D' and E - E'
2. Lithologic units based on descriptions supplied by Engineering-Science, Inc. Interpretations are based on interpolations between widely spaced boreholes, actual conditions may vary.

LEGEND:

- FILL
- TILL
- WEATHERED SHALE
- COMPETENT SHALE

HORIZONTAL SCALE: 1" = 50'

0 25 50 100 150

VERTICAL SCALE: 1" = 4'

ES ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE: SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL

DEPT: ENVIRONMENTAL ENGINEERING | NO: 720489-01000

FIGURE 2-11

CROSS-SECTION E - E'

SCALE: 1" = 50'

ES'S DWG NO: 720489-01000-2-11 | REV: A

2.4.2 Saturated Thickness of Shallow Aquifer

Representative saturated thicknesses in all on-site monitoring wells are indicated in **Table 2-1**. The average saturated thickness in the shallow aquifer is 8.7 feet based on January 7, 1992 depth to water measurements. Generally, saturated thicknesses are greatest in the eastern and southwestern portions of the site. The saturated thickness in wells PT-12 and PT-18, the two wells located the closest to the bend in the road area ranged from 3.9 to 8.2 feet for PT-12 and 2.5 to 5.9 feet for PT-18.

Historically, saturated thickness has fluctuated widely on the site based on depth to water measurements made during past groundwater sampling events (**Table 2-1**). A comparison of saturated thicknesses from September 1990 and January 1992 yields an average difference of 4.76 feet. The September 1990 data indicates an absence of a shallow aquifer in the area of MW-29 and aquifer thicknesses of less than 2 feet in many locations on the site.

2.4.3 Groundwater Flow Directions - Shallow Aquifer

A groundwater topography map was constructed based on depth to water measurements made on January 7, 1992 (**Figure 2-12**). The map indicates that the general direction of groundwater flow in the shallow aquifer is to the west toward Seneca Lake roughly mimicking surface topography. Shallow aquifer elevations are approximately 655 feet mgl in the eastern portion of the site and drop to a low of 630 feet mgl in the western portion of the site.

The groundwater gradient between wells PT-18 and PT-17 was calculated to be 0.021 feet per foot based on depth to water measurements made on January 7, 1992. Groundwater flow contours indicate that there is a consistent gradient over the entire site.

2.4.4 Groundwater Flow Directions - Deep Aquifer

Groundwater elevations in deep bedrock wells are higher in the eastern portion of the site (between approximately 680 and 686 feet mgl) than they are in the western portion of the site (between approximately 630 and 634 feet mgl) suggesting that a westerly direction of flow in the deep aquifer is likely.

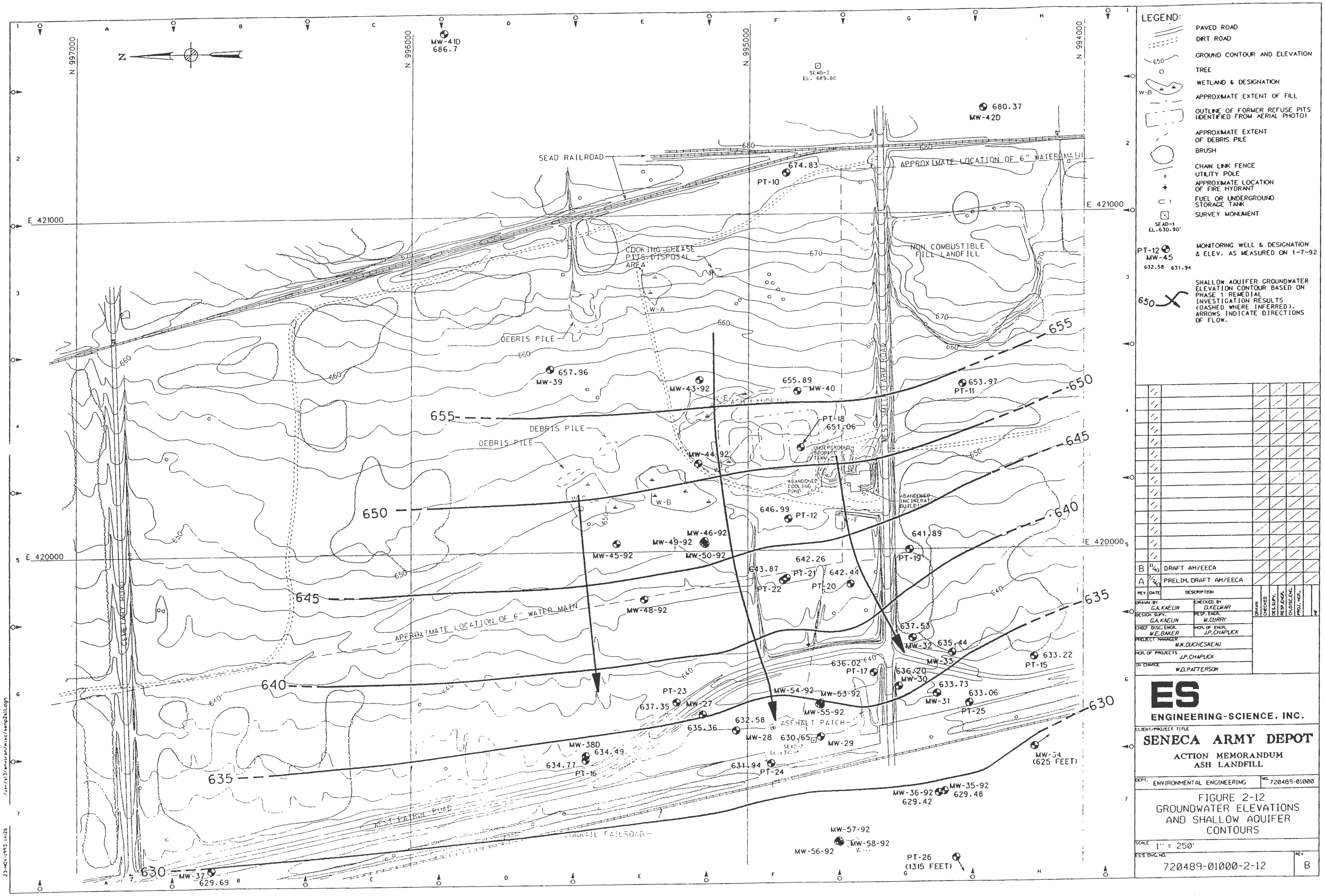
Seneca Army Depot
Ash Landfill

Table 2-1
Fluctuation in the Saturated Thickness of the Shallow Till/Weathered Shale Aquifer

Monitoring Well Number	Saturated Thickness September 1990* (Feet)	Saturated Thickness January 1992 (Feet)	Difference (Feet)
PT-10	(bedrock well)	(bedrock well)	N/A
PT-11	10.55	15.07	4.52
PT-12	3.88	8.22	4.34
PT-15	9.45	14.86	5.41
PT-16	4.54	8.16	3.62
PT-17	3.05	7.47	4.42
PT-18	2.50	5.90	3.40
PT-19	(not measured)	8.01	N/A
PT-20	2.60	6.70	4.10
PT-21	(bedrock well)	(bedrock well)	N/A
PT-22	1.41	6.94	5.53
PT-23	4.13	7.79	3.66
PT-24	4.88	7.39	2.51
PT-25	1.58	7.94	6.36
PT-26	3.25	10.16	6.91
MW-27	1.49	6.62	5.13
MW-28	1.24	5.75	4.51
MW-29	0.00	3.91	3.91
MW-30	1.02	6.46	5.44
MW-31	1.14	7.42	6.28
MW-32	1.27	6.19	4.92
MW-33	0.89	6.31	5.42
MW-34	N/A	15.15	N/A
MW-35D	(bedrock well)	(bedrock well)	N/A
MW-36	N/A	14.27	N/A
MW-37	N/A	10.42	N/A
MW-38D	(bedrock well)	(bedrock well)	N/A
MW-39	N/A	10.09	N/A
MW-40	N/A	11.28	N/A
MW-41D	(bedrock well)	(bedrock well)	N/A
MW-42D	(bedrock well)	(bedrock well)	N/A
Average	3.10	8.74	4.76

Note:

* Depth to water measurements made by National Environmental Testing during a September 1990 sampling event


LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
TREE
WETLAND & DESIGNATION
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
APPROXIMATE EXTENT OF DEBRIS PILE
BRUSH
CHAIN LINK FENCE
UTILITY POLE
APPROXIMATE LOCATION OF FIRE HYDRANT
FUEL OR UNDERGROUND STORAGE TANK
SURVEY MONUMENT
SEAD-1 EL.630.90'
MONITORING WELL & DESIGNATION & ELEV. AS MEASURED ON 1-7-92
PT-12 MW-45 632.58 631.94
SHALLOW AQUIFER GROUNDWATER ELEVATION CONTOUR BASED ON PHASE 1 REMEDIAL INVESTIGATION RESULTS (DASHED WHERE INFERRED). ARROWS INDICATE DIRECTIONS OF FLOW.
N 997000
N 996000
N 995000
N 994000
E 421000
E 420000
MW-41D 686.7
SEAD-3 EL. 689.80
680.37 MW-42D
SEAD RAILROAD
APPROXIMATE LOCATION OF 6" WATER MAIN
674.83 PT-10
COOKING GREASE PITS DISPOSAL AREA
NON COMBUSTIBLE FILL LANDFILL
DEBRIS PILE
657.96 MW-39
MW-43-92
655.89 MW-40
653.97 PT-11
ASH LANDFILL
PT-18 651.06
UNDERGROUND STORAGE TANK
MW-44-92
ABANDONED COOLING POND
ABANDONED INCINERATOR BUILDING
W-A
W-B
646.99 PT-12
MW-46-92
MW-49-92
MW-45-92
MW-50-92
641.89 PT-19
642.26
643.87 PT-21
642.44
PT-22
PT-20
MW-48-92
WEST SMITH FARM ROAD
CEMETARY ROAD
637.53
MW-32
635.44
MW-33
633.22 PT-15
636.02 PT-17
636.20 MW-30
633.73 MW-31
633.06 PT-25
PT-23 637.35
MW-27
MW-54-92
MW-53-92
MW-55-92
632.58 MW-28
635.36
ASPHALT PATCH
630.65 MW-29
SEAD-2
MW-38D 634.49
634.77 PT-16
631.94 PT-24
MW-34 (625 FEET)
MW-36-92 629.42
MW-35-92 629.48
WEST PATROL ROAD
CONRAIL RAILROAD
MW-57-92
MW-56-92
MW-58-92
PT-26 (1315 FEET)
MW-37 629.69
655
650
645
640
635
630
B 11/93 DRAFT AM/EECA
A PRELIM. DRAFT AM/EECA
REV DATE DESCRIPTION
DRAWN BY G.A.KAELIN
CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAELIN
RESP. ENGR. M.CURRY
CHIEF DISC. ENGR. M.E.BAKER
MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER M.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPLICK
IN CHARGE W.D.PATTERSON
ES
ENGINEERING-SCIENCE, INC.
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM ASH LANDFILL
DEPT. ENVIRONMENTAL ENGINEERING
NO. 720489-01000
FIGURE 2-12
GROUNDWATER ELEVATIONS AND SHALLOW AQUIFER CONTOURS
SCALE 1" = 250'
ES DWG. NO. 720489-01000-2-12
REV B

While these data suggest a westerly direction of groundwater flow, the exact size and orientation of fractures in the shale on the site are uncertain and may significantly influence the flow direction. Mazola (1951) recognized two distinct sets of joints in the area. The main set, termed dip joints, appears to be in the form of two conjugate shear planes that intersect to form acute angles ranging from 10° to 30°. The mean direction of the dip joints ranges from North 15° to 30° East to North 30° to 45° West. Strike joints at right angles to the dip joints trend from North 50° East to North 70° East and are spaced from 1 inch to 4 feet apart. The dip of the joint planes ranges from 46° to nearly vertical. In addition, most of the joints in the beds of the shale are filled with clay or fine silt which may inhibit groundwater flow.

2.4.5 Vertical Connection Between Shallow and Deep Aquifers

Vertical connection tests on paired wells PT-16 and MW-38D, and MW-36 and MW-35D indicate that there is a measurable drawdown in the shallow wells screened in the till and weathered shale when water is purged from their respective paired deep wells screened in competent shale.

Water level measurements from three different dates indicate that there is a downward vertical gradient in the area of PT-16 and MW-38D well cluster where an average head difference of +0.43 feet was calculated. This suggests that downward component of groundwater flow into the deep aquifer exists. Topographically and hydrologically downgradient from this location, a weaker upward movement of groundwater was measured in the area of the MW-36 and MW-35D well cluster where an average head difference of -0.13 feet was calculated.

Based on this data, downward movement of groundwater occurs from the shallow till/weathered shale aquifer into the upper portions of the competent shale aquifer; however, in deeper portions of the competent shale aquifer groundwater movement is upward, possibly driven by the topographic highs between Seneca and Cayuga Lakes. It is likely that the size and distribution of fractures ultimately controls the relative movement of groundwater seepage in this aquifer. There is a 51 foot difference in hydraulic head in the competent shale aquifer between eastern and western portions of the site, based on an average elevation between the two deep wells in each area (MW-38D and MW-35D, and MW-4D and MW-42D) as measured on January 7, 1992. The large differences in piezometric head suggests that movement in the shale aquifier is to the west.

2.4.6 Hydraulic Conductivities

Hydraulic conductivities were determined for both the shallow and deep aquifers at the Ash Landfill site **(Table 2-2)**. Hydraulic conductivities for wells screened in the shallow till/weathered shale aquifer were determined using the method of Bouwer and Rice (1976). Average hydraulic conductivity values for the shallow aquifer range from 6.6×10^{-6} cm/sec to 3.0×10^{-4} cm/sec. Average hydraulic conductivity values for the deep aquifer range from 9.0 $\times 10^{-8}$ to 1.7×10^{-4}. The average hydraulic conductivities for the shallow and deep aquifers are 1.4×10^{-4} and 4.0×10^{-6} cm/sec, respectively **(Table 2-2)**.

By comparison, published hydraulic conductivity values for till or representatively similar materials include the following: 1) 0.49 m/day (5.67×10^{-4} cm/sec) for a repacked predominantly sandy till (Todd, 1976), and 2) from 10^{-2} to 10^{-3} m/day (10^{-5} to 10^{-6} cm/sec) for representative materials of silt, sand, and mixtures of sand, silt, and clay (Todd, 1976).

2.4.7 Velocity of Groundwater

In accordance with, Darcy's Law, the average linear velocity of groundwater in the shallow till/weathered shale aquifer was estimated from the average site hydraulic conductivity, effective porosity and the on-site groundwater gradient. These values ranged from an average linear velocity of 0.11 feet/day or 38.9 feet/year for a porosity of 11% and 0.047 feet/day or 17.1 feet/year for a porosity of 25%.

2.5 AREA METEOROLOGY

Table 2-3 summarizes climatological data for the SEDA area. The nearest source of climatological data is the Aurora Research Farm located approximately 10 miles east of the site which provided precipitation and temperature measurements. The remainder of the data reported in **Table 2-3** has been taken from isopleth drawings from the literature, or from data collected at the Syracuse Airport, New York, 40 miles northeast of the SEDA. Meteorological data collected from 1965 to 1974 at Hancock International Airport in Syracuse, New York, were used in preparation of the wind rose. The airport is located approximately 60 miles northeast of SEDA, and is representative of wind patterns at SEDA. The wind rose is presented in **Figure 2-13**.

SENECA ARMY DEPOT
ASH LANDFILL

TABLE 2-2
HYDRAULIC CONDUCTIVITY VALUES FOR
RISING HEAD SLUG TESTS - BOUWER & RICE (1976) METHOD

PHASE I

Monitoring Well	Well Screen Media	Screened Interval (ft bls)	Hydraulic Conductivity (cm/sec)
MW-34	Till/Weathered shale	6.5-16.5	5.507E-05
MW-35D	Competent Shale	29.0-54.0	2.270E-06
MW-36	Till/Weathered shale	4.4-14.4	1.737E-04
MW-37	Till/Weathered shale	6.5-11.5	1.421E-04
MW-38D	Competent Shale	9.6-29.6	1.305E-05
MW-39	Till/Weathered shale	6.3-11.3	2.990E-04
MW-40	Till/Weathered shale	5.0-12	6.633E-06
MW-41D	Competent Shale	14.5-44.5	4.110E-07
MW-42D	Competent Shale	24.5-44.5	8.992E-08
Average	Till/Weathered shale	NA	1.353E-04
Average	Competent Shale	NA	3.956E-06

ft blw = feet below land surface
cm/sec = centimeters per second

SENECA . Y DEPOT
ASH LANDFILL
TABLE 2-3
CLIMATOLOGICAL DATA FOR SENECA ARMY DEPOT

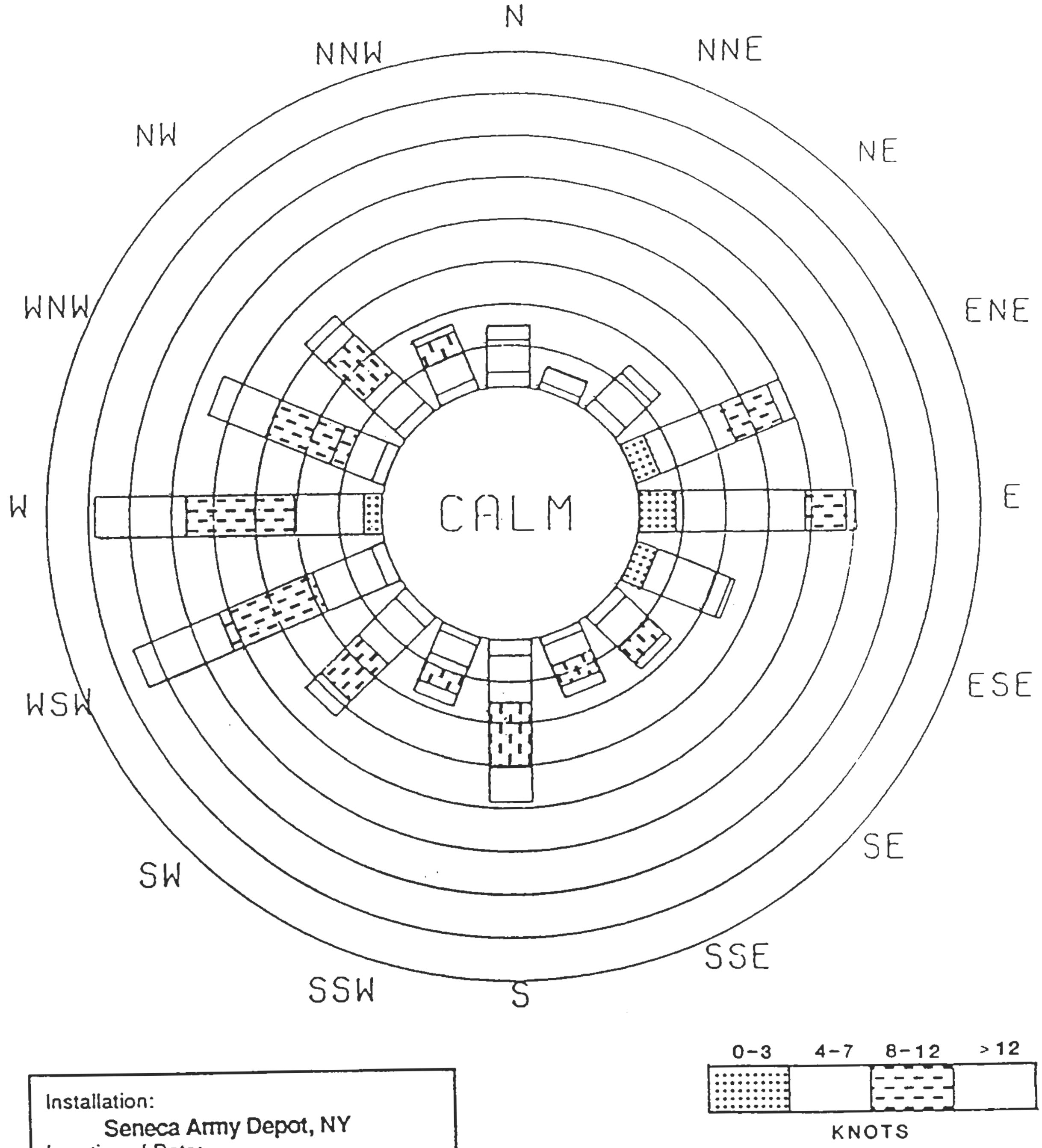
Month	Temperature (°F) Max.	Min.	Mean	Precip.[1] Mean (In)	RH[3] Mean (%)	Sunshine[3] (%)	Sky Cover[3] (Tenths)	Mean No. of Days[4] Clear	Partly Cloudy	Cloudy
Jan	30.9	14.0	22.5	1.88	70	35	7.5	3	7	21
Feb.	32.4	14.1	23.3	2.16	70	50	7.0	3	6	19
Mar.	40.6	23.4	32.0	2.45	70	50	7.0	4	7	20
Apr.	54.9	34.7	44.8	2.86	70	50	7.0	6	7	17
May	66.1	42.9	54.5	3.17	70	50	6.5	6	10	15
June	76.1	53.1	64.6	3.70	70	60	6.5	8	10	12
July	80.7	57.2	69.0	3.46	70	60	6.0	8	13	10
Aug	78.8	55.2	67.0	3.18	70	60	6.0	8	11	12
Sept.	72.1	49.1	60.7	2.95	70	60	6.0	8	11	12
Oct.	61.2	39.5	50.3	2.80	70	50	6.0	7	8	16
Nov	47.1	31.4	39.3	3.15	70	30	7.5	2	6	22
Dec.	35.1	20.4	27.8	2.57	70	30	8.0	2	5	24
Annual	56.3	36.3	46.3	34.33	70	50	6.5	64	101	200

Period	Mixing Wind Height (m)[2]	Speed (m/s)[2]
Morning (annual)	650	6
Morning (winter)	900	8
Morning (spring)	700	6
Morning (summer)	500	5
Morning (autumn)	600	5
Afternoon (annual)	1400	7
Afternoon (winter)	900	8
Afternoon (spring)	1600	8
Afternoon (summer)	1800	7
Afternoon (autumn)	1300	7

Mean Annual Pan Evaporation (in.)[3]: 35
Mean Annual Lake Evaporation (in.)[3]: 28
No. of episodes lasting more than 2 days (No. of episode-days)[2]:
  Mixing Height <500 m, wind speed <2 m/s: 0(0)
  Mixing Height <1000 m, wind speed <2 m/s: 0(0)
No. of episodes lasting more than 5 days (No. of episode-days)[2]:
  Mixing Height <500 m, wind speed <4 m/s: 0(0)

REFERENCES:

[1]Climate of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Ithaca Cornell Univ., NY.
[2]Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States. George C. Holzworth, Jan. 1972
[3]Climate Atlas of the United States. U.S. Department of Commerce, 1983.
[4]Climate of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Syracuse, NY.



Installation:
Seneca Army Depot, NY
Location of Data:
Syracuse, NY
Source:
US Army Environmental Hygiene Agency

NOTE : EACH DIVISION IS 2% OF TOTAL TIME .

SENECA ARMY DEPOT
ACTION MEMORANDUM-ASH LANDFILL

FIGURE 2-13
WIND ROSE
SYRACUSE, NEW YORK

JULY 2, 1993

ES
ENGINEERING-SCIENCE, INC.

A cool climate exists at SEDA with temperatures ranging from an average of 23°F in January to 69°F in July. Marked temperature differences are found between daytime highs and nighttime lows during the summer and portions of the transitional seasons. Precipitation is well-distributed, averaging approximately 3 inches per month. This precipitation is derived principally from cyclonic storms which pass from the interior of the county through the St. Lawrence Valley. Lakes Seneca, Cayuga and Ontario provide a significant amount of the winter precipitation and moderate the local climate. The annual average snowfall is approximately 100 inches. Wind velocities are moderate, but during the winter months there are numerous days with sufficient winds to cause blowing and drifting snow. The most frequently occurring wind directions are westerly and west-southwesterly.

As **Table 2-3** shows, temperature tends to be highest from June through September. Precipitation and relative humidity tend to be rather high throughout the year. The months with the most amount of sunshine are June through September. Mixing heights tend to be lowest in the summer and during the morning hours. Wind speeds also tend to be lower during the morning, which suggests that dispersion will often be reduced at those times, particularly during the summer. No episode-days are expected to occur with low mixing heights (less than 500 m) and light wind speeds (less than or equal to 2 m/s).

Daily precipitation data measured at the Aurora Research Farm in Aurora, New York (approximately 10 miles east of the site) for the period (1957-1991) were obtained from the Northeast Regional Climate Center at Cornell University. The maximum 24-hour precipitation measured at this station during this period was 3.91 inches on September 26, 1975. Values of 35 inches mean annual pan evaporation and 28 inches for annual lake evaporation are shown in **Table 2-3.** An independent value of 27 inches for mean annual evaporation from open water surfaces was estimated from an isopleth presented in "Water Atlas of the United States" (Water Information Center, 1973).

Information on the frequency of inversion episodes for a number of National Weather Service stations is summarized in "MixingHeights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States" (George C. Holzworth, US EPA, 1972). The closest stations for which inversion information is available are in Albany, New York, and Buffalo, New York. The Buffalo station is nearer to SEDA but almost certainly exhibits influences from Lake Erie. These influences would not be expected to be as noticeable at SEDA.

SEDA is located in the Genesse-Finger Lakes Air Quality Control Region (AQCR). The AQCR is designated as non-attainment for ozone and attainment or unclassified for all other criteria pollutants. Data for the existing air quality in the area which surrounds the SEDA, cannot be obtained since the nearest state air quality stations are 40 to 50 miles away from the army depot, (Rochester of Monroe County or Syracuse of Onondaga County), and is not representative of the conditions at SEDA. A review of the data for Rochester, which is in the same AQCR as the SEDA, indicates that all monitored pollutants (sulfur dioxide, particulates, carbon monoxide, lead, and ozone) are below state and federal limits, with the exception of ozone. In 1987, the maximum ozone concentration observed in Rochester was 0.127 ppm; however, this value is not representative of the SEDA area which is a more rural environment.

2.6 CONTAMINATION ASSESSMENT

The results of the investigation activities are summarized below. These activities include both screening (such as soil gas surveys) and conformational soil sampling. The primary purpose of the screening activities was to provide information to be used in locating the conformational soil borings. Confirmation soil sampling was used to accurately determine the extent of the impacted soil. This discussion focuses primarily on the bend in the road area at the Ash Landfill, which is considered the primary source of groundwater contamination. A full discussion of the RI activities at the site can be found in the RI report (ES, 1993). Complete data tables for the RI including the eight (8) confirmatory soil borings are in Appendix B of the Action Memorandum.

2.6.1 Soil Gas

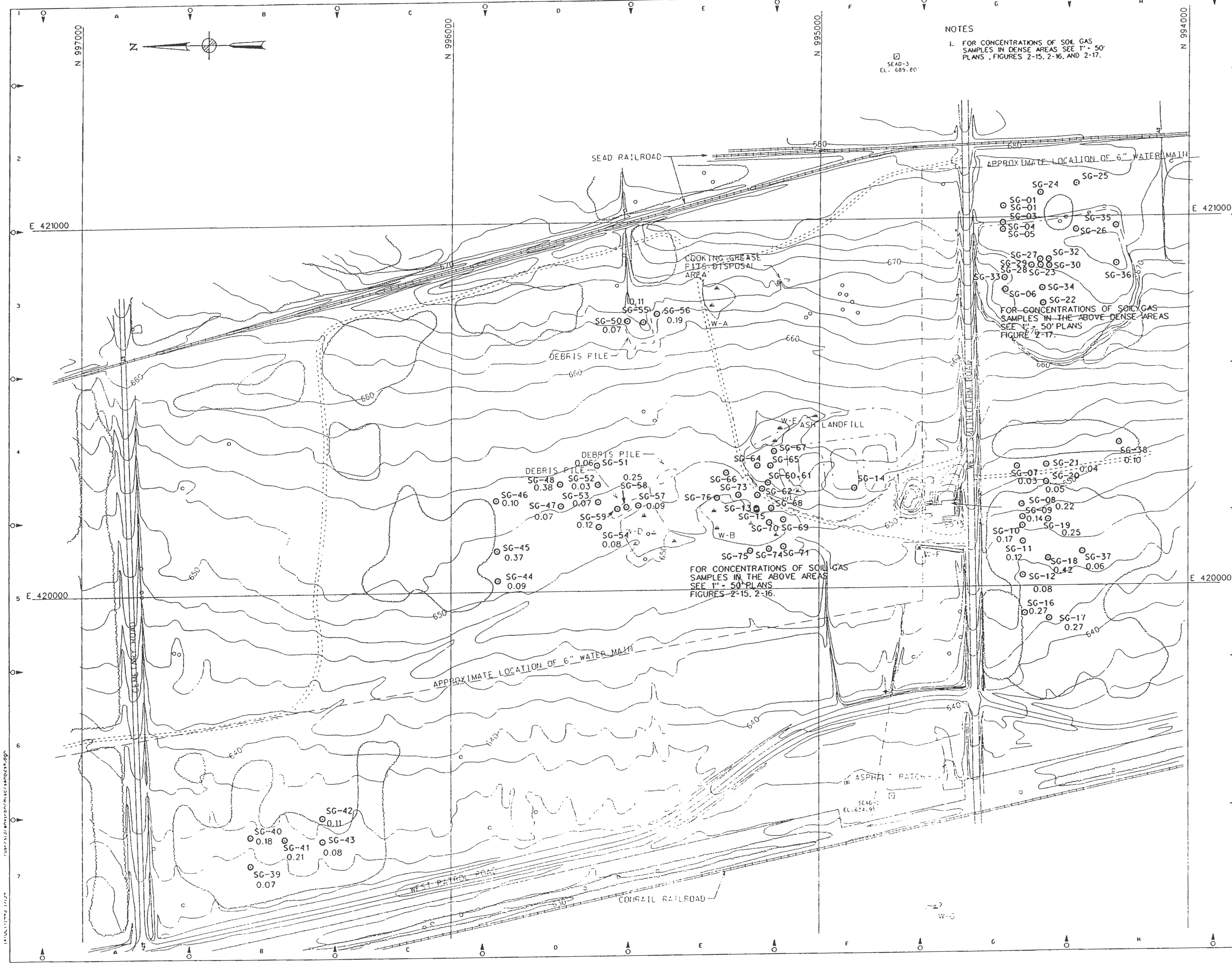
Three separate soil gas investigations have been carried out at the SEDA Ash Landfill. The first was conducted by Target Environmental, Inc. (Target) under the supervision of ICF as part of the Phase I RI (USATHAMA, 1989). In their investigation, Target collected soil gas samples from a grid network over the entire Ash Landfill site to identify potential hot spots. Several areas with elevated soil gas concentrations were identified, including two areas near the "bend in the road" area. One of these areas southeast of the "bend in the road", contained a soil gas concentration of 11,000 μg/L (1880 ppmv as TCE). This was the highest value obtained during the target survey and was an order of magnitude higher than the next highest value of 655 μg/L (112 ppmv as TCE) which was detected in the "bend in the road" area.

As a follow up to the Target Survey, C.T. Main (MAIN) performed a soil gas survey in November, 1991 to evaluate the potential for VOC's at geophysical anomalies around the Ash Landfill and at the Non-Combustible Fill Landfill. Additionally, the MAIN survey confirmed the areas of concern identified by the Target Survey. This investigation refined the results of the Target Survey by collecting soil gas samples at closer spacings. The results of MAIN's investigation correlated well with the results of the Target investigation.

Near the "bend in the road", the MAIN survey determined the total volatile organics in soil gas were as high as 86.6 ppmv (655 ug/L) which compared well to the highest Target soil gas value of 112 ppmv. Experience has shown that soil contamination may be present at concentrations exceeding 1 ppmv. A 1 ppmv total volatile organics isocontour encompasses an area approximately 250 feet by 175 feet (**Figure 2-14**). Trichloroethane (TCE) concentrations in soil gas are also provided on **Figure 2-15**. This soil gas survey identified a possible source area for volatile organic compounds in soil (i.e., an area encompassed by 1 ppmv isocontour).

Areas identified in the Target (1989) soil gas survey with soil gas concentrations of over 100 μg/L 17.1 ppmv as TCE are shown in expanded scale on **Figure 2-16** and **2-17**. In the southeasternmost location, a total volatile organics concentration of approximately 11,000 μg/L (approximately 1880 ppmv) was detected. This value was localized in one spot. Soil gas concentrations decreased substantially a small distance from this area. For comparison with the MAIN survey, a soil sample from this approximate location was collected during MAIN's soil gas survey and a concentration of approximately 50 ppmv was determined. Differences in concentration are not unexpected using soil gas techniques given the time between sampling events and the error associated with locating the two collection points. Soil gas concentrations determined by MAIN are generally higher near the bend in the road (up to 86.6 ppmv) than was previously identified by Target. The conclusions from both surveys are consistent and suggest a source of the observed groundwater impacts.

A third soil gas survey was performed in April 1993 to eliminate uncertainties associated with the soil gas contours and provide more resolution for the two areas identified earlier. This soil gas investigation was carried out by ES (formerly MAIN). The purpose of this investigation was to fully delineate the two hot spots identified near the bend in the road for the purpose of determining the area to be addressed by this removal action. The original plan was to conduct the investigation using the same methodology as that of the MAIN investigation; however, due to heavy precipitation and snowbelt, the soils at the site were saturated. This eliminated the use of soil gas since no gas was available, necessitating a change



LEGEND:

- PAVED ROAD
- DIRT ROAD
- 650 GROUND CONTOUR AND ELEVATION
- TREE
- W-B WETLAND & DESIGNATION
- APPROXIMATE EXTENT OF FILL
- OUTLINE OF FORMER TRASH PITS (IDENTIFIED FROM AERIAL PHOTO)
- APPROXIMATE EXTENT OF DEBRIS PILE
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- FUEL OR UNDERGROUND STORAGE TANK
- SEAD-1 EL. 630.90' SURVEY MONUMENT
- PT-12 MW-45 MONITORING WELL & DESIGNATION
- SG-37 0.06 LOCATION OF SOIL GAS SAMPLE, DESIGNATION & TOTAL VOLATILE CONCENTRATION IN PPMV

REV	DATE	DESCRIPTION
B	10/93	DRAFT ACTION MEMORANDUM
A	2/93	PRELIM. DRAFT AM/EECA

DRAWN BY: G.A.KAELIN	CHECKED BY: D.KELMAR
DESIGN SUPV.: G.A.KAELIN	RESP. ENGR.: M.CURRY
CHIEF DISC. ENGR.: M.E.BAKER	MGR. OF ENGR.: J.P.CHAPLICK
PROJECT MANAGER: M.K.DUCHESNEAU	
MGR. OF PROJECTS: J.P.CHAPLICK	
IN CHARGE: W.J.PATTERSON	

ES
ENGINEERING-SCIENCE, INC.

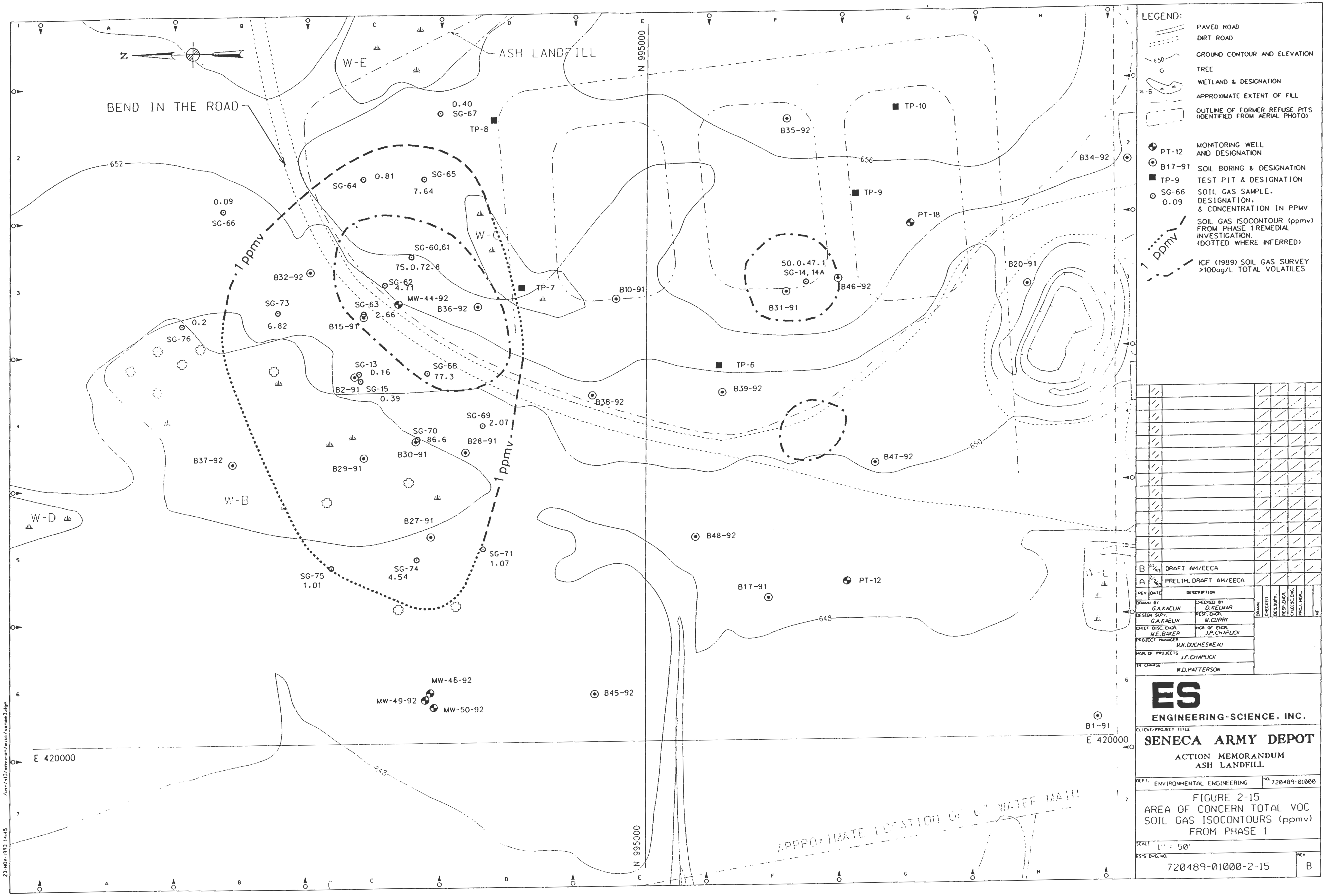
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL

DEPT. ENVIRONMENTAL ENGINEERING — NO. 720447-03222

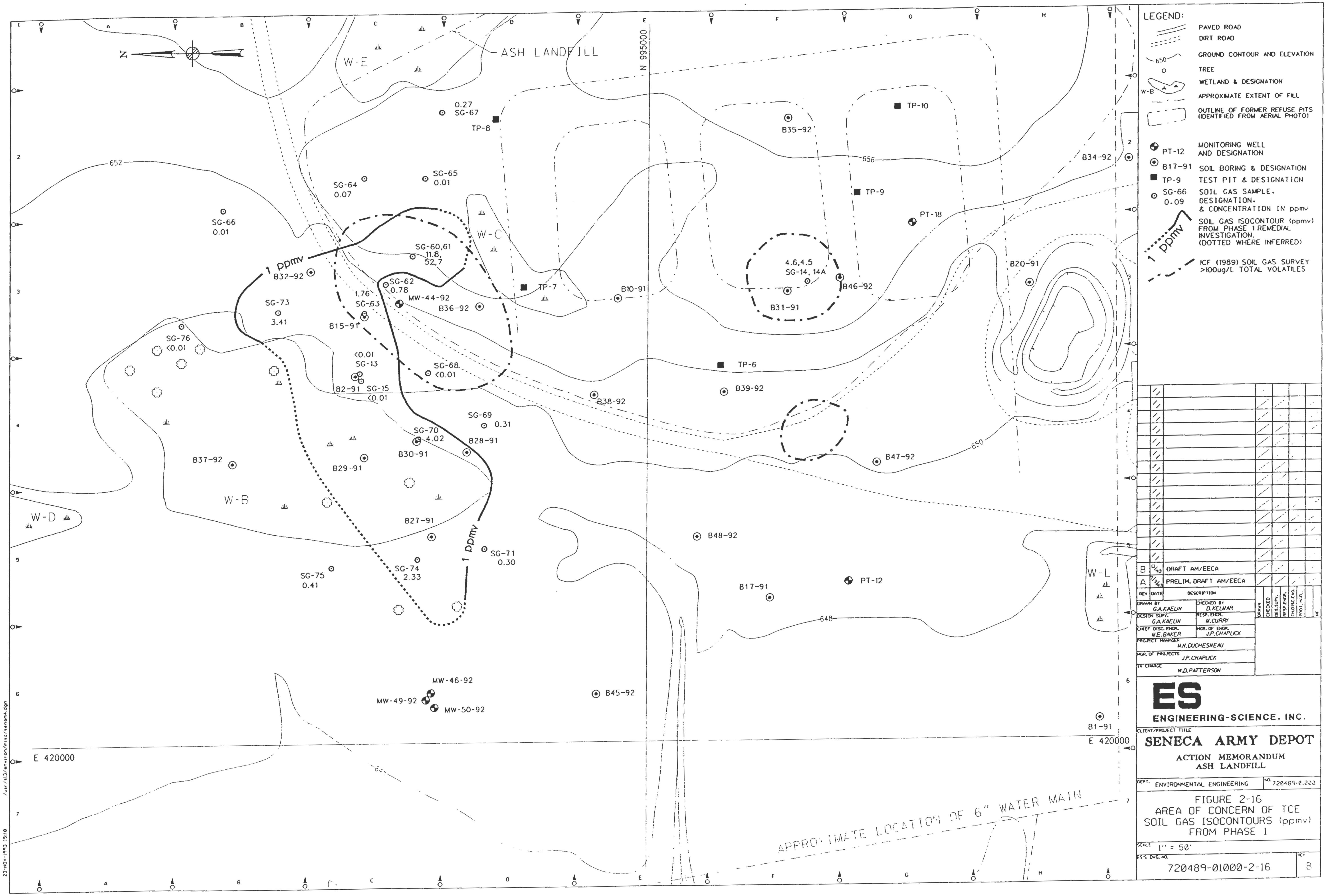
FIGURE 2-14
TOTAL VOLATILE ORGANIC CONCENTRATIONS OF PHASE 1 SOIL GAS SAMPLES

SCALE 1" = 250'

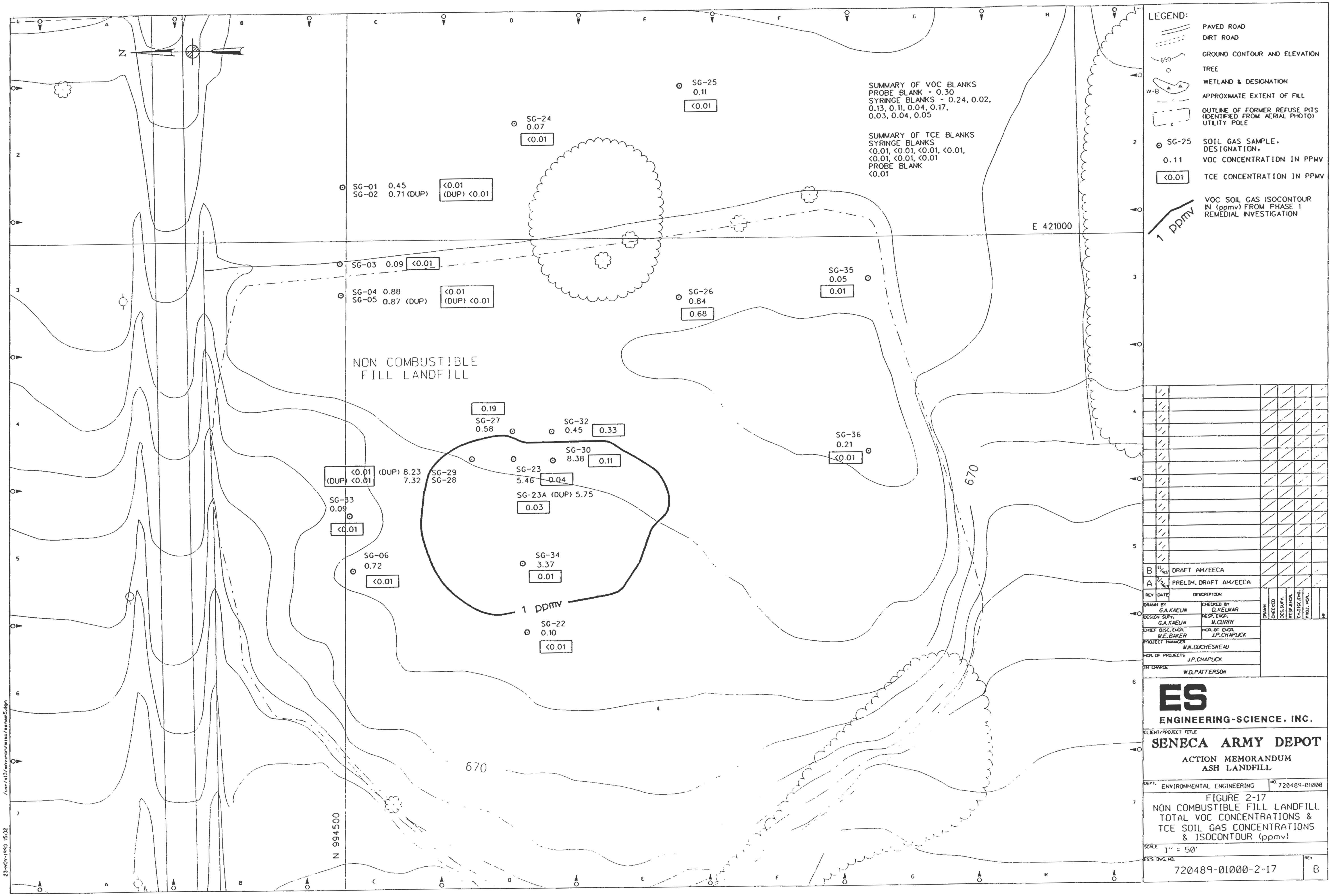
ES'S DWG. NO. 720489-01000-2-14 — REV. B



ASH LANDFILL
BEND IN THE ROAD
N 995000
E 420000
W-E
W-C
W-B
W-D
1 ppmv
652
656
650
648
0.40 SG-67
TP-8
SG-64 0.81
SG-65 7.64
0.09 SG-66
SG-60,61 75.0,72.8
SG-62 4.71
MW-44-92
B32-92
SG-73 6.82
SG-63 2.66
B36-92
B15-91
0.2 SG-76
SG-13 0.16
SG-68 77.3
B2-91 SG-15 0.39
SG-69 2.07
SG-70 86.6
B28-91
B30-91
B37-92
B29-91
B27-91
SG-71 1.07
SG-74 4.54
SG-75 1.01
MW-46-92
MW-49-92
MW-50-92
B45-92
TP-7
B10-91
B38-92
TP-6
B39-92
B35-92
TP-10
TP-9
PT-18
50.0,47.1 SG-14, 14A
B31-91
B46-92
B34-92
B20-91
B47-92
B48-92
PT-12
B17-91
B1-91
APPROXIMATE LOCATION OF 6" WATER MAIN
LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
TREE
WETLAND & DESIGNATION
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
PT-12 MONITORING WELL AND DESIGNATION
B17-91 SOIL BORING & DESIGNATION
TP-9 TEST PIT & DESIGNATION
SG-66 0.09 SOIL GAS SAMPLE, DESIGNATION, & CONCENTRATION IN PPMV
SOIL GAS ISOCONTOUR (ppmv) FROM PHASE 1 REMEDIAL INVESTIGATION. (DOTTED WHERE INFERRED)
ICF (1989) SOIL GAS SURVEY >100ug/L TOTAL VOLATILES
B 11/93 DRAFT AM/EECA
A 7/93 PRELIM. DRAFT AM/EECA
REV DATE DESCRIPTION
DRAWN BY G.A.KAELIN
CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAELIN
RESP. ENGR. M.CURRY
CHIEF DISC. ENGR. M.E.BAKER
MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER M.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPLICK
IN CHARGE W.D.PATTERSON
ES
ENGINEERING-SCIENCE, INC.
SENECA ARMY DEPOT
ACTION MEMORANDUM ASH LANDFILL
DEPT. ENVIRONMENTAL ENGINEERING
NO. 720489-01000
FIGURE 2-15
AREA OF CONCERN TOTAL VOC SOIL GAS ISOCONTOURS (ppmv) FROM PHASE I
SCALE 1" = 50'
ES-S DWG NO. 720489-01000-2-15
REV B
23-NOV-1993 14:45



ASH LANDFILL
N 995000
E 420000
W-E
W-C
W-B
W-D
W-L
652
656
650
648
1 ppmv
SG-67 0.27
TP-8
TP-10
B35-92
SG-64 0.07
SG-65 0.01
SG-66 0.01
TP-9
B34-92
PT-18
SG-60,61 11.8, 52.7
SG-62 0.78
SG-63 1.76
MW-44-92
B36-92
B32-92
SG-73 3.41
B15-91
TP-7
B10-91
4.6,4.5 SG-14, 14A
B31-91
B46-92
B20-91
SG-76 <0.01
SG-13 <0.01
SG-68 <0.01
B2-91
SG-15 <0.01
TP-6
B39-92
B38-92
SG-69 0.31
SG-70 4.02
B28-91
B30-91
B29-91
B37-92
B47-92
B27-91
B48-92
SG-71 0.30
SG-74 2.33
SG-75 0.41
PT-12
B17-91
MW-46-92
MW-49-92
MW-50-92
B45-92
B1-91
APPROXIMATE LOCATION OF 6" WATER MAIN
LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
TREE
WETLAND & DESIGNATION
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
PT-12 MONITORING WELL AND DESIGNATION
B17-91 SOIL BORING & DESIGNATION
TP-9 TEST PIT & DESIGNATION
SG-66 0.09 SOIL GAS SAMPLE, DESIGNATION, & CONCENTRATION IN ppmv
SOIL GAS ISOCONTOUR (ppmv) FROM PHASE 1 REMEDIAL INVESTIGATION. (DOTTED WHERE INFERRED)
ICF (1989) SOIL GAS SURVEY >100ug/L TOTAL VOLATILES
B DRAFT AM/EECA
A PRELIM. DRAFT AM/EECA
REV DATE DESCRIPTION
DRAWN BY G.A.KAEUN
CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAEUN
RESP. ENGR. M.CURRY
CHIEF DISC. ENGR. M.E.BAKER
MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER M.H.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPLICK
IN CHARGE W.D.PATTERSON
ES
ENGINEERING-SCIENCE, INC.
SENECA ARMY DEPOT
ACTION MEMORANDUM ASH LANDFILL
DEPT. ENVIRONMENTAL ENGINEERING
NO. 720489-2.222
FIGURE 2-16
AREA OF CONCERN OF TCE SOIL GAS ISOCONTOURS (ppmv) FROM PHASE 1
SCALE 1" = 50'
E.S.S DWG. NO. 720489-01000-2-16
REV. B
23-NOV-1993 15:18



LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
TREE
WETLAND & DESIGNATION
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
UTILITY POLE
SG-25 SOIL GAS SAMPLE. DESIGNATION.
0.11 VOC CONCENTRATION IN PPMV
<0.01 TCE CONCENTRATION IN PPMV
VOC SOIL GAS ISOCONTOUR IN (ppmv) FROM PHASE 1 REMEDIAL INVESTIGATION
1 ppmv
SUMMARY OF VOC BLANKS
PROBE BLANK - 0.30
SYRINGE BLANKS - 0.24, 0.02, 0.13, 0.11, 0.04, 0.17, 0.03, 0.04, 0.05
SUMMARY OF TCE BLANKS
SYRINGE BLANKS
<0.01, <0.01, <0.01, <0.01, <0.01, <0.01, <0.01
PROBE BLANK
<0.01
NON COMBUSTIBLE FILL LANDFILL
E 421000
N 994500
670
SG-25 0.11 <0.01
SG-24 0.07 <0.01
SG-01 0.45 <0.01
SG-02 0.71 (DUP) (DUP) <0.01
SG-03 0.09 <0.01
SG-04 0.88 <0.01
SG-05 0.87 (DUP) (DUP) <0.01
SG-26 0.84 0.68
SG-35 0.05 0.01
SG-27 0.58 0.19
SG-32 0.45 0.33
SG-30 8.38 0.11
SG-29 (DUP) 8.23 <0.01
SG-28 7.32 (DUP) <0.01
SG-23 5.46 0.04
SG-23A (DUP) 5.75 0.03
SG-36 0.21 <0.01
SG-33 0.09 <0.01
SG-06 0.72 <0.01
SG-34 3.37 0.01
SG-22 0.10 <0.01
B 11/93 DRAFT AM/EECA
A 7/93 PRELIM. DRAFT AM/EECA
REV DATE DESCRIPTION
DRAWN BY G.A.KAEUN
CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAEUN
RESP. ENGR. W.CURRY
CHIEF DISC. ENGR. M.E.BAKER
MGR. OF ENGR. J.P.CHAPUCK
PROJECT MANAGER M.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPUCK
IN CHARGE W.D.PATTERSON
ES
ENGINEERING-SCIENCE, INC.
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL
DEPT. ENVIRONMENTAL ENGINEERING
NO. 720489-01000
FIGURE 2-17
NON COMBUSTIBLE FILL LANDFILL
TOTAL VOC CONCENTRATIONS &
TCE SOIL GAS CONCENTRATIONS
& ISOCONTOUR (ppmv)
SCALE 1" = 50'
ES'S DWG. NO. 720489-01000-2-17
REV B
23-NOV-1993 15:32

in the work plan. Using 2-inch-diameter split spoons, driven to a depth of 4 feet, a soil sample was collected and placed in a 40-ml VOA vial with a Teflon septum. Headspace samples were then collected from the vial and analyzed in a manner similar to the analysis of the soil gas using a Photovac model 10S50 portable GC.

The results of this investigation are summarized in **Table 2-4** and **Figure 2-18**. The results were tabulated in units of Volt-seconds (Vs), which are the units of the integrator output.

From this survey, areas of elevated soil gas were fully delineated and used as the basis for follow-up soil borings. Eight (8) confirmations soil borings were collected just outside the areas of elevated soil gas concentrations in order to confirm the extent of soil impacts. Previous soil sampling within the areas of elevated soil gas concentrations had identified the presence of chlorinated volatile organics in soil. Only one sample collected from these eight borings detected the presence of TCE, DCE, or vinyl chloride in excess of the NYSDEC TAGM soil cleanup criteria. The results of these soil borings are detailed below. Following the soil headspace survey and the confirmatory soil sampling, two areas of soil contamination were delineated, comprising approximately 38,000 and 17,000 square feet, respectively. These two (2) areas, are the focus of this removal action.

2.6.2 Soil

2.6.2.1 Volatile Organic Compounds

Volatile organic compounds are the primary analytes of concern identified in most of the soil samples collected during the boring program **(Figure 2-19)**. The volatile organics include vinyl chloride TCE, DCE (total), 1,2-dichloroethane (one occurrence). These results from the soil samples collected in the "bend in the road" area are summarized in **Table 2-5.**

The highest concentrations of volatile organic compounds found at the site were detected in samples from varying depths (2 to 8 feet) in the fill of the Ash Landfill and immediately northwest of this filled area, near the bend in the road. The highest concentration of volatile organic compounds (641,700 μg/kg of mostly TCE) was found in the 2-4 foot sample in B15-91 **(Figure 2-19)**. Generally, concentrations of total volatile organic compounds decrease in a westward direction between boring B15-91 and B45-91 (on the western side of wetland B).

SENECA ARMY DEPOT
ASH LANDFILL

TABLE 2-4
SOIL HEADSPACE RESULTS USING GAS CHROMATOGRAPHY

PHASE II REMEDIAL INVESTIGATION

HEADSPACE POINT	INJECTION VOLUME (ml)	TCE (Vs)	DCE (Vs)	TCE ADJUSTED (Vs)	DCE ADJUSTED (Vs)	Total TCE+DCE (Vs)
SG-0	0.2	17.9	91.4	89.5	457.0	546.5
SG-0	0.1	3.3	84.6	33.0	846.0	879.0
AE-1	0.1	727.0	293.0	7,270.0	2,930.0	10,200.0
AE-1	0.1	327.0	244.0	3,270.0	2,440.0	5,710.0
AE-2	0.05	1,500.0	199.0	30,000.0	3,980.0	33,980.0
AE-3	0.05	5.5	50.0	110.0	1,000.0	1,110.0
AE-3	0.025	2.0	17.4	80.0	696.0	776.0
AE-4	0.05	1,200.0	228.0	24,000.0	4,560.0	28,560.0
AE-5	0.05	1.6	–	32.0	0.0	32.0
AE-6	0.5	–	–	0.0	0.0	0.0
AE-7	0.5	3.6	0.2	7.2	0.4	7.6
AW-1	0.5	344.0	269.0	688.0	538.0	1,226.0
AW-2	0.5	35.2	88.9	70.4	177.8	248.2
AW-3	1	70.3	88.8	70.3	88.8	159.1
AW-4	1	12.0	5.2	12.0	5.2	17.2
AW-5	1	26.3	12.9	26.3	12.9	39.2
AW-6	1	13.1	2.2	13.1	2.2	15.3
AW-7	1	1.8	–	1.8	0.0	1.8
BS-1	0.25	3.4	54.5	13.6	218.0	231.6
BS-2	0.25	5.0	100.0	20.0	400.0	420.0
BS-2	0.1	2.5	51.4	25.0	514.0	539.0
BS-3	0.25	12.5	13.7	50.0	54.8	104.8
BS-3	0.1	5.5	8.5	55.0	85.0	140.0
BS-4	0.25	5.5	10.8	22.0	43.2	65.2
BS-5	0.5	6.8	1.8	13.6	3.6	17.2
BS-5	0.25	3.7	1.1	14.8	4.4	19.2
BS-6	1	0.7	31.6	0.7	31.6	32.3
BS-7	0.5	12.9	285.0	25.8	570.0	595.8
BS-5E-1	0.25	–	–	0.0	0.0	0.0
BS-5E-2	0.5	1.4	–	2.8	0.0	2.8
BS-5W-1	0.25	2.0	1.6	8.0	6.4	14.4
BS-5W-2	0.5	11.9	1.8	23.8	3.6	27.4
BS-5W-3	0.5	17.5	10.5	35.0	21.0	56.0
BN-1	0.25	0.6	0.3	2.4	1.2	3.6
BN-2	1	1.7	81.5	1.7	81.5	83.2
BN-3	0.5	22.0	14.2	44.0	28.4	72.4
BN-4	0.5	–	–	0.0	0.0	0.0
BN-5	0.5	–	–	0.0	0.0	0.0
BN-6	not run	not run	not run	not run	not run	not run
BN-7	1	–	–	0.0	0.0	0.0
CSE-1	0.1	0.4	356.0	4.0	3,560.0	3,564.0
CSE-2	0.05	79.6	58.0	1,592.0	1,160.0	2,752.0
CSE-3	0.25	–	0.9	–	3.6	3.6
CSE-4	0.5	0.9	1.0	1.8	2.0	3.8
CSE-5	0.5	0.5	–	1.0	0.0	1.0
CSE-6	0.5	8.8	1.0	17.6	2.0	19.6
CSE-7	0.5	4.0	–	8.0	0.0	8.0
CSE-8	0.5	–	–	0.0	0.0	0.0
CNW-1	0.5	1.0	7.9	2.0	15.8	17.8
CNW-1	0.25	0.3	4.2	1.2	16.8	18.0
CNW-2	0.5	45.3	118.0	90.6	236.0	326.6
CNW-3	0.5	1.0	12.7	2.0	25.4	27.4
CNW-4	0.5	5.4	0.4	10.8	0.8	11.6
CNW-5	1	–	–	0.0	0.0	0.0
CNW-6	not run	not run	not run	not run	not run	not run
CNW-7	0.5	–	–	0.0	0.0	0.0

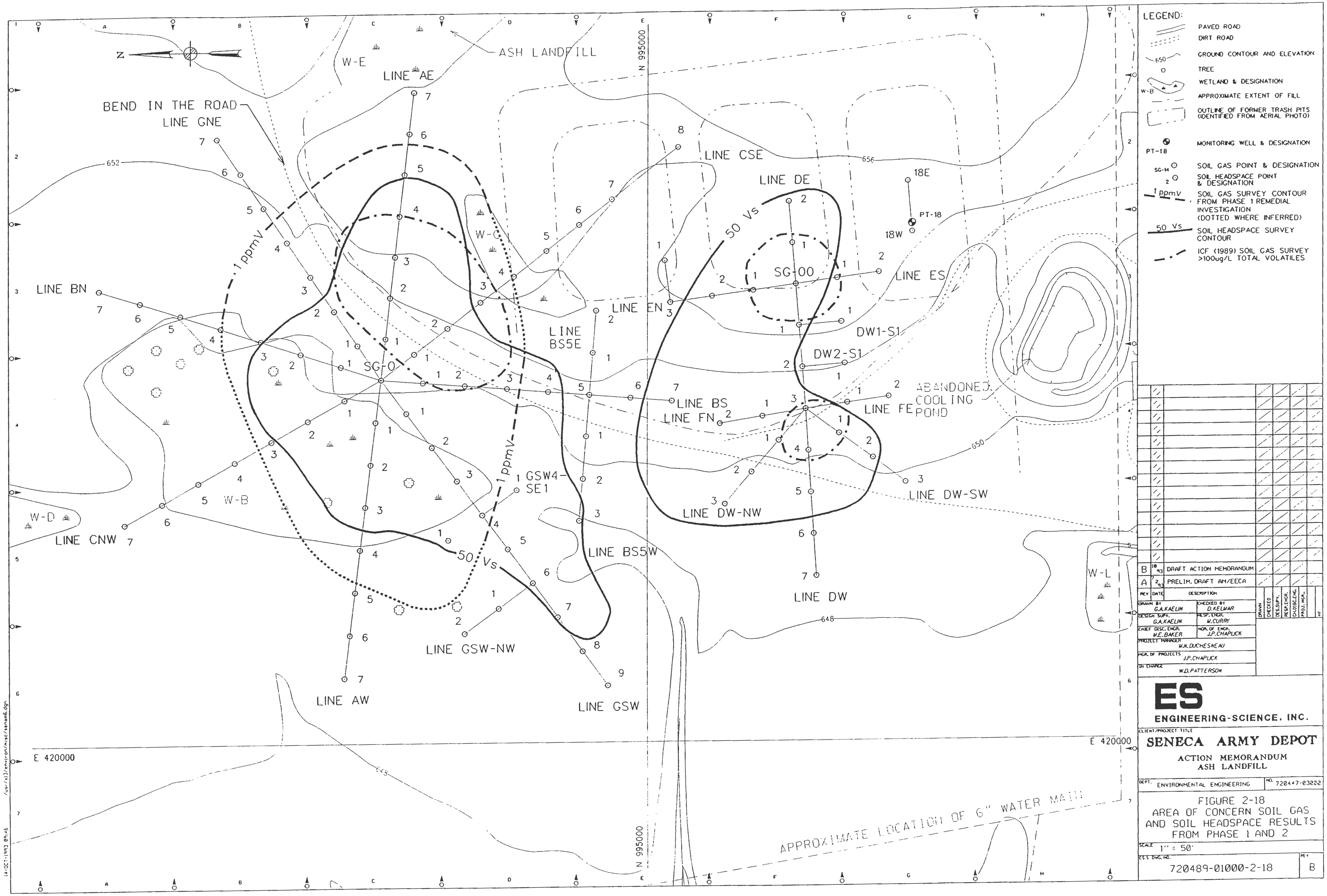
SENECA ARMY DEPOT
ASH LANDFILL

TABLE 2–4 (Con't)
SOIL HEADSPACE RESULTS USING GAS CHROMATOGRAPHY

PHASE II REMEDIAL INVESTIGATION

HEADSPACE POINT	INJECTION VOLUME (ml)	TCE (Vs)	DCE (Vs)	TCE ADJUSTED (Vs)	DCE ADJUSTED (Vs)	Total TCE+DCE (Vs)
SG–00	0.1	26.0	24.1	260.0	241.0	501.0
DE–1	0.5	2.0	2.4	4.0	4.8	8.8
DE–2	1	16.6	43.6	16.6	43.6	60.2
DW–1	0.5	722.0	233.0	1,444.0	466.0	1,910.0
DW–1	0.5	703.0	139.0	1,406.0	278.0	1,684.0
DW–2	0.05	–	–	0.0	0.0	0.0
DW–2	0.5	–	–	0.0	0.0	0.0
DW–3	0.5	28.6	293.0	57.2	586.0	643.2
DW–4	0.25	2.9	111.0	11.6	444.0	455.6
DW–5	0.25	38.5	24.7	154.0	98.8	252.8
DW–6	0.5	4.5	4.8	9.0	9.6	18.6
DW–7	1	–	–	0.0	0.0	0.0
DW–1–S1	0.25	–	–	0.0	0.0	0.0
DW–1–S1	1	–	–	0.0	0.0	0.0
DW–2–S1	0.5	–	–	0.0	0.0	0.0
DW–3–SW1	0.25	38.4	77.8	153.6	311.2	464.8
DW–3–SW2	0.5	–	19.2	0.0	38.4	38.4
DW–3–SW3	0.5	–	–	0.0	0.0	0.0
DW–3–NW1	0.25	15.2	124.0	60.8	496.0	556.8
DW–3–NW2	0.25	3.3	7.1	13.2	28.4	41.6
DW–3–NW3	0.5	22.6	6.4	45.2	12.8	58.0
EN–1	0.1	4.1	52.7	41.0	527.0	568.0
EN–2	0.1	17.9	12.9	179.0	129.0	308.0
EN–3	0.5	–	–	0.0	0.0	0.0
EN–3–E1	0.5	–	–	0.0	0.0	0.0
ES–1	0.5	0.8	–	1.6	0.0	1.6
ES–2	1	–	–	0.0	0.0	0.0
FN–1	0.25	1.7	3.9	6.8	15.6	22.4
FN–2	0.25	18.1	5.6	72.4	22.4	94.8
FS–1	0.25	–	0.5	0.0	2.0	2.0
FS–2	1	3.4	0.5	3.4	0.5	3.9
GNE–1	0.05	–	1.6	0.0	32.0	32.0
GNE–2	0.25	–	193.0	0.0	772.0	772.0
GNE–3	0.25	–	0.2	0.0	0.8	0.8
GNE–4	0.5	2.2	14.8	4.4	29.6	34.0
GNE–5	0.5	–	–	0.0	0.0	0.0
GNE–6	not run	not run	not run	not run	not run	not run
GNE–7	0.5	–	–	0.0	0.0	0.0
GSW–1	0.1	1.7	98.7	17.0	987.0	1,004.0
GSW–2	0.25	2.4	162.0	9.6	648.0	657.6
GSW–3	0.5	5.7	149.0	11.4	298.0	309.4
GSW–4	0.5	–	0.7	0.0	1.4	1.4
GSW–4	1	–	1.6	0.0	1.6	1.6
GSW–5	0.5	15.8	118.0	31.6	236.0	267.6
GSW–6	0.5	18.0	94.8	36.0	189.6	225.6
GSW–7	1	25.0	187.0	25.0	187.0	212.0
GSW–8	0.5	5.6	13.7	11.2	27.4	38.6
GSW–4–SE1	0.5	–	18.5	0.0	37.0	37.0
GSW–4–NW1	0.5	1.3	28.0	2.6	56.0	58.6
GSW–6–NW1	0.5	7.6	8.5	15.2	17.0	32.2
GSW–6–NW2	0.5	3.8	0.8	7.6	1.5	9.1
GSW–9	0.5	13.7	72.9	27.4	145.8	173.2
18E	0.5	0.1	–	0.2	0.0	0.2
18W	0.25	0.1	–	0.4	0.0	0.4

Notes:
1) Vs = volt seconds as measured on the gas chromatograph



LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
TREE
WETLAND & DESIGNATION
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER TRASH PITS (IDENTIFIED FROM AERIAL PHOTO)
MONITORING WELL & DESIGNATION
SOIL GAS POINT & DESIGNATION
SOIL HEADSPACE POINT & DESIGNATION
SOIL GAS SURVEY CONTOUR FROM PHASE 1 REMEDIAL INVESTIGATION (DOTTED WHERE INFERRED)
SOIL HEADSPACE SURVEY CONTOUR
ICF (1989) SOIL GAS SURVEY >100ug/L TOTAL VOLATILES
ASH LANDFILL
BEND IN THE ROAD
LINE GNE
LINE AE
LINE BN
LINE CNW
LINE AW
LINE GSW-NW
LINE GSW
LINE BS5W
LINE BS5E
LINE EN
LINE CSE
LINE DE
LINE ES
LINE BS
LINE FN
LINE FE
LINE DW-NW
LINE DW-SW
LINE DW
DW1-S1
DW2-S1
GSW4-SE1
SG-0
SG-00
PT-18
18E
18W
W-B
W-C
W-D
W-E
W-L
1 ppmV
50 Vs
ABANDONED COOLING POND
APPROXIMATE LOCATION OF 6" WATER MAIN
N 995000
E 420000
652
650
656
648
B DRAFT ACTION MEMORANDUM
A PRELIM. DRAFT AM/EECA
DRAWN BY G.A.KAELIN
CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAELIN
RESP. ENGR. W.CURRY
CHIEF DISC. ENGR. W.E.BAKER
MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER W.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPLICK
IN CHARGE W.D.PATTERSON
ES
ENGINEERING-SCIENCE, INC.
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL
ENVIRONMENTAL ENGINEERING
720447-03222
FIGURE 2-18
AREA OF CONCERN SOIL GAS AND SOIL HEADSPACE RESULTS FROM PHASE 1 AND 2
SCALE 1" = 50'
720489-01000-2-18
B

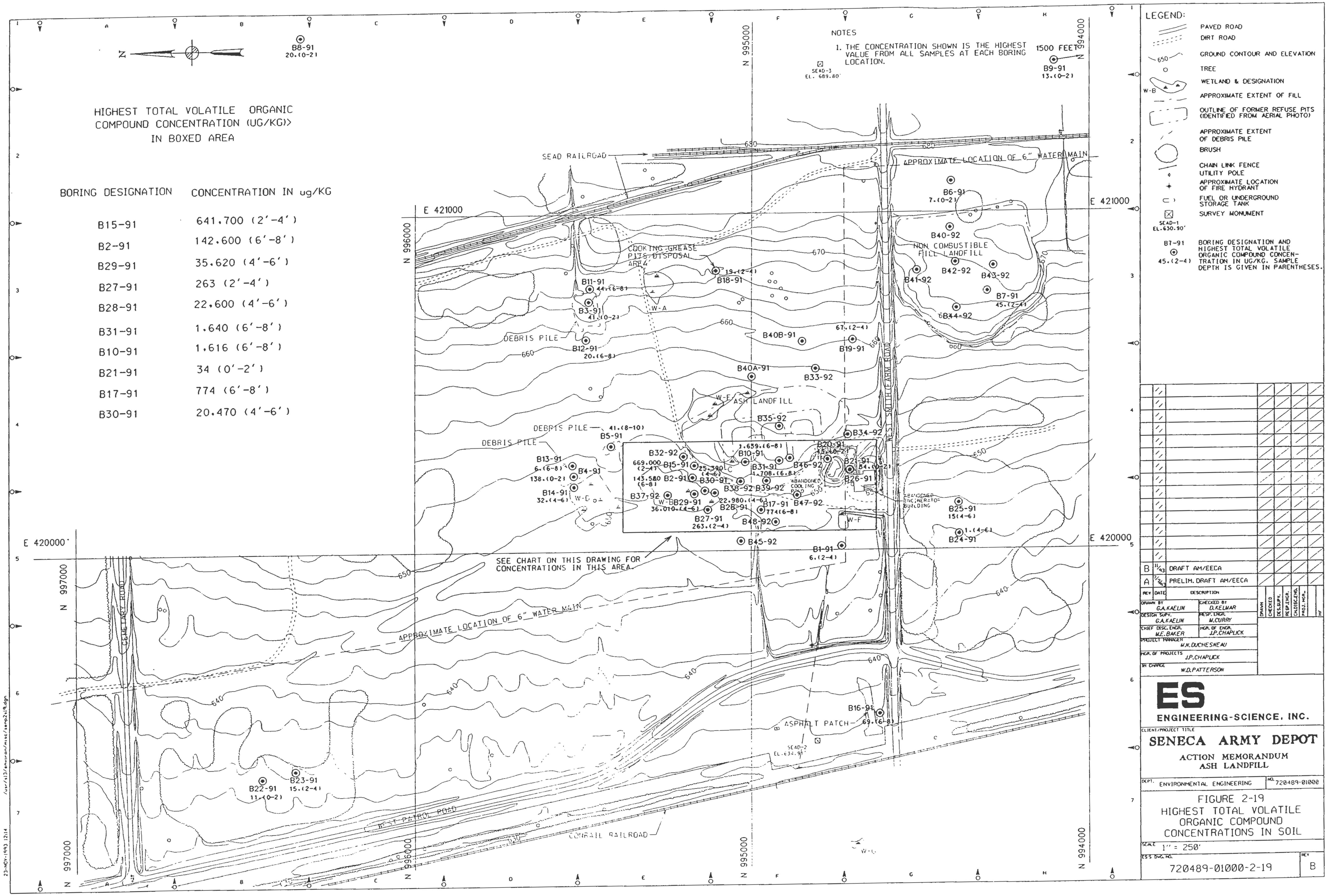

HIGHEST TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATION (UG/KG)> IN BOXED AREA
BORING DESIGNATION CONCENTRATION IN ug/KG
B15-91 641.700 (2'-4')
B2-91 142.600 (6'-8')
B29-91 35.620 (4'-6')
B27-91 263 (2'-4')
B28-91 22.600 (4'-6')
B31-91 1.640 (6'-8')
B10-91 1.616 (6'-8')
B21-91 34 (0'-2')
B17-91 774 (6'-8')
B30-91 20.470 (4'-6')
NOTES
1. THE CONCENTRATION SHOWN IS THE HIGHEST VALUE FROM ALL SAMPLES AT EACH BORING LOCATION.
1500 FEET
SEE CHART ON THIS DRAWING FOR CONCENTRATIONS IN THIS AREA.
SEAD RAILROAD
APPROXIMATE LOCATION OF 6" WATER MAIN
COOKING GREASE PITS DISPOSAL AREA
NON COMBUSTIBLE FILL LANDFILL
ASH LANDFILL
DEBRIS PILE
ABANDONED COOLING POND
ABANDONED INCINERATOR BUILDING
WEST SOUTH FARM ROAD
CEMETARY ROAD
WEST PATROL ROAD
CONRAIL RAILROAD
ASPHALT PATCH
E 421000
E 420000
N 997000
N 996000
N 995000
N 994000
B8-91 20.(0-2)
B9-91 13.(0-2)
B6-91 7.(0-2)
B7-91 45.(2-4)
B12-91 20.(6-8)
B13-91 6.(6-8)
B14-91 32.(4-6)
B5-91 41.(8-10)
B1-91 6.(2-4)
B25-91 15(4-6)
B24-91 1.(4-6)
B16-91 69.(6-8)
B22-91 11.(0-2)
B23-91 15.(2-4)
LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
TREE
WETLAND & DESIGNATION
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
APPROXIMATE EXTENT OF DEBRIS PILE
BRUSH
CHAIN LINK FENCE
UTILITY POLE
APPROXIMATE LOCATION OF FIRE HYDRANT
FUEL OR UNDERGROUND STORAGE TANK
SURVEY MONUMENT
BORING DESIGNATION AND HIGHEST TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATION IN UG/KG. SAMPLE DEPTH IS GIVEN IN PARENTHESES.
B DRAFT AM/EECA
A PRELIM. DRAFT AM/EECA
DRAWN BY G.A.KAELIN
CHECKED BY D.KELMAR
DESIGN SUPV. G.A.KAELIN
RESP. ENGR. M.CURRY
CHIEF DISC. ENGR. M.E.BAKER
MGR. OF ENGR. J.P.CHAPLICK
PROJECT MANAGER M.N.DUCHESNEAU
MGR. OF PROJECTS J.P.CHAPLICK
IN CHARGE W.D.PATTERSON
ES ENGINEERING-SCIENCE, INC.
SENECA ARMY DEPOT
ACTION MEMORANDUM ASH LANDFILL
ENVIRONMENTAL ENGINEERING
720489-01000
FIGURE 2-19
HIGHEST TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL
SCALE 1" = 250'
720489-01000-2-19
B

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-2 0-2 10/31/91 S1031-4	B-2 2-4 10/31/91 S1031-5	B-2 6-8 10/31/91 S1031-6	B-2 8-10 10/31/91 S1031-7	B-10 0-2 11/06/91 S1106-31	B-10 2-4 11/06/91 S1106-32	B-10 2-4 11/06/91 S1106-33 (1)	B-10 6-8 11/06/91 S1106-34	B-15 0-2 11/08/91 S1108-49	B-15 2-4 11/08/91 S1108-50
VOCs (µg/kg)											
Vinyl Chloride	200	1500 U J	1500 U	920 J	2800 U	N	12 U	11 U	92	38 U	2200 U J
Acetone	200	1500 U J	1500 U	1600 U	2800 U	N	43	11 U	11 U	38 U	2200 U J
1,2-Dichloroethene (total)	300	12000 J	1900	21000	1400 U	N	6 U	6 U	1300	29000	40000 J
1,2-Dichloroethane	100	740 U J	730 U	780 U	1400 U	N	6 U	6 U	6 U	19 U	1100 U J
Trichloroethene	700	28000	4400	120000	69000	N	4 J	6 U	220	110000	470000 J
Toluene	1500	560 J	220 J	280 J	1400 U	N	2 J	2 J	6 U	4 J	3700 J
Xylene (total)	1200	2900 J	1200	400 J	1400 U	N	5 J	20 J	6 U	19 U	14000 J
Semivolatiles (µg/kg)											
Phenol	30	710 U	730 U	720 U	N	740 U	730 U	760 U	750 U	700 U	1600 U J
2-Nitrophenol	330	710 U	730 U	720 U	N	740 U	730 U	760 U	750 U	700 U	1600 U J
4-Nitrophenol	100	3400 U	3600 U	3500 U	N	3600 U	3600 U	3700 U	3600 U	3400 U	7700 U J
Dibenzofuran	6200	710 U	730 U	720 U	N	310 J	730 U	760 U	750 U	700 U	1600 U J
Di-n-butylphthalate	8100	710 U	730 U	720 U	N	740 U	77 J	760 U	750 U	700 U	1600 U J
Benzo(a)anthracene	220	710 U	730 U	720 U	N	2700	160 J	150 J	750 U	97 J	1600 U J
Chrysene	400	710 U	730 U	720 U	N	2200	160 J	160 J	750 U	120 J	1600 U J
bis(2-Ethylhexyl)phthalate	50000*	710 U	730 U	720 U	N	600 J	100 J	360 J	100 J	460 J	450 J
Benzo(b)fluoranthene	1100	710 U	730 U	720 U	N	2500	160 J	140 J	750 U	140 J	1600 U J
Benzo(k)fluoranthene	1100	710 U	730 U	720 U	N	1400	110 J	140 J	750 U	140 J	1600 U J
Benzo(a)pyrene	61	710 U	730 U	720 U	N	2200	170 J	150 J	750 U	150 J	1600 U J
Indeno(1,2,3-cd)pyrene	3200	710 U	730 U	720 U	N	1200	110 J	96 J	750 U	180 J	1600 U J
Dibenz(a,h)anthracene	14	710 U	730 U	720 U	N	630 J	730 U	760 U	750 U	700 U	1600 U J

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM
IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT
ASH LANDFILL

	TAGM	B-15 2-4 11/08/91 S1108-51 (1)	B-15 6-8 11/08/91 S1108-52	B-17 0-2 11/13/91 S1113-56	B-17 2-4 11/13/91 S1113-57	B-17 4-6 11/13/91 S1113-58	B-17 6-8 11/13/91 S1113-59 (2)	B-20 0-2 11/14/91 S1114-66	B-20 2-4 11/14/91 S1114-67	B-20 4-6 11/14/91 S1114-68	B-27 0-2 12/04/91 S1204-86(2,3)
VOCs (µg/kg)											
Vinyl Chloride	200	29000 U J	1400 U J	11 U J	12 U J	12 U	33 U	12 U	11 U	11 U	12 U
Acetone	200	8400 U J	1400 U J	16 U J	12 U J	15 U	16 U	12 U	11 U	11 U	12 U
1,2-Dichloroethene (total)	300	79000 J	11000 J	5 U J	14 J	4 J	190	6 U	6 U	5 U	100
1,2-Dichloroethane	100	14000 U J	680 U J	5 U J	6 U J	6 U	21	6 U	6 U	5 U	6 U
Trichloroethene	700	540000 J	38000 J	9 J	210 J	47	540 J	6 U	2 J	5 U	10
Toluene	1500	5700 J	850 J	5 U J	5 J	6 U	17 U	6 U	6 U	5 U	6 U
Xylene (total)	1200	17000 J	4900 J	5 U J	6 U J	6 U	17 U	6 U	6 U	5 U	6 U
Semivolatiles (µg/kg)											
Phenol	30	2000 U J	950 U J	740 U	790 U	770 U	680 U	780 U	750 U	740 U	840 U
2-Nitrophenol	330	2000 U J	950 U J	740 U	790 U	770 U	680 U	780 U	750 U	740 U	840 U
4-Nitrophenol	100	9500 U J	4600 U J	3600 U	3900 U	3700 U	3300 U	3800 U	3600 U	3600 U	4100 U
Dibenzofuran	6200	2000 U J	950 U J	740 U	790 U	770 U	680 U	780 U	750 U	740 U	840 U
Di-n-butylphthalate	8100	2000 U J	950 U J	740 U	790 U	770 U	680 U	88 J	750 U	740 U	840 U
Benzo(a)anthracene	220	2000 U J	950 U J	740 U	790 U	770 U	680 U	150 J	750 U	740 U	840 U
Chrysene	400	2000 U J	950 U J	740 U	790 U	770 U	680 U	160 J	750 U	740 U	840 U
bis(2-Ethylhexyl)phthalate	50000*	940 J	110 J	740 U	790 U	770 U	680 U	780 U	750 U	740 U	840 U
Benzo(b)fluoranthene	1100	2000 U J	950 U J	740 U	790 U	770 U	680 U	93 J	750 U	740 U	840 U
Benzo(k)fluoranthene	1100	2000 U J	950 U J	740 U	790 U	770 U	680 U	160 J	750 U	740 U	840 U
Benzo(a)pyrene	61	2000 U J	950 U J	740 U	790 U	770 U	680 U	120 J	750 U	740 U	840 U
Indeno(1,2,3-cd)pyrene	3200	2000 U J	950 U J	740 U	790 U	770 U	680 U	780 U	750 U	740 U	840 U
Dibenz(a,h)anthracene	14	2000 U J	950 U J	740 U	790 U	770 U	680 U	780 U	750 U	740 U	840 U

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-27 2-4 12/04/91 S1204-87 (3)	B-28 0-2 12/04/91 S1204-88 (3)	B-28 2-4 12/04/91 S1204-89	B-28 2-4 12/04/91 S1204-89A(1)	B-28 4-6 12/04/91 S1204-90(3)	B-29 0-2 12/04/91 S1204-91	B-29 0-2 12/04/91 S1204-91A(1)	B-29 2-4 12/04/91 S1204-92	B-29 4-6 12/04/91 S1204-93	B-29 4-6 12/04/91 S1204-93A(1)
VOCs (µg/kg)											
Vinyl Chloride	200	12 U	12 U	39 U	56 U	1400 U	12 U	12 U	41 U	1400 U	1400 U
Acetone	200	12 U	12 U	39 U	56 J	1400 U	12 U	12 U	42	1400 U	1400 U
1,2-Dichloroethene (total)	300	250	160	2500 J	1600	20000	76	66	610	14000	11000
1,2-Dichloroethane	100	6 U	6 U	20 U	28 U	690 U	6 U	6 U	21 U	680 U	700 U
Trichloroethene	700	13	18	83	74	2600	49	58	250	21000	17000
Toluene	1500	6 U	6 U	20 U	28 U	690 U	6 U	6 U	21 U	680 U	700 U
Xylene (total)	1200	6 U	6 U	20 U	28 U	690 U	6 U	6 U	21 U	680 U	700 U
Semivolatiles (µg/kg)											
Phenol	30	780 U	710 U	760 U	760 U	730 U	790 U	780 U	720 U	730 U	750 U
2-Nitrophenol	330	780 U	710 U	760 U	760 U	730 U	790 U	780 U	720 U	730 U	750 U
4-Nitrophenol	100	3800 U	3500 U	3700 U	3700 U	3500 U	3800 U	3800 U	3500 U	3500 U	3600 U
Dibenzofuran	6200	780 U	710 U	760 U	760 U	730 U	790 U	780 U	720 U	730 U	750 U
Di-n-butylphthalate	8100	780 U	710 U	760 U	760 U	730 U	790 U	780 U	720 U	730 U	750 U
Benzo(a)anthracene	220	780 U	710 U	760 U	760 U	730 U	790 U	160 J	720 U	730 U	750 U
Chrysene	400	780 U	710 U	760 U	760 U	730 U	790 U	160 J	720 U	730 U	750 U
bis(2-Ethylhexyl)phthalate	50000*	780 U	710 U	760 U	760 U	730 U	790 U	780 U	720 U	730 U	750 U
Benzo(b)fluoranthene	1100	780 U	710 U	760 U	760 U	730 U	790 U	140 J	720 U	730 U	750 U
Benzo(k)fluoranthene	1100	780 U	710 U	760 U	760 U	730 U	790 U	210 J	720 U	730 U	750 U
Benzo(a)pyrene	61	780 U	710 U	760 U	760 U	730 U	790 U	190 J	720 U	730 U	750 U
Indeno(1,2,3-cd)pyrene	3200	780 U	710 U	760 U	760 U	730 U	790 U	780 U	720 U	730 U	750 U
Dibenz(a,h)anthracene	14	780 U	710 U	760 U	760 U	730 U	790 U	780 U	720 U	730 U	750 U

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM
IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT
ASH LANDFILL

	TAGM	B-30 0-2 12/04/91 S1204-94	B-30 0-2 12/04/91 S1204-94A(1)	B-30 2-4 12/04/91 S1204-95	B-30 4-6 12/04/91 S1204-96	B-30 4-6 12/04/91 S1204-96A(1)	B-31 0-2 12/05/91 S1205-97	B-31 0-2 12/05/91 S1205-97A(1)	B-31 2-4 12/05/91 S1205-98(3)	B-31 4-6 12/05/91 S1205-99	B-31 6-8 12/05/91 S1205-100(2)
VOCs (µg/kg)											
Vinyl Chloride	200	12 U	12 U	57 U J	1400 U	1400 U	12 U	12 U	12 U	66	370
Acetone	200	12 U	12 U	57 U J	1400 U	680 J	12 U	12 U	12 U	56 U	63 U
1,2-Dichloroethene (total)	300	45	31	1700 J	18000	16000	6 U	6 U	6 U	660	630
1,2-Dichloroethane	100	6 U	6 U	29 U J	720 U	710 U	6 U	6 U	6 U	28 U	32 U
Trichloroethene	700	5 J	5 J	91 J	450 J	390 J	23 J	110 J	5 J	2400 E	640
Toluene	1500	6 U	6 U	29 U J	410 J	640 J	6 U	6 U	6 U	85	32 U
Xylene (total)	1200	6 U	6 U	28 J	970	2100	6 U	6 U	6 U	69	32 U
Semivolatiles (µg/kg)											
Phenol	30	N	800 U J	720 U	1500 U J	1400 U J	800 U	780 U	780 U	720 U	14000 J
2-Nitrophenol	330	N	800 U J	720 U	1500 U J	1400 U J	800 U	780 U	780 U	720 U	1300 J
4-Nitrophenol	100	N	3900 U J	3500 U	7100 U J	7000 U J	3900 U	3800 U	3800 U	3500 U	1600 J
Dibenzofuran	6200	N	800 U J	720 U J	1500 U J	1400 U J	800 U	780 U	780 U	110 U J	4100 U J
Di-n-butylphthalate	8100	N	800 U J	720 U J	1500 U J	1400 U J	800 U	150 J	780 U	720 U J	4100 U J
Benzo(a)anthracene	220	N	800 U J	720 U J	1500 U J	1400 U J	140 J	260 J	100 J	720 U J	4100 U J
Chrysene	400	N	800 U J	720 U J	1500 U J	1400 U J	150 J	210 J	100 J	83 U J	4100 U J
bis(2-Ethylhexyl)phthalate	50000*	N	800 U J	720 U J	1500 U J	1400 U J	83 J	230 J	170 J	220 U J	4100 U J
Benzo(b)fluoranthene	1100	N	800 U J	720 U J	1500 U J	1400 U J	130 J	240 J	100 J	720 U J	4100 U J
Benzo(k)fluoranthene	1100	N	800 U J	720 U J	1500 U J	1400 U J	99 J	160 J	82 J	720 U J	4100 U J
Benzo(a)pyrene	61	N	800 U J	720 U J	1500 U J	1400 U J	110 J	200 J	86 J	720 U J	4100 U J
Indeno(1,2,3-cd)pyrene	3200	N	800 U J	720 U J	1500 U J	1400 U J	82 J	200 J	780 U	720 U J	4100 U J
Dibenz(a,h)anthracene	14	N	800 U J	720 U J	1500 U J	1400 U J	800 U	170 J	780 U	720 U J	4100 U J

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM
IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT
ASH LANDFILL

	TAGM	B-32 0-2 04/27/93 B32-1	B-32 2-4 04/27/93 B32-2	B-32 4-6 04/27/93 B32-3	B-32 6-7.8 04/27/93 B32-4	B-33 0-2 12/14/92 B33-1	B-33 2-3.5 12/14/92 B33-2	B-34 0-2 12/14/92 B34-1	B-34 2-2.75 12/14/92 B34-2	B-35 0-2 12/15/92 B35-1	B-35 2-4 12/15/92 B35-2
VOCs (µg/kg)											
Vinyl Chloride	200	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U	13 U J	13 U
Acetone	200	17 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U	13 U J	23 U
1,2-Dichloroethene (total)	300	110	12 U	1300 U	240 J	12 U	12 U	12 U	12 U	13 U J	13 J
1,2-Dichloroethane	100	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U	13 U J	13 U
Trichloroethene	700	140	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U	44 J	5 J
Toluene	1500	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U	13 U J	13 U
Xylene (total)	1200	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U	13 U J	13 U
Semivolatiles (µg/kg)											
Phenol	30	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U	400 UJ	8100 UJ
2-Nitrophenol	330	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U	400 UJ	8100 UJ
4-Nitrophenol	100	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U	960 UJ	20000 UJ
Dibenzofuran	6200	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U	24 J	8100 UJ
Di-n-butylphthalate	8100	360 U	400 U	440 U	180 J	420 U	380 U	400 U	360 U	400 UJ	8100 UJ
Benzo(a)anthracene	220	58 J	400 U	440 U	350 U	18 J	380 U	42 J	360 U	220 J	8100 UJ
Chrysene	400	66 J	400 U	440 U	350 U	25 J	380 U	51 J	13 J	290 J	420 J
bis(2-Ethylhexyl)phthalate	50000*	53 J	110 J	200 J	440	400 J	380 U	650	780	400 UJ	1400 J
Benzo(b)fluoranthene	1100	67 J	400 U	440 U	350 U	420 U	380 U	39 J	360 U	180 J	420 J
Benzo(k)fluoranthene	1100	49 J	400 U	440 U	350 U	420 U	380 U	39 J	360 U	210 J	8100 UJ
Benzo(a)pyrene	61	56 J	400 U	440 U	350 U	420 U	380 U	38 J	360 U	100 J	8100 UJ
Indeno(1,2,3-cd)pyrene	3200	360 U	400 U	440 U	350 U	420 U	380 U	34 J	360 U	89 J	8100 UJ
Dibenz(a,h)anthracene	14	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U	46 J	8100 UJ

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM
IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT
ASH LANDFILL

	TAGM	B-35 4-5.1 12/15/92 B35-3	B-36 0-2 04/27/93 B36-1	B-36 2-4 04/27/93 B36-2	B-36 4-6 04/27/93 B36-3	B-36 6-7.9 04/27/93 B36-4	B-36 4-6 04/27/93 B36-6*	B-37 0-2 04/28/93 B37-1	B-37 2-4 04/28/93 B37-2	B-37 4-5.5 04/28/93 B37-3	B-37 4-5.5 04/28/93 B37-6*
VOCs (µg/kg)											
Vinyl Chloride	200	8 J	12 U	12 U	53 U	1300 U	58 U	13 U	11 U	11 U	11 U
Acetone	200	20 U	12 U	130	87	1300 U	100	13 U	11 U	11 U	13 U
1,2-Dichloroethene (total)	300	200	12 U	12 U	53 U	1300 U	58 U	3 J	2 J	16	12
1,2-Dichloroethane	100	12 U	12 U	12 U	53 U	1300 U	58 U	13 U	11 U	11 U	11 U
Trichloroethene	700	110	12 U	12 U	53 U	1300 U	58 U	8 J	10 J	37	38
Toluene	1500	12 U	12 U	3 J	11 J	1300 U	8 J	13 U	11 U	11 U	11 U
Xylene (total)	1200	12 U	12 U	12 U	91	500 J	76	13 U	11 U	11 U	11 U
Semivolatiles (µg/kg)											
Phenol	30	410 U	370 U	410 U	770 U	610 U	390 U	460 U	390 U	360 U	370 U
2-Nitrophenol	330	410 U	370 U	410 U	770 U	610 U	390 U	460 U	390 U	360 U	370 U
4-Nitrophenol	100	990 U	910 U	980 U	1900 U	1500 U	940 U	1100 U	940 U	870 U	890 U
Dibenzofuran	6200	410 U	370 U	410 U	770 U	610 U	390 U	460 U	390 U	360 U	370 U
Di-n-butylphthalate	8100	260 J	370 U	220 J	330 J	420 J	290 J	460 U	390 U	110 J	160 J
Benzo(a)anthracene	220	410 U	460	150 J	770 U	610 U	390 U	460 U	390 U	360 U	370 U
Chrysene	400	410 U	430	100 J	770 U	610 U	390 U	460 U	390 U	360 U	370 U
bis(2-Ethylhexyl)phthalate	50000*	1700	190 J	370 J	700 J	790	300 J	83 J	99 J	170 J	290 J
Benzo(b)fluoranthene	1100	410 U	640	130 J	770 U	610 U	390 U	460 U	390 U	360 U	370 U
Benzo(k)fluoranthene	1100	410 U	400	130 J	770 U	610 U	390 U	460 U	390 U	360 U	370 U
Benzo(a)pyrene	61	410 U	470	120 J	770 U	610 U	390 U	460 U	390 U	360 U	370 U
Indeno(1,2,3-cd)pyrene	3200	410 U	280 J	110 J	770 U	610 U	390 U	460 U	390 U	360 U	370 U
Dibenz(a,h)anthracene	14	410 U	140 J	410 U	770 U	610 U	390 U	460 U	390 U	360 U	370 U

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-38 0-2 04/28/93 B38-1	B-38 2-4 04/28/93 B38-2	B-38 4-6 04/28/93 B38-3	B-38 6-8 04/28/93 B38-4	B-38 4-6 04/28/93 B38-6*	B-39 0-2 12/15/92 B39-1	B-39 3-4 12/15/92 B39-2	B-39 4-6 12/15/92 B39-3	B-39 6-6.5 12/15/92 B39-4	B-45 0-2 04/28/93 B45-1
VOCs (μg/kg)											
Vinyl Chloride	200	11 U	2 J	11 U	9 J	9 J	1300 U	1000	160	240 J	12 U
Acetone	200	11 U	140	11 U	12 U	12 U	1300 U	60 J	57 U	21 U	12 U
1,2-Dichloroethene (total)	300	7 J	7 J	46	190	95	38000	7300 J	1600	1700	3 J
1,2-Dichloroethane	100	11 U	12 U	11 U	12 U	12 U	210 J	60 U	57 U	12 U	12 U
Trichloroethene	700	73	28	47	150	64	150000 J	700	1000	2200 J	12 U
Toluene	1500	11 U	12 U	11 U	12 U	12 U	1300 U	60 U	57 U	12 U	12 U
Xylene (total)	1200	11 U	12 U	11 U	12 U	12 U	1300 U	30 J	57 U	5 J	12 U
Semivolatiles (μg/kg)											
Phenol	30	360 U	400 U	370 U	380 U	360 U	360 UJ	400 UJ	390 U	370 U	430 U
2-Nitrophenol	330	360 U	400 U	370 U	380 U	360 U	360 UJ	400 UJ	390 U	370 U	430 U
4-Nitrophenol	100	880 U	960 U	910 U	920 U	880 U	870 UJ	980 UJ	940 U	900 U	1000 U
Dibenzofuran	6200	360 U	400 U	370 U	380 U	360 U	360 UJ	400 UJ	390 U	370 U	430 U
Di-n-butylphthalate	8100	130 J	190 J	180 J	110 J	280 J	60 J	400 UJ	390 U	370 U	430 U
Benzo(a)anthracene	220	730 J	260 J	370 U	380 U	360 U	51 J	400 UJ	390 U	370 U	430 U
Chrysene	400	490	220 J	370 U	380 U	360 U	66 J	400 UJ	390 U	370 U	430 U
bis(2-Ethylhexyl)phthalate	50000*	260 J	360 J	520	240 J	550	340 J	800 UJ	1500	540 U	260 J
Benzo(b)fluoranthene	1100	660	260 J	370 U	380 U	360 U	50 J	400 UJ	390 U	370 U	430 U
Benzo(k)fluoranthene	1100	360 J	200 J	370 U	380 U	360 U	47 J	400 UJ	390 U	370 U	430 U
Benzo(a)pyrene	61	370	220 J	370 U	380 U	360 U	24 J	400 UJ	390 U	370 U	430 U
Indeno(1,2,3-cd)pyrene	3200	160 J	400 U	370 U	380 U	360 U	360 UJ	400 UJ	390 U	370 U	430 U
Dibenz(a,h)anthracene	14	360 UJ	400 U	370 U	380 U	360 U	360 UJ	400 UJ	390 U	370 U	430 U

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM
IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT
ASH LANDFILL

	TAGM	B-45 2-4 04/28/93 B45-2	B-45 4-6 04/28/93 B45-3	B-45 4-6 04/28/93 B45-6*	B-46 0-2 04/29/93 B46-1	B-46 2-4 04/29/93 B46-2	B-46 4-6 04/29/93 B46-3	B-46 6-7.1 04/29/93 B46-4	B-47 0-2 04/29/93 B47-1	B-47 2-4 04/29/93 B47-2	B-47 4-5.3 04/29/93 B47-3
VOCs (µg/kg)											
Vinyl Chloride	200	12 U	12 U	12 U	12 U	12 U	12 U	12 U	10 UJ	12 U	53 U
Acetone	200	12 U	12 U	12 U	12 U	100	75	12 U	10 UJ	42	53 U
1,2-Dichloroethene (total)	300	3 J	210 J	4 J	12 U	2 J	12 U	12 U	2 J	170	650
1,2-Dichloroethane	100	12 U	12 U	12 U	12 U	12 U	12 U	12 U	10 UJ	12 U	53 U
Trichloroethene	700	12 U	71 J	12 U	12 U	3 J	1 J	12 U	110 J	2 J	98
Toluene	1500	12 U	12 U	12 U	12 U	12 U	12 U	12 U	4 J	12 U	53 U
Xylene (total)	1200	12 U	12 U	12 U	12 U	12 U	12 U	12 U	10 UJ	12 U	53 U
Semivolatiles (µg/kg)											
Phenol	30	410 U	380 U	400 U	360 UJ	380 U	370 U	380 U	350 U	380 U	360 U
2-Nitrophenol	330	410 U	380 U	400 U	360 UJ	380 U	370 U	380 U	350 U	380 U	360 U
4-Nitrophenol	100	1000 U	930 U	970 U	880 UJ	920 U	900 U	920 U	840 U	930 U	880 U
Dibenzofuran	6200	410 U	380 U	400 U	18 J	130 J	370 U	380 U	350 U	380 U	360 U
Di-n-butylphthalate	8100	25 J	140 J	42 J	68 J	87 J	66 J	170 J	180 J	260 J	160 J
Benzo(a)anthracene	220	410 U	380 U	400 U	640 J	330 J	68 J	380 U	70 J	380 U	360 U
Chrysene	400	410 U	380 U	400 U	670 J	300 J	64 J	380 U	91 J	22 J	360 U
bis(2-Ethylhexyl)phthalate	50000*	320 J	450	530	190 J	220 J	200 J	340 J	340 J	580	250 J
Benzo(b)fluoranthene	1100	410 U	380 U	400 U	560 J	210 J	55 J	380 U	67 J	380 U	360 U
Benzo(k)fluoranthene	1100	410 U	380 U	400 U	540 J	240 J	53 J	380 U	52 J	18 J	360 U
Benzo(a)pyrene	61	410 U	380 U	400 U	660 J	270 J	68 J	380 U	52 J	380 U	360 U
Indeno(1,2,3-cd)pyrene	3200	410 U	380 U	400 U	410 J	140 J	40 J	380 U	31 J	380 U	360 U
Dibenz(a,h)anthracene	14	410 U	380 U	400 U	120 J	30 J	370 U	380 U	350 U	380 U	360 U

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-5

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-48 0-2 04/29/93 B48-1	B-48 2-4 04/29/93 B48-2	B-48 4-6 04/29/93 B48-3	B-48 4-6 04/29/93 B48-6*
VOCs (µg/kg)					
Vinyl Chloride	200	12 U	12 U	19 U	18 U
Acetone	200	12 U	12 U	19 U	18 U
1,2-Dichloroethene (total)	300	12 U	12 U	110	130
1,2-Dichloroethane	100	12 U	12 U	19 U	18 U
Trichloroethene	700	75	10 J	200	200
Toluene	1500	2 J	12 U	19 U	18 U
Xylene (total)	1200	12 U	12 U	19 U	18 U
Semivolatiles (µg/kg)					
Phenol	30	410 U	390 U	380 U	400 U
2-Nitrophenol	330	410 U	390 U	380 U	400 U
4-Nitrophenol	100	1000 U	950 U	930 U	960 U
Dibenzofuran	6200	410 U	390 U	380 U	400 U
Di-n-butylphthalate	8100	100 J	130 J	110 J	72 J
Benzo(a)anthracene	220	76 J	390 U	380 U	400 U
Chrysene	400	96 J	390 U	380 U	400 U
bis(2-Ethylhexyl)phthalate	50000*	320 J	520	240 J	170 J
Benzo(b)fluoranthene	1100	93 J	390 U	380 U	400 U
Benzo(k)fluoranthene	1100	85 J	390 U	380 U	400 U
Benzo(a)pyrene	61	75 J	390 U	380 U	400 U
Indeno(1,2,3-cd)pyrene	3200	59 J	390 U	380 U	400 U
Dibenz(a,h)anthracene	14	410 U	390 U	380 U	400 U

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of organic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

Two areas of soil contamination have been delineated at the "bend in the road" area. The northern area is approximately twice as large as the southern area. These two areas are separated by a small strip of uncontaminated soil. The highest concentrations of total volatiles from two borings in the central portion between the two contaminated areas (B10-91 and B38-92) were approximately 1600 and 350 μg/kg at 6'-8' **(Figure 2-19)**. The western portion of the Ash Landfill and areas near the "bend in the road" and wetland B are the primary source areas for volatile organic compounds in groundwater.

A comparison of VOCs (including 1,2-DCE and TCE) in selected soil samples from borings at areas of high soil gas are presented in **Table 2-6**. In most instances when VOCs are found in the soil gas they are also found in the soil, supporting the use of soil gas techniques to locate source area for volatile organic compounds.

As previously mentioned in Section 2.6.1, soil headspace was performed during Phase 2 to delineate the vertical extent of soil impacts. After the soil headspace survey was completed, eight soil borings were collected just outside the two areas identified by the soil headspace survey as the primary source of the volatile organic contamination. The locations of these eight (8) borings are shown on **Figure 2-19**, and the results are summarized in **Table 2-5**. These borings are: B32, B36, B37, B38, B45, B46, B47 and B48. Of the thirty-three (33) soil samples collected, only one (1) sample, B47 at the 4'-5.3'depth, exceeded only one NYSDEC TAGM value, for DCE.

2.6.2.2 Semivolatile Organic Compounds

Table 2-5 also provides a summary of only those semi-volatile compounds detected above the NYSDEC TAGM values. The list includes Polynuclear Aromatic Hydrocarbons (PAHs), phthalates, phenol and phenolic compounds. PAHs are commonly detected as Products of Incomplete Combustion (PICs) and are not unexpected from the residue of a municipal incinerator.

Semivolatile organics compounds were detected in 18 of the 23 in the vicinity of the bend in the road **(Table 2-5)**. The highest total semi-volatile concentrations and widest variety of compounds were found in samples from B10-91, B31-91, B36-93 and B15-91 and B15-91 where the 0-2 foot samples from both locations contained 13,740, 1,820, 3,010 and 1,287 μg/kg, respectively. The concentration of semi-volatile compounds, especially PAHs, decrease with increasing depth, suggesting little penetration following surface deposition.

SENECA ARMY DEPOT
ASH LANDFILL

TABLE 2–6
COMPARISION OF VOLATILES DETECTED IN SOIL AND SOIL GAS
FOR SELECTED LOCATIONS

PHASE I REMEDIAL INVESTIGATION

Boring Location	Sample Number	Depth (feet)	1,2–DCE in Soil	1,2–DCE in Soil Gas	TCE in Soil	TCE in Soil Gas	Total VOCs in Soil	Total VOCs in Soil Gas
B2								
	S1031–4	0–2	12		28		45.8	
	S1031–5	2–4	19	<0.03	4.4	<0.01	8.19	0.39
	S1031–6	6–8	21	(SG–15)	120	(SG–15)	143.58	(SG–15)
	S1031–7	8–10	<1.4		69		69	
B3								
	S1031–8	0–2	<0.006		0.023		0.041	
	S1031–9	2–4	<0.006	<0.03	<0.006	0.06	0.008	0.11
	S1031–10	4–6	<0.006	(SG–55)	<0.006	(SG–55)	0.013	(SG–55)
	S1031–11	6–8	<0.006		0.005		0.021	
B4								
	S1101–12	0–2	<0.006		0.13		0.136	
	S1101–13	2–4	<0.006	<0.03	<0.006	0.19	0.008	0.25
	S1101–14	6–8	<0.005	(SG–58)	0.002	(SG–58)	0.01	(SG–58)
B6								
	S1104–19	0–2	<0.006	<0.03	<0.006	<0.01	0.007	0.07
	S1104–20	2–4	<0.006	(SG–24)	<0.006	(SG–24)	0.006	(SG–24)
B15								
	S1106–49	0–2	29		110		139.02	
	S1106–50	2–4	40	1.27	470	1.76	529.7	2.66
	S1106–51	2–4	79	(SG–63)	540	(SG–63)	641.7	(SG–63)
	S1106–52	6–8	11		38		55.55	
B25								
	S1203–82	0–2	<0.006		<0.006		<0.006	
	S1203–83	2–4	<0.006	<0.03	<0.006	<0.01	<0.006	0.42
	S1203–84	4–6	<0.005	(SG–18)	<0.005	(SG–18)	0.015	(SG–18)
B27								
	S1204–86	0–2	0.1	4.38	0.01	2.33	0.114	4.54
	S1204–87	2–4	0.25	(SG–74)	0.013	(SG–74)	0.263	(SG–74)
B28								
	S1204–88	0–2	0.16		0.018		0.178	
	S1204–89	2–4	0.44	1.84	0.083	0.31	2.583	2.07
	S1204–89A	2–4	1.6	(SG–69)	0.074	(SG–69)	1.73	(SG–69)
	S1204–90	4–6	20		2.6		22.6	
B30								
	S1204–94	0–2	0.045		0.005		0.05	
	S1204–94A	0–2	0.031		0.005		0.036	
	S1204–95	2–4	1.4	92.4	0.11	4.02	1.551	86.6
	S1204–96	4–6	18	(SG–70)	0.45	(SG–70)	19.83	(SG–70)
	S1204–96A	4–6	16		0.39		26.47	
B31								
	S1205–97	0–2	<0.006		0.023		0.023	
	S1205–97A	0–2	<0.006		0.11		0.11	
	S1205–98	2–4	0.005	4.76, 7.33	0.005	4.60, 4.52	0.01	49.99, 47.11
	S1205–99	4–6	0.66	(SG–14)	2.4	(SG–14)	3.429	(SG–14)
	S1205–100	6–8	0.63		0.64		1.64	

Notes:
Soil gas locations are shown in parentheses beneath the concentration
Concentrations for soil analyses are mg/Kg
Concentrations for soil gas analyses are in ppmv

Borings in the Ash Landfill and in the "bend in the road" area near wetland W-B generally contain semi-volatiles from the surface to the bottom of the boring, although the concentrations in this area are not as high as those from other areas of the site such as the debris pile and Non-Combustible Fill Landfill. Detectable concentrations of semi-volatiles from this area range between 83 ug/kg in boring B37-93 and 13,740 μg/kg in B10-91.

2.6.2.3 Pesticides/PCBs, and Herbicides

No Pesticides/PCBs or Herbicides were detected above NYSDEC TAGMs in the bend in the road area.

2.6.2.4 Metals and Cyanide

A summary of the results for the metals and cyanide is presented in **Table 2-7**. As would be expected for any soil, many of the Target Analyte List (TAL) metals were detected in every boring collected at the "bend in the road" area. Of the numerous metals detected, copper, lead, mercury and zinc are considered significant due to their toxilogical effects and the concentrations detected.

Low to moderate concentrations of copper were detected in the central portion of the Ash Landfill, near the "bend in the road" area, primarily at the 0 to 2 foot depth interval at borings B10 and B31. The maximum copper concentration observed was 105 mg/kg in boring B10. The NYSDEC TAGM value for copper is 25 mg/kg. The location of these borings is presented on Figure 2-19. The vertical extent of copper impacts is from 0 to 4 feet, although some slightly elevated concentrations above the TAGM value below a depth of 4 feet were detected in borings B-31, B-36 and B-38.

Low to moderate lead concentrations were detected in borings B-31, B-35 and B-46 at the center of the Ash Landfill (Figure 2-19) at the depth interval of 2 to 4 feet. The maximum concentration detected was 696 mg/kg in borings B31 at the 2 to 4 foot depth. Generally, concentrations of lead decrease to below the NYSDEC TAGM values with increasing depth at location which have samples above the TAGM value.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-2 0-2 10/31/91 S1031-4	B-2 2-4 10/31/91 S1031-5	B-2 6-8 10/31/91 S1031-6	B-2 8-10 10/31/91 S1031-7	B-10 0-2 11/06/91 S1106-31	B-10 2-4 11/06/91 S1106-32	B-10 2-4 11/06/91 S1106-33 (1)	B-10 6-8 11/06/91 S1106-34	B-15 0-2 11/08/91 S1108-49	B-15 2-4 11/08/91 S1108-50
Metals (mg/kg)											
Aluminum	17503	15800	17400	18100	N	16600	17300	15100	18800	16100	13900
Antimony	30	11.1 U J	7.9 U J	8.1 U J	N	8 U J	8.4 U J	10.3 U J	10.2 U J	11 U J	10.6 J
Arsenic	7.5	4.9	4.1	4	N	9.8 J	9.7 J	6.1 J	4.9 J	4.1	5.5 U
Barium	300	58	72.3	58.7	N	170 J	145 J	83 J	56.9 J	121	75.7
Beryllium	1	0.84 J	0.79	0.83	N	0.67 J	0.94	0.85 J	1	0.89 J	0.78 J
Cadmium	1.8	2.3	2.3	2.9	N	5.6	3.1	2.8	2.9	3.4 J	3.2 J
Calcium	46825	31500	32500	22300	N	48500	53600	43900	31000	30900	50000 J
Chromium	26.6	26.1	27.8	28.4	N	38.5 J	30.4 J	26.5 J	28.3 J	30.5	22
Copper	25	33.1 J	24.7 J	18.9 J	N	105	56.9	41.2	25.6	38.6	25.4
Iron	32698	35000	32900	36500	N	71100	32200	34900	35400	35300	27700
Lead	30	52.4	23	11.9 J	N	191	83.1	54.8	14.1	40.7	27
Magnesium	9071.1	7510	8440	8130	N	13300	16900	12000	8150	8190	6190
Manganese	1065.8	403	673	505	N	670	732	632	953	476	653
Mercury	0.1	0.04 J	0.06 J	0.04 U	N	0.24	0.33	0.47	0.05 J	0.06 J	0.05 J
Nickel	41.3	43.1	40.3	46.9	N	43.3	42.2	40.6	44.5	53	37
Potassium	4000	1950	2280	2150	N	1730	2380	2150	2180	1910	1280
Selenium	2	0.21 U	0.17 U	0.18 U	N	0.17 U J	0.13 U J	0.16 U J	0.16 U J	0.31 U J	1.4 U J
Zinc	89.1	58.6	85.5	88.1	N	1940 U	554	537	114 J	117	123

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-15 2-4 11/08/91 S1108-51 (1)	B-15 6-8 11/08/91 S1108-52	B-17 0-2 11/13/91 S1113-56	B-17 2-4 11/13/91 S1113-57	B-17 4-6 11/13/91 S1113-58	B-17 6-8 11/13/91 S1113-59 (2)	B-20 0-2 11/14/91 S1114-66	B-20 2-4 11/14/91 S1114-67	B-20 4-6 11/14/91 S1114-68	B-27 0-2 12/04/91 S1204-86(2,3)
Metals (mg/kg)											
Aluminum	17503	18100	16600	10900	18700	16800	15100	13200	20300	19900	14600
Antimony	30	12.1 U J	9.3 U J	12.3 J	10.3 U J	6.6 U J	10.6 U J	10.6 U J	10.6 U J	7.5 U J	12.4 U J
Arsenic	7.5	5	3.4	7	5.5	4.6	4.6	4.9	4.5	4	5.5 J
Barium	300	109	49.9	82.5	157	73.5	40.1	74.5	90.7	62.8	114
Beryllium	1	1 J	0.81 J	0.74 U	1.1	0.88	0.81 J	0.8 J	1.1	1	
Cadmium	1.8	3.4 J	3.7 J	8.2 J	3.7 J	2.9 J	3	2.6	4	4	1.8
Calcium	46825	10500 J	12400	74700	20500	13200	58100	123000	32500	35500	4570
Chromium	26.6	26.5	26.7	28.1	31.6	26.5	22.4	17.5	29.8	29.8	22.4
Copper	25	28.9	16.9	52.1	48.7	20.2	12.9	26.5 J	26.1 J	19.8 J	29.9
Iron	32698	32800	31000	86400	34600	30200	26700	19900	36800	35500	23200
Lead	30	33.1	9.8 J	40.1	106	12.8	5.2 J	18.4	26.3	6.2 J	33.2
Magnesium	9071.1	5840	8290	24900	9340	8270	6750	24100	8010	7890	4000
Manganese	1065.8	600	467	602	1090	400	677	681	1080	920	526
Mercury	0.1	0.06 J	0.04 U	0.06 J	0.11	0.05 U	0.04 U	0.05 J	0.04 U	0.05 U	0.09 J
Nickel	41.3	35.6	41.8	39.7	37.2	39.2	33.7	20.1	43.6	43.5	25.3
Potassium	4000	2200	1310	1610	2750	1610	1630	2050	2310	2070	1850
Selenium	2	1.5 U J	1.6 U J	0.32 U J	0.34 U J	0.26 U J	0.31 U J	0.37 U J	0.23 U J	0.28 U J	0.22 U J
Zinc	89.1	106	94.4	244	1710	253	67.2	130	273	104	284

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-27 2-4 12/04/91 S1204-87 (3)	B-28 0-2 12/04/91 S1204-88 (3)	B-28 2-4 12/04/91 S1204-89	B-28 2-4 12/04/91 S1204-89A(1)	B-28 4-6 12/04/91 S1204-90(3)	B-29 0-2 12/04/91 S1204-91	B-29 0-2 12/04/91 S1204-91A(1)	B-29 2-4 12/04/91 S1204-92	B-29 4-6 12/04/91 S1204-93	B-29 4-6 12/04/91 S1204-93A(1)
Metals (mg/kg)											
Aluminum	17503	17800	14500	15600	20100	19200	19100	16300	18100	18500	14700
Antimony	30	8.4 U J	12.1 U J	7.6 U J	6.8 U J	8.9 U J	11.2 U J	10.4 U J	6.6 U J	10.4 U J	10.3 U J
Arsenic	7.5	4.6 J	3.9 J	6.3 J	6.1	4.5	5.1	4.7	4.2	4.4	4.2
Barium	300	96.7	94.7	69.5	71.5	50.4	144	84.1	71.8	49.9	34.8 J
Beryllium	1										
Cadmium	1.8	2.4	2.6	2.4	4.1	3.9	3.8	3.4	3.7	4	3
Calcium	46825	4930	3540	2870	3010 J	10900 J	5110 J	5040 J	60500 J	12100 J	15900 J
Chromium	26.6	28	21.5	26.3	30.5	29	26.6	23.2	25.7	27.5	22
Copper	25	19.7	23.2	24.6	25.6	13.6	28.9	24.5	27.3	21.5	16
Iron	32698	36100	26200	35800	44000	40900	32000	26100	35300	36800	27500
Lead	30		16		12.4 J	5.5 J	12.8 J	9.4 J	6.8 J	4.1 J	4.3 J
Magnesium	9071.1	6170	4240	6370	7500	7720	5300	5230	9690	7460	6030
Manganese	1065.8	1120	1290	1070	938	646	1700	551	667	492 J	364 J
Mercury	0.1	0.04 J	0.05 J	0.04 U	0.04 U	0.03 U	0.07 J	0.05 J	0.03 U	0.05 J	0.05 U
Nickel	41.3	39.5	28.3	43.1	48.2	46.9	35.3	31.1	41.8	41.2	32.4
Potassium	4000	1920	1590	1550	1980	1700	2480	2230	2180	1690	1350
Selenium	2	0.14 U J	0.14 U J	0.22 U J	0.19 U J	0.14 U J	0.13 U J	0.13 U J	0.75 U J	0.15 U J	0.22 U J
Zinc	89.1	84.4	131	136	168	112	101	77.2	101	100	68.5

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-30 0-2 12/04/91 S1204-94	B-30 0-2 12/04/91 S1204-94A(1)	B-30 2-4 12/04/91 S1204-95	B-30 4-6 12/04/91 S1204-96	B-30 4-6 12/04/91 S1204-96A(1)	B-31 0-2 12/05/91 S1205-97	B-31 0-2 12/05/91 S1205-97A(1)	B-31 2-4 12/05/91 S1205-98(3)	B-31 4-6 12/05/91 S1205-99	B-31 6-8 12/05/91 S1205-100(2)
Metals (mg/kg)											
Aluminum	17503	16200	14400	15700	13000	19600	18400	14100	25500	15000	21200
Antimony	30	7.3 U J	9.5 U J	7.6 U J	6.3 U J	11.1 U J	9.9 U J	7.4 J	8.7 U J	11.4 U J	13.1 U J
Arsenic	7.5	5.1	4.8	5.5	3	4.3	10.8	8.6	45.8	3.9	2.6
Barium	300	86.4	74.6	64.9	38.5	63.9	136	111	121	52.2	61.1
Beryllium	1										
Cadmium	1.8	2.9	2.2	3	2.9	3.7	3.8	3.7	4.3	3.5	4.4
Calcium	46825	16900 J	20200	44800 J	2460 J	4110 J	24700 J	79200 J	17800 J	25500 J	3460
Chromium	26.6	20	18.5	22.5	20.7	29.7	28.3 J	22.4 J	34.8	28.8	30.4
Copper	25	18.9	18.1	22.9	12	15.6	64.8	146	76.1	31.6	26.4
Iron	32698	24000	19700	27700	29800	35500	34400	30700	41800	29000	44100
Lead	30	11.5 J	8.8 J	7 J	7.3 J	8.2 J	160	202	696	68.5	15.3 J
Magnesium	9071.1	5190	10700	7660	5160	7230	7810	8510	9290	7020	7010
Manganese	1065.8	735	597	627	347	449	670	495	724	337	541
Mercury	0.1	0.04 U	0.05 J	0.04 J	0.04 U	0.04 U	0.76	0.17	0.17	0.05 J	0.05 U
Nickel	41.3	23.7	19.8	36.7	31	42.4	35.5 J	39.9 J	40.9	51.1	47
Potassium	4000	2040	2120	1910	938	2060	2610	2110	2330	2170	1280
Selenium	2	0.17 U J	1.1 U J	0.98 U J	0.61 U J	0.19 U J	0.23 U J	0.22 U J	0.23 U J	0.24 J	0.23 U J
Zinc	89.1	68.5	69.5	98.5	74.4	111	797	1210	472	393	93.5

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-32 0-2 04/27/93 B32-1	B-32 2-4 04/27/93 B32-2	B-32 4-6 04/27/93 B32-3	B-32 6-7.8 04/27/93 B32-4	B-33 0-2 12/14/92 B33-1	B-33 2-3.5 12/14/92 B33-2	B-34 0-2 12/14/92 B34-1	B-34 2-2.75 12/14/92 B34-2	B-35 0-2 12/15/92 B35-1	B-35 2-4 12/15/92 B35-2
Metals (mg/kg)											
Aluminum	17503	13900	14400	16800	13900	19700	16000	21400	17200	14300	15000
Antimony	30	5.7 UJ	5.7 UJ	4.9 UJ	3.7 UJ	6.9 UJ	7.7 UJ	7.5 UJ	7.7 UJ	8 J	9.1 UJ
Arsenic	7.5	4.5	4.5	5	2.7	2	1.6	3.6	1.9	1.7	3.8
Barium	300	85.1	105	81.8	46.6	108 J	58.9 J	99.1 J	65.9 J	163 J	182 J
Beryllium	1	0.69 J	0.81 J	0.8 J	0.62 J	1	0.74	1.1	0.76	0.59 J	0.7 J
Cadmium	1.8	0.41 U	0.42 U	0.36 U	0.27 U	0.4 U	0.44 U	0.43 U	0.44 U	0.71	0.8 J
Calcium	46825	27900	8740	4310	3910	4620	46100	4340	41300	25200	30400
Chromium	26.6	25.5	22.9	27.4	22.7	32 J	26.6 J	35 J	28.5 J	28.9 J	34.2 J
Copper	25	36.8	32.8	29.8	17.3	24.4	18.7	26	18.4	75.5	73.2
Iron	32698	29800	26500	34900	28300	36800	35300	40200	33400	28600	30200
Lead	30	44.8	36.1	15.5	5.6	19.2				126	203
Magnesium	9071.1	7520	6030	6200	5710	6550	7260	7020	7200	7360	7410
Manganese	1065.8	499	799	430	513	1070	780	857	852	476	443
Mercury	0.1	0.21	0.04 U	0.05 U	0.03 U					0.39	0.76
Nickel	41.3	49.7	29.1	46.2	36	45.6	43.7	49.5	42.6	35.4	36.1
Potassium	4000	1450	1550	1320	904	1580	1370	1520	1410	1130	1600
Selenium	2	0.24 J	0.19 U	0.23 U	0.17 U	0.15 U	0.48 J	0.58 J	0.69	1	1.1
Zinc	89.1	194	129	132	79.1	114 J	87.8 J	200 J	84.2 J	6290	4210

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-35 4-5.1 12/15/92 B35-3	B-36 0-2 04/27/93 B36-1	B-36 2-4 04/27/93 B36-2	B-36 4-6 04/27/93 B36-3	B-36 6-7.9 04/27/93 B36-4	B-36 4-6 04/27/93 B36-6*	B-37 0-2 04/28/93 B37-1	B-37 2-4 04/28/93 B37-2	B-37 4-5.5 04/28/93 B37-3	B-37 4-5.5 04/28/93 B37-6*
Metals (mg/kg)											
Aluminum	17503	22000	11700	16200	15300	11500	15700	15400	15400	16000	12800
Antimony	30	7.2 UJ	3.8 UJ	4.7 UJ	5.8 UJ	3.1 UJ	4.1 UJ	7.3 UJ	5.4 UJ	3.5 UJ	4.8 UJ
Arsenic	7.5	2.1	9.8	8.1	4.6	4.1	5.3	2.5	4.4	5.9	2.1 J
Barium	300	98.1 J	73.7	133	82.5	50.6	75.2	114	75.2	68.7	36.4
Beryllium	1	1.1	0.57 J	0.85 J	0.71 J	0.52 J	0.77	0.92 J	0.74 J	0.74	0.55 J
Cadmium	1.8	0.42 U	0.39 J	0.35 U	0.43 U	0.22 U	0.3 U	0.74 J	0.4 U	0.26 U	0.35 U
Calcium	46825	5010	40400	7650	14200	61500	7700	6020	26900	7240	21700
Chromium	26.6	36.9 J	26.5	24.8	24.4	18.1	25.5	22.7	24.7	25.6	20.1
Copper	25	23.3	51.8	27.1	28.4	19.4	31.4	34.7	26.4	22.8	10.3
Iron	32698	42900	36900	28100	30200	23400	34600	25200	30000	31000	25800
Lead	30	25.4	110	57.9	14.9	9.5	12.4	16.3	8.2	8.7	2.9
Magnesium	9071.1	7690	7020	5320	6000	7780	6090	4210	6080	6200	5520
Manganese	1065.8	1250	472	669	886	495	618	337	757	676	476
Mercury	0.1		0.33	0.14	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U	0.04 U	0.05 U
Nickel	41.3	54.4	42.9	32.8	40.1	31	44.1	26	41.3	39.9	31.1
Potassium	4000	1680	1210	1420	1420	985	1300	1540	1680	1320	1000
Selenium	2	0.67 J	0.23 U	0.59 J	0.22 J	0.53 J	0.19 J	0.41 J	0.21 U	0.16 U	0.22 U
Zinc	89.1	116 J	252	108	99.6	75.7	111	96.7	90	84.5	68.4

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT ASH LANDFILL

	TAGM	B-38 0-2 04/28/93 B38-1	B-38 2-4 04/28/93 B38-2	B-38 4-6 04/28/93 B38-3	B-38 6-8 04/28/93 B38-4	B-38 4-6 04/28/93 B38-6*	B-39 0-2 12/15/92 B39-1	B-39 3-4 12/15/92 B39-2	B-39 4-6 12/15/92 B39-3	B-39 6-6.5 12/15/92 B39-4	B-45 0-2 04/28/93 B45-1
Metals (mg/kg)											
Aluminum	17503	9120	13500	10600	14800	10500	7410	11100	11000	10800	19700
Antimony	30	4.2 J	5.3 UJ	5.5 UJ	6.3 UJ	4.4 UJ	6.4 UJ	6.9 UJ	6.5 UJ	7.8 UJ	5.3 UJ
Arsenic	7.5	2.8	4.6	2.9	3.5	4.5	2.3	4.4	2.2	3.4	4.6
Barium	300	211	105	47.5	51.7	48.4	88.8 J	78.8 J	54.1 J	59 J	114
Beryllium	1	0.46 J	0.69 J	0.51 J	0.72 J	0.53 J	0.38 J	0.57 J	0.47 J	0.45 J	0.96 J
Cadmium	1.8	0.36 J	0.39 U	4.4	0.47 U	0.32 U	0.63	0.4 U	0.37 U	0.45 U	0.39 U
Calcium	46825	16000	53900	64500	11500	61900	139000	124000	102000	54700	4870
Chromium	26.6	18.4	25	17.8	24.6	17.3	17.4 J	15.9 J	16.6 J	17.9 J	31.2
Copper	25	38.4	31	24.5	15.6	27.5	38.4	22.5	20.9	23.2	31.6
Iron	32698	19000	27600	22900	30000	21800	16900	17700	20800	21100	38300
Lead	30	59	55.9	59.1 J	6.2	8.2 J	165	11	19	17	11.1
Magnesium	9071.1	4270	7270	8610	6290	9160	23400	10300	8430	17500	7320
Manganese	1065.8	400	1040	488	855	454	436	573	488	758	1020
Mercury	0.1	0.04 J	0.04 U	0.02 U	0.04 U	0.03 U					0.05 U
Nickel	41.3	34.3	36.9	30	39.8	30.4	24.8	18.4	27.4	27.2	50
Potassium	4000	1250	1340	867 J	1130 J	1020	1400	1320	1140	1200	1320
Selenium	2	0.19 J	0.54 J	0.11 U	0.14 U	0.19 U	1.8	1.6	0.26 J	0.5 J	0.18 U
Zinc	89.1	4070	1110	88.5	64	104	3540	88.2 J	108 J	434	86.6

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT
ASH LANDFILL

	TAGM	B-45 2-4 04/28/93 B45-2	B-45 4-6 04/28/93 B45-3	B-45 4-6 04/28/93 B45-6*	B-46 0-2 04/29/93 B46-1	B-46 2-4 04/29/93 B46-2	B-46 4-6 04/29/93 B46-3	B-46 6-7.1 04/29/93 B46-4	B-47 0-2 04/29/93 B47-1	B-47 2-4 04/29/93 B47-2	B-47 4-5.3 04/29/93 B47-3
Metals (mg/kg)											
Aluminum	17503	14800	15200	16900	12100	15300	9600	14400	10100	17500	17300
Antimony	30	5.4 UJ	10.1 J	5.7 UJ	4.5 UJ	4.1 UJ	5.9 UJ	5.1 UJ	4 UJ	3.5 UJ	6.1 UJ
Arsenic	7.5	5.2	2.7	5.8	4.8	7.3	4.7	3.9	3.1	4.8	3.2
Barium	300	71.4	64.8	87.1	109	96.4	69.9	66.4	55.8	79.3	68.8
Beryllium	1	0.73 J	0.7 J	0.84 J	0.64 J	0.78	0.52 J	0.76 J	0.5 J	0.85	0.81 J
Cadmium	1.8	0.39 U	0.37 U	0.41 U	0.33 U	0.3 U	0.54 J	0.37 U	0.29 U	0.26 U	0.44 U
Calcium	46825	16300	2690	6710	39300	20200	172000	90500	69400	8640	37100
Chromium	26.6	23.3	25.5	27	18.7	28	15.3	24.1	19.9	26.3	31
Copper	25	27.7	19.5	29.4	19.8	34	19.2	18.7	30.3	21.6	23.3
Iron	32698	30200	31700	34400	24600	27200	16200	27700	22800	32700	33400
Lead	30	10.5	5.9	8.4	45.4	64	19.1	8.7	40.9	12	6
Magnesium	9071.1	6770	5960	6530	6520	6760	9270	10900	8850	5460	7330
Manganese	1065.8	621	601	736	1570	526	445	898	370	942	643
Mercury	0.1	0.04 U	0.05 U	0.03 U	0.05 J	0.07 J	0.05 J	0.04 U	0.06 J	0.05 U	0.05 U
Nickel	41.3	37.9	39.5	44.9	29.9	35.9	22.9	37	35.3	36.2	43.6
Potassium	4000	1130	925 J	1110	1330	1570	1440	1470	1170	973	1420
Selenium	2	0.2 U	0.16 U	0.17 U	0.14 U	0.2 U	0.54 J	0.2 U	0.15 U	0.2 U	0.82 J
Zinc	89.1	94.1	98.8	108	136	235	86.7	65.6	472	84.3	74.9

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.

TABLE 2-7

SUMMARY OF COMPOUNDS DETECTED IN SOIL ABOVE NYSDEC TAGM
IN THE VICINITY OF THE "BEND IN THE ROAD"

SENECA ARMY DEPOT
ASH LANDFILL

	TAGM	B-48 0-2 04/29/93 B48-1	B-48 2-4 04/29/93 B48-2	B-48 4-6 04/29/93 B48-3	B-48 4-6 04/29/93 B48-6*
Metals (mg/kg)					
Aluminum	17503	10800	14000	12100	11100
Antimony	30	5.6 J	4.8 UJ	4.4 J	4 UJ
Arsenic	7.5	4.9	4.9	4.9	5.1
Barium	300	82.2	115	50.6	41.1
Beryllium	1	0.61 J	0.76 J	0.55 J	0.53 J
Cadmium	1.8	0.34 J	0.35 U	1.3	0.29 U
Calcium	46825	18200	3780	60100 J	16000 J
Chromium	26.6	21.8	21.2	19.9	18.6
Copper	25	48	28.1	24.1	19.9
Iron	32698	22700	26900	24800	23100
Lead	30	82.5	15.5	8.4	9.2
Magnesium	9071.1	4410	4310	8210	7090
Manganese	1065.8	520	1290	571	501
Mercury	0.1	0.1	0.04 U	0.04 U	0.03 U
Nickel	41.3	31.4	29.8	34.1	31.3
Potassium	4000	1090	1540	1110	894
Selenium	2	0.71 J	0.37 J	0.87 J	0.25 J
Zinc	89.1	308	115	103	83.5

U = Indicates compound was analyzed for but not detected.
J = Indicates an estimated value.
N = Not Analyzed

Notes:
1. All samples were analyzed for the complete list of inorganic compounds as specified by the NYSDEC CLP.
2. This table lists only those compounds detected above the NYSDEC TAGM in at least one sample.
3. All data in this table has been validated.
3. All data in this table has been validated.

Zinc concentration were detected in the Ash Landfill at concentration above the NYSDEC TAGM value for the depth intervals of 0 to 2 feet, and from 2 to 4 feet. The maximum concentration of zinc was 6,290 mg/kg and was detected in boring B-35 at the 0 to 2 foot depth. At the 2 to 4 foot depth for this same boring the concentration of zinc was determined to be 4,210 mg/kg. For this site, the NYSDEC TAGM value for zinc is considered to be background which was determined to be 89 mg/kg. The Ash Landfill appears to be affected by elevated concentrations of zinc down to a depth of approximately 4. Below this depth, only B-31 contained zinc at elevated concentrations.

Concentrations of mercury were also detected in the Ash Landfill at boring locations B-10, B-17 and B-35, down to a depth of between 0 and 4 feet. The maximum mercury concentration was 0.76 mg/kg and was detected at boring B-35 the 2 to 4 foot depth interval. The NYSDEC TAGM value for mercury at this site is 0.1 mg/kg.

No cyanide concentrations were detected above the NYSDEC TAGM value in the area of concern.

The horizontal and vertical extent of these metals appears to be coincident with the Ash Landfill, Figure 2-19, and is likely associated with the former incinerator ash.

2.6.2.5 Total Recoverable Petroleum Hydrocarbons

The presence of other organic chemical constituents which are not part of the TCL list of analytes were reviewed and presented as Tentatively Identified Compounds (TIC)s in Appendix B. These analytes have been reviewed to determine the presence of petroleum hydrocarbons. Petroleum hydrocarbons are of interest since NYSDEC has established a value for clean-up of 10 mg/kg. The presence of these materials are described as tentative because standards were not prepared to quantitate the concentrations determined. Accordingly, the concentration values presented are only estimates and can be somewhat different than what would be determined by other, more traditional methods for determining petroleum hydrocarbons. Nonetheless, the largest concentration of TICs, which were identified as a series of high molecular weight alkane hydrocarbons, was detected at borings B-2, B-15, B-32 and B-36 and were determined throughout the soil column from 2 to 8 feet in depth.

2.6.3 Groundwater

2.6.3.1 Volatile Organic Compounds

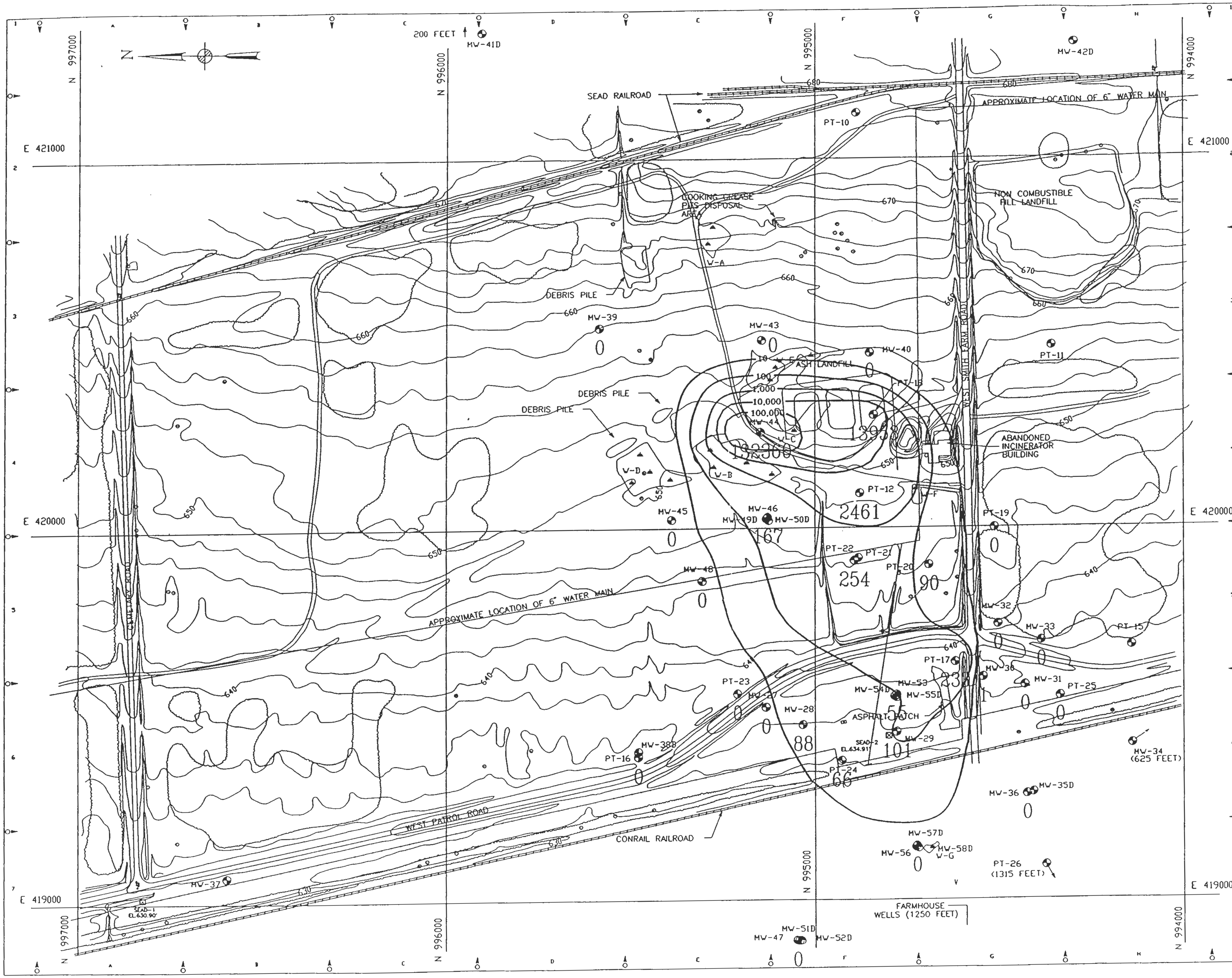
As with the soil samples, volatile organic compounds are the primary analytes of concern detected in the groundwater at the site. Volatile compounds were detected in nine (9) of the thirty monitoring wells sampled. The VOCs detected included TCE, 1,2-DCE (total), vinyl chloride, chloroform, 2-Butanone, xylene (total), methylene chloride, and acetone. The latter two compounds are believed to be laboratory contaminants. TCE and 1,2-DCE are the volatile organics which have been detected in many of the wells and are of concern.

The geographic distribution of total volatile organic compounds is shown in **Figure 2-20**. Ten, 100, and 10,000 μg/L isocontours define a total volatiles plume that originates in the western portion of the Ash Landfill and extends to the west in the direction of groundwater flow. The plume is believed to extend beyond the fence near the Conrail railroad line onto the adjacent property based on the 104 μg/L concentration of total volatiles in well PT-24.

As shown on **Figure 2-20** the plume is relatively long and narrow; however, based on soil gas results and soil analyses, the source area for this plume is believed to extend as much as 300 feet north of PT-18, towards the bend in the road area. Because the source area is suspected to be wider than shown, the north and northeastern portions of the plume are bound by dashed or (inferred) 10 and 100 μg/L isocontours. Well MW-40 in the eastern portion of the Ash Landfill clearly defines the eastern extent of the plume while wells PT-19, MW-32 and MW-31 define its southern extent.

TCE is considered as the dominant volatile organic compound present. Concentrations of TCE are up to 11,000 μg/L in the source area (PT-18) and are as low as 4 and 1 μg/L near the western boundary of the site. A more detailed plume characterization is in the RI report (ES, 1993).

Several daughter products of the breakdown of TCE have been observed at the site. They include 1,2-DCE and vinyl chloride. At the downgradient, western end of the plume, 1,2-DCE is the dominant volatile organic compound where it is found at 100 and 71 μg/L in wells PT-24 and MW-29, respectively. The shift from TCE as the predominant volatile organic compound near the source areas to the dominance of the breakdown daughter compound 1,2-DCE at downgradient locations is consistent with the environmental chemistry of TCE.



LEGEND:

- PAVED ROAD
- DIRT ROAD
- 650 GROUND CONTOUR AND ELEVATION
- TREE
- V-B WETLAND & DESIGNATION
- APPROXIMATE EXTENT OF FILL
- OUTLINE OF FORMER TRASH PITS (IDENTIFIED FROM AERIAL PHOTO)
- APPROXIMATE EXTENT OF DEBRIS PILE
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- FUEL OR UNDERGROUND STORAGE TANK
- SEAD-1 EL.630.90' SURVEY MONUMENT
- PT-22 / MW-37 MONITORING WELL AND DESIGNATION
- —10,000— GROUNDWATER ISOCONTOUR (ug/L)

REV	DATE	DESCRIPTION
B	10/93	PREDRAFT PHASE II RI/FS
A	7/93	ISSUED WITH PRELIMINARY SITE CHARACTERIZATION REPORT

DRAWN BY C.A. KAELIN	CHECKED BY M.E. BAKER
DESIGN SUPV. C.A. KAELIN	RESP. ENGR. M.N. DUCHESNEAU
CHIEF DISC ENGR. M.E. BAKER	MGR. OF ENGR. J.P. CHAPLICK
PROJECT MANAGER M.N. DUCHESNEAU	
MGR. OF PROJECTS J.P. CHAPLICK	
IN CHARGE W.D. PATTERSON	

ES
ENGINEERING-SCIENCE, INC

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT

ACTION MEMORANDUM
ASH LANDFILL

DEPT. ENVIRONMENTAL ENGINEERING — NO. 720447-03000

FIGURE 2-20
TOTAL VOLATILE ORGANICS IN THE SHALLOW TILL/WEATHERED SHALE AQUIFER

SCALE 1" = 250'

E.S. DWG NO. 720447-03000-1-1 — REV B

2.6.3.2 Other Priority Pollutants

No semi-volatile organic compounds, pesticides, PCBs, or herbicides were detected in any of the well samples collected.

Both unfiltered (total) and filtered (dissolved) groundwater samples were collected. Generally, filtered metals concentrations are less than concentrations in unfiltered samples, with most metals concentrations below the detection limit in the filtered samples.

Some of the highest unfiltered metals concentrations were obtained in well PT-26, near the Seneca airfield. PT-18 in the Ash Landfill also exhibits some high unfiltered concentrations of metals especially lead (17.8 μg/L), zinc (496 μg/L), manganese (1,530 μg/L), and mercury (0.42 μg/L). Elevated concentrations of barium, beryllium, cadmium, chromium, lead, manganese, vanadium, and zinc occur in unfiltered samples from wells MW-29 and MW-31.

Cyanide concentrations (unfiltered only) were all below the detection limit of 10 μg/L, except in PT-10 where 11.2 μg/L were detected.

2.6.3.3 Additional Parameters

Several of the groundwater samples were analyzed for additional water quality parameters. The results are presented in **Table 2-8**. Generally, most of the concentrations were similar from well to well; however, anomallously high concentrations are noted in wells PT-17 (chloride) and PT-23 (Chemical Oxygen Demand and Total Suspended Solids).

2.6.4 <u>Test Pits</u>

Several test pits were excavated in locations where Ground Penetrating Radar (GPR) characterization of magnetic anomalies (measured by EM-31 device) indicated a possible pipe or drum signature. A total of 10 excavations were performed, five in the ash landfill and debris pits and five on the Non-Combustible Fill Landfill.

Test pits were excavated to up to 5 feet deep using a backhoe. Upon completion all excavated material was returned to the pit and covered. Test pit logs are included in the Phase II RI report.

SENECA ARMY DEPOT
ASH LANDFILL

TABLE 2–8
CONCENTRATIONS OF ADDITIONAL PARAMETERS
IN GROUNDWATER
(mg/L)

Parameter	Monitoring Wells		
	PT–17	PT–23	MW–42D
	(till/weathered shale)		(bedrock)
Biological Oxygen Demand	1.9	4.6	1.2
Alkalinity (as CaCO3)	234	220	280
Chloride	40	10.5	2.7
Sulfate	73	41	38
Total Hardness (as CaCO)	322	346	308
Chemical Oxygen Demand	4.4	22	9.1
Total Dissolved Solids	405	282	600
Total Suspended Solids	180	2370	150
Total Organic Carbon	1.9	1.9	1.6

Two of the test pits (TP-6 and TP-7) were completed in and around the bend in the road area. These pits contained debris mixed with fill at depths of 0.5 to 4 feet. The debris was covered with fill and underlain by 3 to 4 feet of native soil. Bedrock was encountered at approximately 7 to 9 feet. No drums were found in any of the test pits. Metal debris, such as culverts or milk containers, were found and presumed to be the likely cause of the geophysical anomalies.

2.6.5 Contamination Assessment Summary

As discussed above, the primary constituents of concern at the site are TCE and DCE. These are the most prevalent analytes in the soil and the major contributors to the groundwater plume, present in the groundwater. Contamination from other chemicals such as the petroleum residues, PCBs, pesticides, and herbicides appears to be limited, since these compounds were generally found in only a few samples.

The focus of this removal action will be TCE and DCE, along with the daughter product vinyl chloride, since these are the main groundwater contaminants, and since these compounds were found in almost all of the soil samples. Other contamination will be addressed during the remedial actions at the post outlined in the phase II RI/FS report.

The contamination at the site was delineated by the 1993 soil headspace survey. As shown in **Figure 2-18**, the source areas of the contamination consist of two noncontiguous areas, as defined by the 50 Vs contour line developed from the soil headspace survey. The results of the volatile organic analyses from the borings collected just outside these two areas showed that TCE, DCE, and vinyl chloride did not exceed the cleanup criteria. Therefore, these two areas will be used to define the areas for remediation.

2.7 RISK EVALUATION

2.7.1 Threats to Human Health

The contamination at the SEDA Ash Landfill poses a threat to public health or welfare through several mechanisms. The primary threat is through exposure to contaminated groundwater. TCE and its breakdown products are already present in the groundwater, and the plume is known to have migrated slightly off the site. The presence of TCE, DCE and vinyl chloride in the soil also pose a potential threat of airborne exposure through volatilization. Finally, the impacted soil may pose a threat through occasional soil exposure to existing SEDA post personnel or to the general public in the future should the post property be opened to residential use. **Tables 2-5** through **2-8** summarize the analytical results for the soil samples collected as part of the RI. These tables include results for volatile and semivolatile organic compounds, and metals. Several of these concentrations (most notably TCE and DCE) exceed the New York State guidelines for soil cleanup, as discussed in Section 3 of this report. The New York State soil cleanup values are designed to be protective of human health by limiting the concentration of contaminants in the soil to below levels at which these contaminants would become a health threat through the groundwater pathway.

2.7.2 Threats to the Environment

The threats to the environment posed by the site have been quantified and indicate. It is believed that there is a threat of exposure through the air pathway or soil exposure to the animal population on the site. Surface water in Wetland B or groundwater discharge to surface water poses a threat to ecological life.

2.8 REMOVAL ACTION JUSTIFICATION

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) states that a removal action may be conducted at a site when there is a potential threat to public health, public welfare, or the environment. An appropriate removal action is undertaken to abate, minimize, stabilize, mitigate, or eliminate the release or the threat of release at a site. Section 300.415(b)(2) of the NCP outlines factors to be considered when determining the appropriateness of a removal action, such as high levels of hazardous substances, pollutants, or contaminants in soils, largely at or near the surface, that may migrate; or the threat of fire or explosion.

Once it is determined that a removal action is appropriate, the removal is designated an emergency, time-critical, or non-time-critical removal. Emergencies are those situations in which response actions must begin within hours or days after the completion of the site evaluation. Time-critical removals are those in which, based on a site evaluation, it is determined that less than 6 months remains before response actions must begin. Non-time-critical removals are those in which it is determined that more than 6 months may pass before response actions must begin. Since more than 6 months may pass before this removal action begins, this removal action is considered a voluntary, non-time-critical removal action.

Investigations of the SEDA Ash Landfill indicate that soils at this site pose a potential threat to human health and the environment through soil ingestion or dermal contact, and through continued leaching to the groundwater which passes through the site. This EE/CA was prepared to document the identification and evaluation of removal action alternatives in support of this voluntary non-time-critical removal action.

3.0 REMOVAL ACTION OBJECTIVES AND SCOPE

3.1 GENERAL STATEMENT OF THE REMOVAL ACTION OBJECTIVES

Removal action objectives and site-specific considerations are developed as a basis for identifying appropriate removal action alternatives. Removal action objectives must protect human health and the environment, and address contaminants of concern, exposure routes, and receptors. Applicable or relevant and appropriate requirements (ARARs) that establish cleanup standards are also used to identify removal action objectives. In New York State, the acronym ARARs is not used, but is replaced with the term New York State Standards, Criteria, and Guidelines (SCGs), as presented in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #HWR-90-4030. The removal action must be compatible with long-term remedial objectives at the site.

There are several general objectives to be considered for this removal action. One goal is to achieve a permanent solution, one which removes the threat to human health or the environment. Another objective is treatment. A removal objective which treats the contaminants, as opposed to moving the contaminants to another location, is preferred.

This removal action for the SEAD Ash Landfill is not financed by Superfund therefore, the requirements of the NCP in Section 300.415(b)(5) for fund-financed removal actions do not apply.

3.2 ARARs Standards, Criteria and Guidelines (SCGs)

Pursuant to Section 300.415(i) of the NCP, the removal action for the site "shall,to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws." ARARs are used to identify removal action objectives, formulate removal action alternatives, govern the implementation and operation of a selected removal action, and evaluate the appropriate extent of site cleanup.

In 40 CFR 300.5, EPA defines applicable requirements as those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are defined as those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

Any standard, requirement, criterion, or limitation under any federal environmental or state environmental or facility siting law may be either applicable or relevant and appropriate to a specific action. The only state laws that may become ARARs are those promulgated such that they are legally enforceable and generally applicable and equivalent to or more stringent than federal laws. A determination of applicability is made for the requirements as a whole, whereas a determination of relevance and appropriateness may be made for only specific portions of a requirement. An action must comply with relevant and appropriate requirements to the same extent as an applicable requirement with regard to substantive conditions, but need not comply with the administrative conditions of the requirement.

Three categories of ARARs have been analyzed: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs address certain chemicals or a class of chemicals and relate to the level of contamination allowed for a specific pollutant in various environmental media (water, soil, air). Location-specific ARARs are based on the specific setting and nature of the site. Action-specific ARARs relate to specific actions proposed for implementation at a site.

3.2.1 Chemical-Specific ARARs

Chemical-specific ARARs are usually health or risk-based standards limiting the concentration of a chemical found in or discharged to the environment. They govern the extent of site remediation by providing actual cleanup levels, or the basis for calculating such levels for specific media. These requirements may apply to air emissions during the removal action. A number of federal and state regulations may be used for this site. These include the following:

Air Quality

- 40 CFR Part 50.8 (applicable): Ambient Air Quality Standard for Carbon Monoxide. Carbon monoxide concentrations in the ambient air shall not exceed the following hourly average, 35 parts per million (ppm); 8-hour average, 9 ppm.

- 40 CFR Part 50.12 (applicable): Ambient Air Quality Standard for Lead. Lead concentrations in the ambient air shall not exceed 1.5 micrograms lead per cubic meter of air, 90-day average.

- 40 CFR Part 50.9 (applicable): Ambient Air Quality Standard for Ozone. Ozone concentrations in the ambient air shall not exceed 0.10 ppm hourly average.

- 40 CFR Part 50.6 (applicable): Ambient Air Quality Standard for PM-10. PM-10 concentrations in the ambient air shall not exceed the following: 24--hour average, 150 micrograms per cubic meter of air; annual average, 50 micrograms per cubic meter of air.

- 40 CFR Part 61 (applicable and relevant and appropriate): National Emission Standards for Hazardous Air Pollutants. This regulation requires the minimization of emissions, specifies emissions tests and monitoring requirements, and sets limits on several hazardous air pollutants.

- 40 CFR Part 58 (applicable): Ambient Air Quality Surveillance. This part defines quality assurance requirements, monitoring methods, instrument siting, and operating schedule for ambient air quality surveillance.

- 40 CFR Part 52 (applicable): Approval and Promulgation of Implementation Plans. This part defines general provisions for the contents of State Implementation Plans (SIPs).

- 6 NYCRR Part 256 (applicable): Air Quality Classification System. This regulation defines four general levels of social and economic development for geographical areas in New York. These levels range from Level I, which would be used for timber, dairy farming or recreation and would be sparsely populated, to Level IV, which would be densely populated with large commercial metropolitan office buildings or areas of heavy industry. SEAD is classified as Level II, which is an area of predominantly single and two family residences, small farms and limited commercial services and industrial development.

- 6 NYCRR subpart 257-1 (applicable): Air Quality Standards General. This section of the air regulations defines what an air standard is, how the standard will be applied and what compliance with these standards will entail.

- 6 NYCRR subpart 257-3 (applicable): Air Quality Standards-Particulates. Suspended particulates shall not exceed 250 mg/m^3 more than once a year. Annual standard -55 $\mu g/m^3$, 30-day standard - 100 $\mu g/m^3$, 60-day standard - 85 $\mu g/m^3$, 90-day standard - 80 $\mu g/m^3$, standard for settleable solids - 50 percent of the values of the 30 day average concentrations shall not exceed 0.30 $mg/cm^2/mo$; - 84 percent shall not except 0.45 $mg/cm^2/mo$.

- 6 NYCRR subpart 257-4 (applicable): Air Quality Standards for Carbon Monoxide. Eight hour standard - 9 ppm, 1 hour standard 35 ppm.

- 6 NYCRR subpart 257-6 (applicable): Air Quality Standards - Hydrocarbons (non methane). Three hour standard measured from 6 to 9 am - 0.24 ppm.

- NYSDEC Air Guide - 1 To Be Considered (TBC): This document provides guidance for the control of toxic ambient air contaminants in New York state including guidance on the following contaminants of concern.

Trichloroethene -	33,000 $\mu g/m^3$ Short-term Guideline Concentration (SGC);4.5 E-01 $\mu g/m^3$ Annual Guideline Concentration (AGC)
Dichloroethene -	14,000 $\mu g/m^3$ SGC; 1900.0 $\mu g/m^3$ AGC
Vinyl Chloride -	1300 $\mu g/m^3$ SGC; 2.0 E -02 $\mu g/m^3$ AGC

Water Quality

There are a number of water quality standards which are potential ARARs for this removal action. These are summarized in **Table 3-1** and described below.

- 40 CFR Part 131 (applicable): Water Quality Standards. This part implements Section 101 of the Clean Water Act (CWA), which specifies the national goals of eliminating the discharge of pollutants, prohibiting the discharge of toxic pollutants in toxic amounts, and implementing programs for control of nonpoint sources.

- 40 CFR Part 131.12 (applicable): Antidegradation Policy. Establishes standards to prevent a body of water which has an existing high standard from degrading to a lower standard.

- 40 CFR Part 141 (applicable): National Primary Drinking Water Regulations. This part establishes primary drinking water regulators pursuant to Section 1412 of the Public Health Service Act as amended by the Safe Drinking Water Act.

- 40 CFR Part 141.11 (applicable): Maximum Inorganic Chemical Contaminant Levels. This section establishes maximum contaminant levels (MCLs) for inorganic chemicals including the following:

Constituent	Level (mg/L)
Arsenic	0.05
Barium	1.0
Cadmium	0.010
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01

Table 3–1 Potential ARARs for the Removal Action at SEAD Ash Landfill

NEWARAR.WK3

Analytes/Parameters	Federal SDWA MCLs (a)	Federal SDWA MCLGs (a)	Federal SDWA Secondary MCLs (a)	New York DWQS (b)	Federal AWQC to Protect Human Health (c) W & F	Federal AWQC to Protect Human Health (c) F	Federal AWQC to Protect Aquatic Life (c) Acute	Federal AWQC to Protect Aquatic Life (c) Chronic	New York State AWQ Standards and Guidelines (d) Aquatic	New York State AWQ Standards and Guidelines (d) Human Health
Petroleum Hydrocarbons (mg/L)										
Volatile Organics (ug/L)										
Acetone										
Benzene	5	0		5 i	1.2	71	5300			0.7 WS
Bromodichloromethane	100 j			100 j	5.7	470	11000 k			50 WS
Bromoform	100 j			100 j	5.7	570	11000 k			50 WS
Carbon tetrachloride	5	0		5 i	0.25	4.5	35200			0.4 WS
Carbon disulfide										
Chlorobenzene	100	100		5 i	680	21000	250 l	50 l	5	20 WS
Chloroform	100 j			100 j	5.7	470	28900	1240		7 WS
Chloroethane				5 i					5 POC	
Chloromethane				5 i	5.7	470				5 WS
Dibromochloromethane	100 j			100 j	0.19	15.7	11000 k			50 WS
Dichlorodifluoromethane				5 i	0.19	15.7	11000 k		5 POC	
1,1–Dichloroethane				5 i						5 WS
1,2–Dichloroethane	5	0		5 i	0.38	99	118000	20000		0.8 WS
1,1–Dichloroethene	7	7		5 i	0.057	3.2	11600 m			0.7 WS
cis–1,2–Dichloroethene	70	70		5 i			11600 m		5 POC	
trans–1,2–Dichloroethene	100	100		5 i	700	140000	11600 m			5 WS
1,2–Dichloropropane	5	0		5 i			23000	5700		0.5 WS
cis–1,3–Dichloropropene				5 i	87	14100	6060 n	244 n	5 POC	
trans–1,3–Dichloropropene				5 i	87	14100	6060 n	244 n	5 POC	
Diethylether				5 i						
Ethylbenzene	700	700		5 i	3100	29000	32000			5 WS
Methylene chloride	5	0		5 i	4.7	1600	11000 k			5 WS
Methyl ethyl ketone				50 o						
Methyl isobutyl ketone				50 o						
1,1,2,2–Tetrachloroethane				5 i	0.17	10.7		2400		0.2 WS
Tetrachloroethene	5	0		5 i	0.8	8.85	5280	840		0.7 WS
Toluene	1000	1000		5 i	10000	300000	17500			5 WS
1,1,1–Trichloroethane	200	200		5 i	3100	170000				5 WS
Trichloroethene	5	0		5 i	2.7	81	45000	21900		3 WS
Trichlorofluoromethane				5 i	0.19	15.7	11000 k			5 WS
Vinyl chloride	2	0		2	2	525				0.3 WS
Xylenes (total)	10000	10000		5 i						5 WS

Table 3-1 Potential ARARs for the Removal Action at SEAD Ash Landfill

NEWARAR.WK3

Analytes/Parameters	Federal SDWA MCLs (a)	Federal SDWA MCLGs (a)	Federal SDWA Secondary MCLs (a)	New York DWQS (b)	Federal AWQC to Protect Human Health (c) W & F	Federal AWQC to Protect Human Health (c) F	Federal AWQC to Protect Aquatic Life (c) Acute	Federal AWQC to Protect Aquatic Life (c) Chronic	New York State AWQ Standards and Guidelines (d) Aquatic	New York State AWQ Standards and Guidelines (d) Human Health
Semivolatile Organics (ug/L)										
Phenol				50 o	21000	4600000	10200	2560		1 WS
2,4-Dimethylphenol				50 o			2120			1 WS
4,6-Dinitro-2-methylphenol				50 o						1 WS
4-Chloroaniline				50 o					5 POC	
4-Nitroaniline				50 o					5 POC	
1,2-Dichlorobenzene	600	600		5 i	2700	17000	1120	763	5	
1,3-Dichlorobenzene				5 i	400	2600	1120	763	5	20 WS
1,4-Dichlorobenzene	75	75		5 i	400	2600	1120	763	5	30 WS
1,2,4-Trichlorobenzene	70	70		50 o			250 l	50 l	5	10 WS
Acenaphthene				50 o	1200	2700	1700	520		20 WS
Anthracene				50 o	0.0028	0.0311				50 WS
Benz(a)anthracene	5	0		50 o	0.0028	0.0311				0.002 WS
Benzo(b)fluoranthene	7.5	0		50 o	0.0028	0.0311				0.002 WS
Benzo(k)fluoranthene	7.5	0		50 o	0.0028	0.0311				0.002 WS
Benzo(g,h,i)perylene				50 o	0.0028	0.0311				
Benzo(a)pyrene	0.2	0		50 o	0.0028	0.0311				ND WS
Chrysene	5	0		50 o	0.0028	0.0311				0.002 WS
Dibenz(a,h)anthracene	13	0		50 o	0.0028	0.0311				
Dibenzofuran				50 o						
Fluoranthene				50 o	42	54	3980			50 WS
Fluorene				50 o	0.0028	0.0311				50 WS
Indeno(1,2,3-c,d)pyrene	13	0		50 o	0.0028	0.0311				0.002 WS
2-Methylnaphthalene				50 o						
Naphthalene				50 o			2300	620		10 WS
Phenanthrene				50 o	0.0028	0.0311	30	6.3		50 WS
Pyrene				50 o	0.0028	0.0311				50 WS
Dibutylphthalate				50 o	2700	12000	940 p	3 p		50 WS
bis(2-Ethylhexyl)phthalate	6	0		50 o	15000	50000	940 p	3 p	0.6	4 WS
PCBs/Pesticides (ug/L)										
PCBs	0.5	0		0.5	0.000044	0.000045	2	0.014	0.001	6E-07 B
Aldrin				50 o	0.00013	0.00014	3			0.002 WS
Bromacil				4.4						
Chlordane	2	0		2	0.00058	0.00059	2.4	0.0043		0.002 B
p,p'-DDD				50 o			0.06		0.001	0.01 WS
p,p'-DDE				50 o	0.00059	0.00059	1050		0.001	0.01 WS
p,p'-DDT				50 o	0.00059	0.00059	1.1	0.001	0.001	0.01 WS
Dieldrin				50 o	0.00014	0.00014	2.5	0.0019	0.001	0.0009 WS
Endosulfan B				50 o	0.93	2	0.22	0.056	0.009	
Endrin	2	2		0.2	0.76	0.81	0.18	0.0023		0.002 B
Heptachlor	0.4	0		0.4	0.00021	0.00021	0.52	0.0038	0.001	0.009 WS
Heptachlor epoxide	0.2	0		0.2	0.0001	0.00011	0.52	0.0038	0.001	0.009 WS

Table 3–1 Potential ARARs for the Removal Action at SEAD Ash Landfill

NEWARAR.WK3

Analytes/Parameters	Federal SDWA MCLs (a)	Federal SDWA MCLGs (a)	Federal SDWA Secondary MCLs (a)	New York DWQS (b)	Federal AWQC to Protect Human Health (c) W & F	Federal AWQC to Protect Human Health (c) F	Federal AWQC to Protect Aquatic Life (c) Acute	Federal AWQC to Protect Aquatic Life (c) Chronic	New York State AWQ Standards and Guidelines (d) Aquatic	New York State AWQ Standards and Guidelines (d) Human Health
Conductivity (umho/cm)										
pH (standard units)			6.5–8.5	6.5–8.5				6.5–9	6.5–8.5	
Alkalinity (mg/L as CaCO3)										
Total Dissolved Solids (mg/L)			500		250				500	
Common Anions (mg/L)										
Bromide										2 WS
Chloride			250	250			860	230		250 WS
Fluoride	4	4	2	2.2					0.23	1.5 WS
Nitrate (as nitrogen)	10	10		10	10					10 WS
Nitrite (as nitrogen)	1	1		1					0.02	
Sulfate	400	400	250	250						250 WS
Metals (mg/L)										
Aluminum			0.05		e		e		0.1	
Antimony	0.006	0.006			0.014	45	0.088	0.03		0.003 WS
Arsenic	0.05	0.05		0.05	1.80000E−06	0.00014	0.36 g	0.19 g	0.19	0.05 WS
Barium	1	2		2	1					1 WS
Beryllium	0.004	0.004			7.60000E−06	0.000131	0.13	0.005	1.1	0.003 WS
Cadmium	0.01	0.005		0.005	0.01	0.17	0.0039 h	0.001 h	0.001 h	0.01 WS
Calcium										
Chromium (VI)	0.05 f	0.1 f		0.01	0.17	3.4	0.016	0.011 h	0.011	0.05 WS
Chromium (III)	0.05 f	0.1 f		0.01	33		1.7 h	0.21 h	1.74 h	0.05 WS
Copper	1.3	1.3	1	0.13	1.3		0.018 h	0.012 h	0.012 h	0.2 WS
Iron			0.3	0.3	0.3			1	0.3	0.3 WS
Lead	0.05	0		0.015	0.05		0.082 h	0.0032 h	0.003 h	0.05 WS
Magnesium										35 WS
Manganese				0.3	0.05	0.1				0.3 WS
Mercury	0.002	0.002	0.05	0.002	0.00014	0.00015	0.0024 h	0.00001		0.0002 B
Nickel	0.1	0.1			0.51	3.8	1.4 h	0.16 h	0.096 h	
Phosphorus										
Potassium										
Selenium	0.01	0.05		0.01	0.104	6.8	0.02	0.005	0.001	0.01 WS
Silver	0.05		0.1	0.05	0.091		0.00092 h	0.00012	0.0001	0.05 WS
Sodium										20 WS
Thallium	0.002	0.0005			0.0017	0.006	1.4	0.04	0.008	0.004 WS
Vanadium									0.014	
Zinc			5	5		10	0.12	0.11	0.03	0.3 WS
Cyanide	0.2	0.2			0.7	21.5	0.022	0.0052	0.052	0.1 WS

Table 3-1 Potential ARARs for the Removal Action at SEAD Ash Landfill

NEWARAR.WK3

Analytes/Parameters	Federal SDWA MCLs (a)	Federal SDWA MCLGs (a)	Federal SDWA Secondary MCLs (a)	New York DWQS (b)	Federal AWQC to Protect Human Health (c) W & F	Federal AWQC to Protect Human Health (c) F	Federal AWQC to Protect Aquatic Life (c) Acute	Federal AWQC to Protect Aquatic Life (c) Chronic	New York State AWQ Standards and Guidelines (d) Aquatic	New York State AWQ Standards and Guidelines (d) Human Health
Chlorinated Herbicides (ug/L)										
2,4-D	70	70		50	100					
2,4-DB				50 o						
2,4,5-T				10						
2,4,5-TP (Silvex)	50	50		50 o	10					
Dalapon	200	200		50						50 WS
Dicamba				0.44						
Dichloroprop				50 o						
Dinoseb	7	7		50 o						1 WS
MCPA				50 o						
MCPP				50 o						

Note:
SDWA = Safe Drinking Water Act.
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
DWQS = New York Primary Drinking Water Quality Standard
AWQC = EPA ambient water quality criteria.
W & F = AWQC for the protection of human health from the ingestion of water and aquatic organisms.
F = AWQC for the protection of human health from the ingestion of aquatic organisms, only.
WS = water source
B = bioaccumulation
POC = Principle Organic Contaminant
PCB = polychlorinated biphenyl.
mg/L = milligrams per liter.
ug/L = micrograms per liter.
umho/cm = micromhos per centimeter.

Secondary MCLs are not potential ARARs but are To Be Considered (TBCs) and have been included for comparison purposes only

(a) 40 CFR 141
(b) 10 NYCRR Part 5
(c) Water Quality Criteria Summary, US EPA, 1991
(d) 6 NYCRR Parts 701 – 705, and NYS TOGS 1.1.1, November 15, 1991
(e) pH Dependent Criteria
(f) Value for total chromium.
(g) Value for trivalent arsenic.
(h) Hardness–dependent criteria assumes water hardness of 100 mg/L calcium carbonate.
(i) Value for listed principle organic contaminants; total for principle and unspecified organic contaminants may not exceed 100 ug/L.
(j) Value for total trihalomethanes (chloroform, bromodichloromethane, dibromochloromethane, and bromoform).
(k) Value for total halomethanes; includes chloromethane, bromomethane, dichloromethane, bromodichloromethane, tribromomethane, dichlorodifluoromethane, and trichlorofluoromethane
(l) Value for total chlorinated benzenes.
(m) Value for total dichloroethenes.
(n) Value for total 1,3–dichloropropenes.
(o) Value for listed unspecified organic contaminants; total for principle and unspecified organic contaminants may not exceed 100 ug/L.
(p) Value for total phthalate esters.

- 40 CFR Part 141.12 (applicable): Maximum Organic Chemical Contaminant Levels. This section establishes MCLs for organic chemicals including the following:

Constituent	Level (mg/L)
TCE	0.005
Benzene	0.005
Total trihalomethanes	0.10

- 40 CFR Part 264 Subpart F (relevant and appropriate): Releases from Solid Waste Management Units. Standards for protection of groundwater are established under this citation.

- 40 CFR Part 403 (applicable): Pretreatment Standards for the Discharge of Treated Site Water to a Publicly Owned Treatment Works (POTW). This part establishes pretreatment standards for the discharge of wastewater to POTWs.

- 6 NYCRR Chapter X (relevant and appropriate): This chapter establishes the requirements of the State Pollutant Discharge Elimination System.

- 6 NYCRR subparts 701 and 702 (applicable): These subparts establish surface water standards for protection of drinking water and aquatic life.

- 6 NYCRR subpart 703 (applicable): This subpart establishes groundwater standards specified to protect groundwater for drinking water purposes.

- 6 NYCRR subpart 375 (relevant and appropriate): This subpart contains the New York State rules for inactive hazardous waste disposal sites.

- 6 NYCRR subpart 373-2.6 and 373-2.11 (applicable): This regulation requires groundwater monitoring for releases from solid waste management units.

- 6 NYCRR subpart 373-2 (relevant and appropriate): This regulation establishes postclosure care and groundwater monitoring requirements.

- 10 NYCRR Part 5 (relevant and appropriate): This regulation establishes criteria for drinking water supplies.

- NYSDEC TOGS 1.1.1 (relevant and appropriate): This document compiles water quality standards and guidance values for use in NYSDEC programs.

Soil Quality

- 40 CFR Part 268 (relevant and appropriate): Land Disposal Restrictions. Restricts the disposal of listed and characteristic hazardous waste which contain hazardous constituents exceeding designated levels. Only applies when the waste is "placed" on the land. Only the restrictions on land disposal are relevant and appropriate; the promulgated concentrations are not appropriate.

  The site will be managed in accordance with the regulations for corrective action management units.

- 40 CFR subpart S parts 264.552 and 264.533 (relevant and applicable): Corrective Action for Solid Waste Management Action for Solid Waste Management Units. Allows for the consolidation of wastes, or the replacement of remediated wastes in land based units without invoking the RCRA land-disposal requirement of 40 CFR 268.

- 6 NYCRR subpart 375 (relevant and appropriate): This subpart contains the New York State rules for inactive hazardous waste disposal sites. Specifically, cleanup levels for hazardous constituents in soil have been proposed by the State of New York through Technical and Administrative Guidance Manuals (TAGMs). The NYSDEC TAGM manual for cleanup levels for soils is #HWR-92-4046 and has been used as guidance for this remedial action. These levels are shown in **Table 3-2** for constituents detected at the Ash Landfill. The primary chemicals of concern at the SEAD Ash Landfill for this removal action are chlorinated hydrocarbons, specifically TCE, DCE, and vinyl chloride. A review of the data presented in Section 2 indicates that some semi-volatile organic compounds and some metals also exceed the established TAGM values. The final management of these materials will be the focus of the ultimate Record of Decision (ROD) and are not the focus of this action.

Table 3-2

Comparison with Organic SCGs
Soil Sample Results
SEAD Ash Landfill

Parameter	USEPA Health-Based Value (1) (mg/kg)	Protect Water Quality (2) (mg/kg)	Recommended Soil Cleanup Objective (3) (mg/kg)	Maximum Value Detected (mg/kg)	Number of Hits Greater Than SCG
Volatile Organics					
Xylene	200000	1.2	1.2	17	6
Toluene	20000	1.5	1.5	5.7	2
Trichloroethene	64	0.7	0.7	540	16
Acetone	8000	0.11	0.2	0.68	1
1,2-Dichloroethane	7.7	0.1	0.1	0.21	2
1,2-Dichlororethene	2000	0.3	0.3	79	25
Vinyl Chloride	NA	0.12	0.2	1.0	4
Total Volatile Organics			10		NA
Semivolatile Organics					
Benzo(b)fluoranthene	NA	1.1	1.1	2.5	1
Benzo(k)fluoranthene	NA	1.1	1.1	1.4	1
Benzo(a)pyrene	0.0609	11	0.061 or MDL	2.2	22
Indeno(1,2,3-cd)pyrene	NA	3.2	3.2	1.2	0
Dibenzofuran	NA	6.2	6.2	0.31	0
bis(2-ethylhexyl)phthalate	50	435	50	1.7	0
Di-n-butylphthalate	8000	8.1	8.1	0.74	0
Chrysene	NA	0.4	0.4	2.2	5
Benzo(a)anthracene	0.224	3	0.224 or MDL	2.7	7
Dibenzo(a,h)anthracene	0.0143	165000	0.014 or MDL	0.63	9
Phenol	50000	0.03	0.03 or MDL	14	1
4-Nitrophenol	NA	0.1	0.1 or MDL	1.6	1
2-Nitrophenol	NA	0.33	0.33 or MDL	1.3	1
Total Semivolatile Organics			500		

References:
1. U.S. EPA Health Effects Summary Tables (HEASTs)
2. Based upon NYSDEC Water Quality Standards
3. NYSDEC TAGM #HWR-92-4046, November 16, 1992

The potential ARARs for soils for this removal action are summarized in **Tables 3-2 and 3-3**. Site Cleanup Goals (SCG) for metals have been determined as either the site background concentration or the NYSDEC TAGM value, whichever is higher. The background metal concentration value has been determined as the 95th Upper Confidence Limit (UCL) for the entire SEAD facility.

PCBs

- 40 Part 761 (TBC): Polychlorinated Biphenyls (PCBs) Manufacturing, processing, distribution in commerce and use prohibition. This part establish and the requirements for the storage and disposal of PCBs. No action is required in regards to this regulation.

- 40 Part 761 subpart G (TBC): PCB Spill Clean Up Policy, This regulation establishes criteria EPA will use to determine the adequacy of the clean up of spills resulting from the release of materials containing PCBs. No action is required in regards to this regulation since the concentrations of PCBs at the Ash Landfill are less than 50 ppm.

3.2.2 Location-Specific ARARs

Location-specific ARARs govern natural site features such as wetlands, floodplains, and sensitive ecosystems, and manmade features such as landfills, disposal areas, and places of historic or archaeological significance. These ARARs generally restrict the concentration of hazardous substances or the conduct

of activities based solely on the particular characteristics or location of the site. Federal and State regulations which may apply to this removalaction include the following:

Endangered Species

- 40 CFR Part 257.3-2 (relevant and appropriate): Facilities or practices shall not cause or contribute to the taking of any endangered or threatened species.

Table 3-3

Comparison with Metals SCGs
Soil Sample Results
SEAD Ash Landfill

Total Metals	Average Range in Eastern U.S. Soils (1) (mg/kg)	Site Background Value (2) (mg/kg)	Recommended Soil Cleanup Objective (1) (mg/kg)	Limiting Value SCG (mg/kg)	Maximum Value Detected (mg/kg)	Number of Hits Greater Than SCG
Aluminum	33,000	17,503	SB	17,503	25500	19
Antimony	NA	5.2	SB	5.2	12.3	6
Arsenic	3-12 *	5.9	SB or 7.5	7.5	45.8	6
Barium	15-600	101.8	SB or 300	300	211	0
Beryllium	0-1.75	1.0	SB or 1.0	1.0	1.1	4
Cadmium	0.1-1	1.8	SB or 1.0	1.8	8.2	39
Calcium	130-35,000 *	46,825	SB	46,825	172000	17
Chromium	1.5-40 *	26.6	SB or 10	26.6	38.5	31
Cobalt	2.5-60 *	15.3	SB or 30	30	18.1	0
Copper	1-50	24.1	SB or 25	25	146	45
Iron	2,000-550,000	32,698	SB or 2,000	32,698	86400	34
Lead	4-61	14.0	SB or 30	30	696	27
Magnesium	1,000-5,000	9071.1	SB	9071.1	24900	14
Manganese	50-5,000	1065.8	SB	1065.8	1700	10
Mercury	0.001-0.2	0.1	0.1	0.1	0.76	12
Nickel	0.5-25	41.3	SB or 13	41.3	54.5	28
Potassium	8,500-43,000 *	1529.6	SB	1529.6	2750	41
Selenium	0.1-3.9	0.4	SB or 2.0	2.0	1.8	0
Zinc	9-50	89.1	SB or 20	89.1	1710	59

* New York State Background Concentration

References:

1. NYSDEC TAGM # HWR-92-4046, November 16, 1992.
2. Draft RI Report for Seneca Army Depot Ash Landfill, ES 1993

SB - Site Background

NA - Not Available

Location Standards

- 40 CFR Part 264.18 (relevant and appropriate): Location Standards for Hazardous Waste Facilities. The general requirements for locating a hazardous treatment, storage, or disposal facility are found in this section. They include provisions for seismic considerations and floodplains.

- 40 CFR Part 241.202 (applicable): Site selection shall be consistent with public health and welfare. It shall also be consistent with land-use plans and air and water quality standards.

Antiquities

- 16 USC Part 469a-1 (applicable): The Archaeological and Historic Preservation Act requires that action be taken to recover and preserve artifacts.

- 36 CFR Part 800 (relevant and appropriate): Action must be taken to preserve historic properties. Actions must be planned to minimize harm to national historic landmarks.

3.2.3 Action-Specific ARARs

Action-specific ARARs are usually technology- or activity-based- limitations that control actions at hazardous waste sites. Action-specific ARARs generally set performance or design standards, controls, or restrictions on particular types of activities. To develop technically feasible alternatives, applicable performance or design standards must be considered during the development of all removal alternatives. Action–specific ARARs are applicable to this site. The action-specific ARARs to be used will be determined by the Army based upon the technology chosen. Federal and State regulations which may apply include the following:

Solid Waste Management

- 40 part CFR 241.100 (relevant and appropriate): Guidelines for the Land Disposal of Solid Wastes. These regulations are geared specifically toward sanitary landfills; however, they are applicable to all forms of land disposal and land-based treatment.

- 40 CFR Part 241.204 (applicable): Water Quality. The location, design, construction, and operation of land disposal facilities shall protect water quality.

- 40 CFR Part 241.205 (applicable): The design, construction, and operation of land disposal facilities shall conform to air quality and source control standards.

- 40 CFR Part 257.1 (relevant and appropriate): This part establishes the scope and purpose of criteria for use in assessing the possibility of adverse effects on health or the environment from solid waste disposal operations.

- 40 CFR Part 257.3 (relevant and appropriate): This part establishes criteria to assess the impact of disposal operations, including such considerations as floodplains, endangered species, air, surface water, groundwater, and land used for food-chain crops.

- 40 CFR Part 243.202 (relevant and appropriate): This part specifies the requirements for transporting solid waste, including provisions to prevent spillage.

Hazardous Waste Management

- 40 CFR 262.11 (applicable): This regulation requires a person who generates a solid waste to determine if that waste is a hazardous waste.

- 40 CFR Part 263.30 and 263.31 (relevant and appropriate): These regulations set forth the standards and requirements for action in the event of a release during transport.

- 40 CFR Part 264 (relevant and appropriate): This part establishes hazardous waste management facility standards and requirements. The onsite disposal areas used for stockpiling, mixing, and extended bioremediation of wastes must meet the substantive requirements of 40 CFR subparts B (general facility standards), E (manifest system, record keeping, and reporting), F (releases from solid waste management units), G (closure and postclosure), L (waste piles), M (land treatment), and N (landfills). These regulations are applicable for hazardous wastes and are also relevant and appropriate for certain wastes which are not hazardous wastes.

- 40 CFR Part 270 subpart C (relevant and appropriate): This regulation establishes permit conditions, including monitoring, recordkeeping requirements, operation and maintenance requirements, sampling, and monitoring requirements. Although no permit is required for activities conducted entirely on site, the substantive requirements of these provisions are relevant and appropriate.

- 40 CFR Part 270 subpart B (relevant and appropriate): This part defines the required contents of a hazardous waste management permit application. The substantive requirements of these provisions are relevant and appropriate.

Occupational Health and Safety Administration

- 29 CFR Part 1910.50 (applicable): Occupational Noise. No worker shall be exposed to noise levels in excess of the levels specified in this regulation.

- 29 CFR Part 1910.1000 (applicable): Occupational Air Contaminants. The purpose of this rule is to establish maximum threshold limit values for air contaminants to which it is believed nearly all workers may be repeatedly exposed day after day without adverse health effects. No worker shall be exposed to air contaminant levels in excess of the threshold limit values listed in the regulation.

- 29 CFR Part 1910.1200 (applicable): This part requires that each employer compile and maintain a workplace chemical list which contains the chemical name of each hazardous chemical in the workplace, cross-referenced to generally used common names. This list must indicate the work area in which each such hazardous chemical is stored or used. Employees must be provided with information and training regarding the hazardous chemicals.

- 29 CFR Part 120 (applicable): This part applies to employers and employees engaged in sites that have been designated for cleanup, and other work related to RCRA and CERCLA. The regulation establishes proceedings for site characterization and control, and requirements for employee training and medical monitoring.

Transportation of Hazardous Waste

- 49 CFR Part 171 (applicable): General information, regulations, and definitions. This regulation prescribes the requirements of the DOT governing the transportation of hazardous material.

- 40 CFR Part 172 (applicable): Hazardous materials table, special provisions, Hazardous Materials Communications, Emergency Response Information, and Training requirements. This regulation lists and classifies those materials which the DOT has designated to be hazardous materials for the purpose of transportation and prescribes the requirements for shipping papers, package marking, labeling and transport vehicle placarding applicable to the shipment and transportation of those hazardous materials.

- 49 CFR Part 177 (applicable): Carriage by Public Highway. This regulation prescribes requirements that are applicable to the acceptance and transportation of hazardous materials by private, common, or contract carriers by motor vehicle.

- 6 NYCRR Chapter 364 (applicable): New York Waste Transport Permit Regulation. This regulation governs the collection, transport, and delivery of regulated waste originating on terminating within the state of New York.

- EPA/DOT Guidance Manual on hazardous waste transportation (TBC):

Incineration

- 40 CFR Part 264 Subpart O (relevant and appropriate): This regulation establishes performance standards and monitoring requirements for hazardous waste incinerators.

- 6 NYCRR Subpart 373-2.15 (relevant and appropriate): This regulation establishes performance standards and monitoring requirements for hazardous waste incinerators for New York State.

4.0 REMOVAL ACTION OPTIONS

4.1 EVALUATION METHODOLOGY

The purpose of this removal action is to remove the source of TCE and DCE and thereby reduce the further degradation of groundwater and soils. Other analytes such as PAHs and metals are not a direct concern of this action and the ultimate disposition of these materials will be determined as part of the overall RI/FS process. This section discusses the methodology which was employed to select the appropriate treatment technology for this removal action. The evaluation followed the EPA RI/FS guidance, where applicable.

The first step in the technology selection process was to screen potential technologies based upon their demonstrated ability to treat soil impacted with TCE and DCE. This process accounted for site specific conditions including geology, hydrogeology, and the nature and extent of contamination. Other factors considered in the initial screening evaluation included the permenance of the solution, in regards to removing the source of TCE and DCE contamination and the potential effect on future remediation operations.

Those technologies passing the initial screening process were further evaluated. The purpose of evaluating removal action options is to provide decision makers with sufficient information to select the most appropriate technology for the removal action. The evaluation of each option was based on three criterion - effectiveness, implementability, and cost.

The first evaluation criterion considered was effectiveness. This criterion as defined in "Guidance for Conducting Remedial Investigation and Feasibility Studies under CERCLA" (EPA, 1988c) focuses on (1) the potential effectiveness of process options in handling the estimated areas and volumes of contaminated soils and meeting the removal action clean up objectives; (2) the potential impacts to human health and the environment during the construction and implementation phase; and (3) how proven and reliable the process is with respect to the contaminants and conditions at the site. Factors considered in the evaluation of effectiveness included the following:

- protection of the community during the removal action
- protection of workers during the removal action
- threat reduction

- time until the removal action objectives are met
- compliance with ARARs
- impact to the environment
- potential exposure to remaining risks
- reduction of toxicity, mobility, or volume
- long-term effectiveness and permanence
- long term remediation goals

Implementability encompasses both the technical and administrative feasibility of implementing a technology process. Technical feasibility refers to the ability to construct, reliably operate and meet the technology-specific regulations taking into account specific site conditions. Administrative feasibility refers to the ability to obtain approvals from the various agencies, the availability of treatment, storage and disposal services and capacity, and the requirements for, and availability of, specific equipment and technical specialists. In summary, factors which were examined in regards to implementability included the following:

- technical feasibility
- administrative feasibility (including availability)

Preliminary cost estimates were developed for each alternative based upon published information, guidance documents, vendor quotes, and engineering judgement. These estimates are not meant to be definitive, but serve as a basis for comparison. Costs considered included capital costs and annual operating and maintenance (O&M) costs.

Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs. Direct costs may include the following:

- construction costs
- equipment costs
- land and site - development cost
- buildings and services costs
- disposal costs
- site restoration costs
- equipment decontamination costs

Indirect costs consist of the following:

- engineering costs
- license and permitting costs
- startup and shakedown costs
- contingency allowances

O&M costs are post construction costs necessary to ensure the continued effectiveness of the action. O&M costs may include the following:

- operating labor costs
- maintenance costs
- auxiliary materials and energy costs
- disposal of residues
- sampling and analysis fee
- administrative costs
- contingency costs

4.2 INITIAL SCREENING

There are three general categories of potential removal actions for remediating the contaminated soil in the "bend in the road" area: on-site treatment, on-site containment and off-site disposal. Treatment can be done in situ or ex situ. Containment actions, in which contaminated soils remain in situ, are meant to isolate or confine soil contaminants from the surrounding environment, thus limiting the movement of the contaminants into the soil, groundwater or air. For off-site disposal, contaminated soils will be excavated and shipped off-site for disposal in a permitted hazardous waste landfill.

Specific ex-situ treatment activities include excavation of contaminated soil and debris, treatment of contaminated materials using thermal, physical, chemical, or biological treatment technologies followed by disposal of the treated materials in permitted landfills, and/or backfilling of the treated materials on-site.

A number of treatment technologies can be conducted in situ: soil vapor extraction (either steam or vacuum), bioremediation, solidification, and vitrification. The treated media, after clean-up objectives have been met is then left in place.

Specific containment technologies include capping and the installation of subsurface barriers, such as slurry walls. The no-action alternative is a special case in this category. The no-action alternative must be considered when conducting a feasibility study under the NCP, but is not required when conducting an EE/CA. Containment technologies were eliminated as options during the initial screening because they do not offer a permanent solution.

A number of soil treatment technologies were considered for this removal action. These are shown in **Table 4-1**, which is a table prepared by the EPA for screening remediation technologies. After the initial screening analysis, this list of candidate options were reduced to three basic technologies which were then considered in detail (see Section 4.3). These technologies included: thermal desorption, soil vapor extraction, and incineration. Combinations of these techniques were also considered. Bioremediation, soil washing, vitrification and solidification/stabilization were not evaluated in detail. Bioremediation of chlorinated solvents in soils is not a proven technology for treating chlorinated hydrocarbons as are the other selected technologies. Soil washing was not evaluated in detail because of the large quantities of contaminated water generated by the process, which would require the construction of a wastewater treatment plant. Vitrification was not evaluated in detail because vitrification is considered to be an effective technology for immobilization of metals, its effectiveness for organic contaminants has not been well documented. Solidification/stabilization has not been demonstrated to be effective for the treatment of VOCs such as TCE and DCE. To demonstrate effectiveness, treatability studies would be required.

Each of the technologies evaluated in detail, including off-site disposal, is discussed below. Each discussion describes the technology, evaluates some of its positive and negative aspects, and compares estimated costs. Comparative costs were developed based on information contained in EPA guidance documents and from vendors and are provided for comparison only. These should not be considered as the final actual cost estimates, which can be completed only after the design is finalized.

Table 4-1
Soil Remediation Technologies (EPA, 1988a)

Contaminant type \ Technology	Fluidized Bed Incineration	Rotary Kiln Incineration	Infrared thermal treatment	Soil Washing	Low temperature thermal desorption	Soil vapor extraction/ steam extraction	Stabilization/solidification	In situ vitrification	Biodegradation	In situ biodegradation (land treatment)
Organics										
Halogenated volatiles	✓	✓✓	✓✓	✓	✓	✓✓	✓	✓	✓	✓
Halogenated semivolatiles	✓	✓✓	✓✓	✓		✓	✓	✓	✓	✓
Nonhalogenated volatiles	✓	✓✓	✓✓	✓	✓	✓✓	✓	✓	✓	✓
Nonhalogenated semivols	✓	✓✓	✓✓	✓		✓	✓	✓	✓	✓
PCBs	✓	✓✓	✓✓	✓			✓	✓	✓	✓
Pesticides	✓	✓✓	✓	✓			✓	✓	✓	✓
Organic cyanides	✓	✓✓	✓	✓			✓	✓	✓	✓
Organic corrosives	✓	✓✓	✓	✓			✓	✓	✗	✗
Inorganics										
Volatile metals	✗	✗	✗	✓			✓✓	✓	✗	✗
Nonvolatile metals				✓			✓✓	✓	✗	✗
Asbestos							✓✓	✓		
Radioactive materials							✓✓	✓✓	✗	✗
Inorganic corrosives				✓			✓✓	✓	✗	✗
Inorganic cyanides	✓	✓	✓	✓			✓✓	✓	✗	✗

✓✓ = Demonstrated effectiveness

✓ = Potential effectiveness

✗ = Potential adverse impacts to process or environment

(shaded) = Contaminants of concern at SEAD Ash Landfill

4.3 DETAILED ANALYSIS OF OPTIONS

4.3.1 Soil Vapor Extraction

Soil Vapor Extraction (SVE) systems withdraw air through soil in order to extract volatile organic compounds. A vacuum apparatus is used to create negative pressure in the soil to accomplish this. Volatile constituents partition to the air in the soil and are subsequently recovered. Typical systems consist of a vacuum extraction well or wells, an air/water separator, a vacuum pump, a carbon adsorption canister (though a catalytic/thermal oxidizer or vapor condenser may also be used), and associated vacuum gauges.

The extraction wells may be either horizontal or vertical. Horizontal wells are generally more effective in situations where the contaminated soil is shallow (less than 10 feet deep), as is the case at the SEAD Ash Landfill.

SVE systems are generally used in unsaturated soils. At sites such as the SEAD Ash Landfill, dewatering would be necessary during periods of the year, such as the spring, when the water table rises to near the surface. This could be accomplished separately from the SVE system by using either trenches or extraction wells. However, since the amount of water to be removed is likely to be small, since the aquifer thickness is thin and does not readily yield water, and the suction lift is only 10 to 15 feet it may be possible to simultaneously remove air and entrained water from the site by a strong vacuum system. Once the entrained water is seperated from the air in an air/water seperator, the water collected would be treated and discharged to either the nearby surface streams/drinage ditches or transported to the biological wastewater treatment plant.

4.3.1.1 Effectiveness

Vacuum extraction processes have proven to be effective remediating volatile contaminants from uncontrolled hazardous waste sites and are most commonly used in in-situ remedial actions (Murdoch, et al. 1988). These
systems are commonly used for gasoline and other petroleum spills, and have been shown to be effective for a wide range of volatile organic contaminants. Typically, SVE systems are effective for compounds with a high vapor pressure, and/or a dimensionless Henry's Law constant greater than 0.001. TCE, for example, has a Henry's Law constant of 0.23 at 10°C. DCE and vinyl chloride have Henry's Law constants of 0.12 (cis-1,2-DCE), 0.25 (trans-1,2-DCE), and 0.65. (EPA, 1989c)

The use of SVE is most effective in permeable unsaturated soils, such as sands, gravels, and coarse silts since diffusion rates through dense soils, such as compacted clays, are much lower than through sandy soils (USEPA, 1988a). New techniques have been developed which increase the permeability of clay soils, thereby increasing the contaminant removal rates. These techniques include capping-which prevents the "short circuiting" of the vapor extraction well; air injection-which causes the fracturing of the clay matrix and thereby increases the permeability; and steam injection-which causes an increase in volatility of the organics as well as an increase in permeability.

There are two primary effluents from an SVE system: air and water. The air is discharged after passing through the various treatment units. Typically, the air is passed through a condenser to remove water and some organics. The air is then passed through either carbon adsorption filters or a catalytic oxidizer/thermal. Air monitoring can be used to ensure that the air leaving the system meets the requirements of all ARARs. **Figure 4-1** provides a typical block flow diagram for a SVE system.

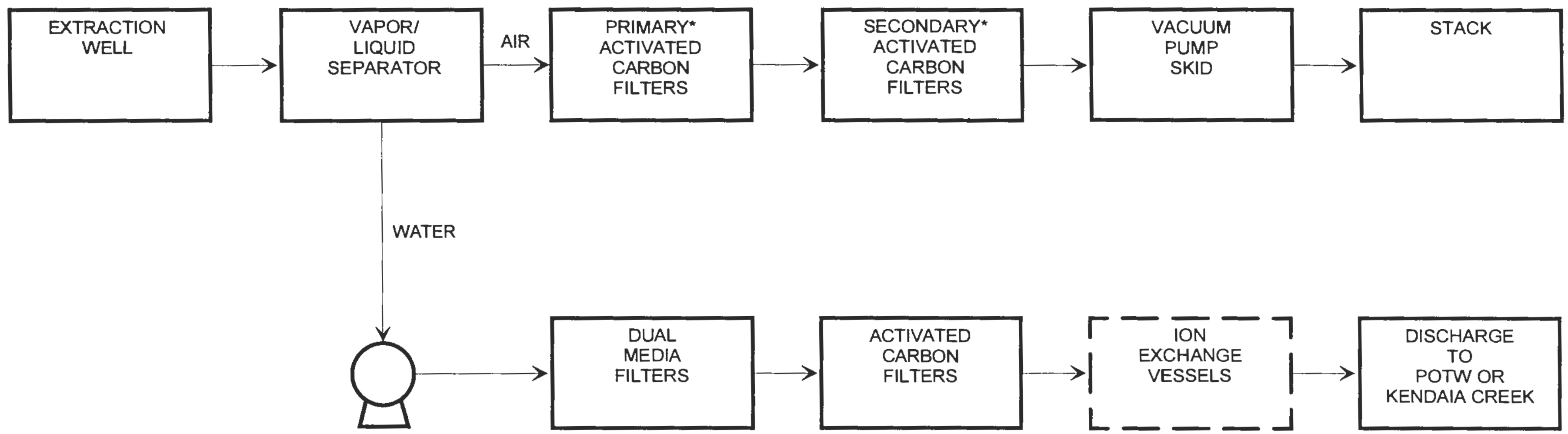
The water effluent comes from two sources, the vacuum system and, if required, the dewatering system. This water can be treated in a variety of ways. At the SEAD Ash Landfill the water will likely be filtered, and then passed through an air stripper. The off-gas from the stripper will be treated in a catalytic oxidation unit or an activated carbon adsorption system. If metals in the recovered groundwater exceed allowable discharge criteria, the water could also be routed through ion exchange resins. The treated water could either be discharged to a local creek, or to the biological wastewater treatment system, depending on compliance with the water ARARs discussed above.

The principal pathway of community and worker exposure during removal activities would be through inhalation or contact with the soil during installation of the SVE system. Typical drilling equipment such as that used during the RI, will be used to install the SVE wells. It is anticipated that the community exposure will be acceptable, since ambient air monitoring conducted during the RI did not detect unacceptable air concentrations 100 feet from the drilling site. The nearest residence is approximately 2500 feet away. The fenceline for the site is over 200 feet away.

One potential drawback to using SVE at the Ash Landfill is the soils at the site. The soils are primarily clays and clay loams, which have low permeabilities. As discussed above, SVE can still be effective in these soils, but a large number of wells or some other permeability increasing technique will likely be necessary. This situation makes it difficult to predict the

FIGURE 4 - 1

Soil Vapor Extraction Blockflow Diagram



* AS AN ALTERNATIVE CATALYTIC OXIDATION COULD BE USED

duration of the removal action and therefore accurately estimate the cost. Localized areas of dense soils could take 1.5 to 2 years to fully remediate.

4.3.1.2 Implementability

SVE is readily implementable at the SEAD Ash Landfill site. There are a number of vendors available who specialize in installing SVE systems including ETG Technologies, Inc.; VAPEX; and Terravac. Most of the equipment used for SVE is standard equipment, such as the extraction wells, injection wells, blowers, and pumps. This equipment is readily available and easy to maintain since replacement parts are also readily available.

Once the system is installed, the maintenance requirements are minimal. The treated water will likely be transported to be disposed at the SEDA biological treatment plant or discharged to the on-site drainage swales. Depending upon the concentration of vinyl chloride in the water activated carbon could be used for treatment of the air or water. Depending upon the treatment flow and the influent concentration the carbon canisters will need to be replaced periodically. Due to the low concentrations of organics and the relatively short time-frame for this removal action, it would not be practical to regenerate carbon on site. The spent carbon would be sent offsite for either regeneration or proper disposal. Other maintenance would be to routinely check all the equipment and make necessary repairs.

If the concentration of vinyl chloride is high, catalytic/thermal oxidation will be used as an alternative to carbon.

The set up time for implementing an SVE system is short. Since all of the equipment needed is standard, mobilization, site preparation and equipment installation is expected to take from between 2 and 4 weeks.

4.3.1.3 Cost

Treatment cost for soil vapor extraction obtained from vendors was approximately $175 per cubic yard, based on site conditions. The total cost to treat 14,500 yards of soil would be approximately $2,500,000. These costs include the following:

- engineering
- the development of work plans
- the development of health and safety plans

- permitting
- the development of sampling and analysis plans
- mobilization
- site development
- dewatering operations
- water treatment
- off gas treatment
- ambient air monitoring
- site restoration
- decontamination operations
- the disposal of secondary wastes
- demobilization
- confirmational sampling and analysis
- site supervision

These costs do not include oversight costs or contingency costs.

4.3.2 Thermal Desorption

Thermal desorption, otherwise known as low-temperature thermal stripping, is a process in which the contaminated soil is heated in order to vaporize the volatile organic contaminants. The vapor then passes through a series of air emission control units. The organic contaminants are treated with catalytic or thermal oxidation, or a carbon adsorption system. Unlike incinerators in which the soil is subjected to high temperatures and combustion in the primary chamber, thermal desorbers heat the soil at lower temperatures and combust the vapor in air pollution control equipment prior to discharge. In some instances, activated carbon can be substituted for a thermal oxidizer.

There are two major types of thermal desorbers currently available. One set relies on indirect heating. The soil and the heat transfer medium, generally a synthetic oil or a molten salt do not contact each other. The other type of unit, a direct-heated device, is similar to a rotary kiln incinerator. The soils are heated in the unit by a flame which directly contacts the soil. The flame is only hot enough to promote volatilization and not incineration. Indirectly heated units maintain the soil at a higher temperature, while indirectly fired units tend to have a higher throughput.

The type of unit required depends on the nature of the contaminants present and the treatment criteria. **Figure 4-2** shows a typical block flow diagram.

The thermal desorber is operated in the range of 300°F to 850°F, depending on the type of unit and the nature of the contaminants. For the SEAD Ash Landfill, a higher temperature may be necessary because of the presence of PAHs and other petroleum hydrocarbons at the site. PAH and petroleum compounds have higher boiling points than volatile organic compounds. If a thermal oxidizer is used for combustion, the operating temperature in this chamber is usually in the range of 1,500°F to 2,200°F. The primary advantage to this system over incineration is that only the vaporized
organics and water from the contaminated soil enter the combustion chamber, thus minimizing the residuals in the vapor, such as HCl and NO_x which must be removed.

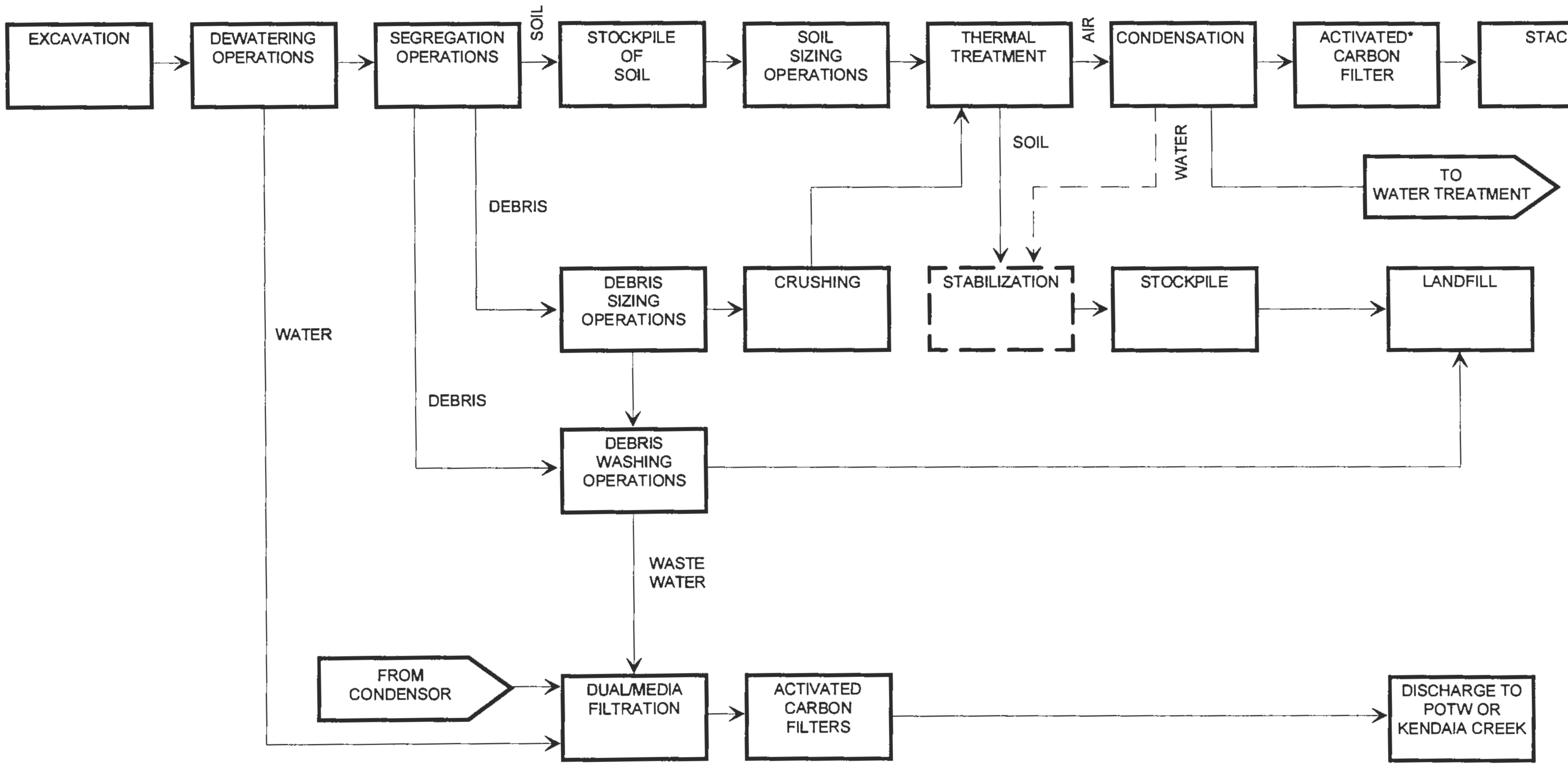
Thermal desorption has been demonstrated effective for the removal of organics from contaminated soils. Specifically, thermal desorption has been used to treat soils contaminated with chlorinated hydrocarbons, petroleum hydrocarbons and PAHs, such as the SEAD Ash Landfill soils, to levels less than 10 mg/kg for total petroleum hydrocarbons and less than 0.1 mg/kg for specific chlorinated hydrocarbons. Thermal desorption is ineffective in removing metals, but the effluent from the thermal desorption unit could be stabilized prior to backfilling to prevent metals migration and to ensure that the treated soils meet the criteria for backfilling, if required.

There are potentially five effluents from this system: the treated soil, scrubber water, baghouse filters, spent carbon canisters, and debris. If an afterburner is used, no spent carbon is generated. The scrubber water may be treated and sent to the local wastewater treatment plant or discharged into Kendaia Creek. The spent carbon can be thermally regenerated and reused. The soil can be either backfilled or sent off-site for disposal. The baghouse filters can also be sent to an appropriate disposal facility. Debris can be segregated, sized, and washed. Some debris will also be suitable for thermal desorption. The treated debris would then be disposed of on-site or sent off-site for additional treatment and disposal.

Air emissions controls are an integral part of these units. In addition to the organic controls, baghouses and scrubbers are often used. Scrubbers are used to remove acid gases, and baghouses are used to remove particulate matter. Scrubber effluent can be passed through a carbon system and reused. The exact configuration of the emissions controls depends on the design of the thermal desorber and the characteristics of the contaminated soil.

FIGURE 4- 2

Thermal Desorption Blockflow Diagram



* AS AN ALTERNATIVE CATALYTIC OXIDATION COULD BE USED

4.3.2.1 Effectiveness

Thermal desorption has been demonstrated effective for the removal of organics from contaminated soils. Specifically, thermal desorption has been used to treat soils contaminated with chlorinated hydrocarbons, such as the SEAD Ash Landfill soils, to levels less than 0.1 mg/kg. Thermal desorption is ineffective in treating metals, however metals are not the focus of this effort.

The effluent soil would be sampled periodically to ensure that sufficient treatment has occurred. The effluent air would be monitored to assure that the levels of organics do not exceed design criteria. The temperature of the thermal desorption vessel will be monitored to ensure proper treatment.

4.3.2.2 Implementability

Thermal desorption is readily implementable. Mobile units are available from Canonie Environmental in Ohio, ReTeC, Inc., in Massachusetts, and Roy F. Weston or ETG Environment, Inc. in Pennsylvania. Bench- or pilot-scale tests can be run to determine optimal operating conditions. Additionally, all of the necessary emissions control units are commonly employed in industry for air pollution controls.

The thermal desorption unit requires routine maintenance, but this is generally provided by the vendor. The earthmoving equipment also requires routine maintenance.

Mobilization time for thermal desorption is in the range of 1 to 2 months, covering setup time, site preparation, and testing. Treatment time is in the range of 2 to 4 months for approximately 14,500 cubic yards of soil.

4.3.2.3 Cost

The cost of thermal desorption is less than incineration. Treatment cost estimates obtained from vendors ranged from $215 to $250 per cubic yard, based upon the understanding of existing site conditions. The total treatment cost for 14,500 yards of soil would be expected to be approximately $3,500,000. Once the soil is backfilled, there should be no long-term maintenance costs. Costs will be higher if off-site disposal of the treated soil and debris, solidification/stabilization of soils prior to on-site disposal,or extensive testing is necessary. The costs associated with thermal desorption would include the following:

- development of Work Plans and Health and Safety Plans
- obtaining all the necessary permits
- development of sampling and analysis plans
- mobilization
- site development
- soils removal
- segregation operations
- sizing operations
- groundwater treatment (from excavation and dewatering operations)
- thermal desorption
- debris treatment and off-site disposal
- off gas treatment
- water treatment
- water discharge (to creek)
- backfill operations
- site restoration
- ambient air monitoring
- soil and water sampling and analysis
- decontamination of all treatment equipment
- the safe disposal of all secondary wastes generated as a result of the treatment operations such as spent resins, carbon, etc.
- demobilization

These costs do not include oversight costs or contingency costs.

4.3.3 Incineration

Incineration is a technique which uses high-temperature oxidation to destroy a waste. Incineration is effective for a wide variety of organic wastes, even those resistant to biodegradation. During the process, organic materials are generally reduced to CO_2 and H_2O. Residuals from the process may include SO_2, NO_x, HCl, and ash. Any metals in the soil generally end up in the ash. Emissions control devices are effective in minimizing the emissions of these oxidation products.

There are two ways incinerators may be used for a site remediation. Portable units may be brought to a site so contaminated soils may be placed directly into the incinerator. For this site, portable units were considered to meet the objective of onsite treatment.

Three types of incinerators can be used to treat contaminated soils: rotary kiln, fluidized bed and infrared thermal treatment.

Several operational parameters are important in understanding incineration: temperature, residence time, and mixing. The temperature must be high enough to destroy the organic contaminants present in the soil. Residence time is important because the material must remain in the incinerator long enough to be destroyed. The last important operational parameter is mixing. The incinerator must be designed such that the materials are fully dispersed in order to maximize the treatment efficiency.

Rotary-kiln incinerators are often used to treat contaminated soils. They are specifically designed to handle solid materials. The range of combustion temperatures is 1,500 °F to 3,000 °F, with varying residence times depending on this soil and contaminant characteristics.

Fluidized-bed incinerators are used primarily for liquid and slurry wastes, but can be designed to handle soils and other solid materials. Fluidized-bed incinerators are designed to provide better mixing and thus achieve efficient treatment at lower temperatures than rotary-kiln units.

Infrared thermal treatment is somewhat different from the incineration technologies. In this system, the soil is conveyed through an infrared chamber, where it is subjected to infrared radiation at a temperature of approximately 1,400 °F. The combustion products then flow to a secondary chamber, which may be either an infrared unit or a standard incineration unit. The temperature of the secondary chamber is approximately 1,600 °F. The residence time in an infrared unit is generally in the range of 5 to 50 minutes (EPA, 1988a).

4.3.3.2 Effectiveness

Incineration can be extremely effective in destroying of organic contaminants such as TCE, DCE, and the PAHs present in soils in the bend in the road area. Destruction and removal efficiencies of 99.99 percent and 99.9999 percent have been documented (EPA, 1988b). Incineration is not as effective for metals. Metals generally remain in the ash, but may be released to the offgas as particulates or volatiles. Control technologies must be implemented for the metals released to the offgas.

The two major effluents from incineration are the soil-ash mixture and the air stream. Other effluents are baghouse dust from particulate emissions control equipment and any liquid streams from scrubbers used as emissions control equipment. The soil-ash and other solid material must be analyzed and, if necessary, disposed of in an appropriate facility such as a permitted landfill or the materials must be solidified/stabilized for on-site disposal. It may be possible to backfill the soil and solid materials if testing indicates that these materials are not hazardous. Liquid effluent may be able to go to the local POTW or Kendaia Creek after treatment.

Incineration reduces the potential threat to human health and the environment by destroying the organic contaminants in the soil. Metal contaminants remain in the ash and the baghouse dust and must be properly disposed of. Additional treatment of the metals may be necessary prior to disposal.

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 accomplished through site access controls and the use of proper protective equipment for site workers, such as respirators and Tyvek protective clothing. Air emissions control equipment is used to minimize the threat from airborne contaminants. Air monitoring is often used to ensure that there is no significant threat from the inhalation of vapors or particulates.

4.3.3.3 Implementability

Incineration has been used for a number of years to treat a variety of hazardous wastes.

The startup period for on-site incineration is several months. Time is required to transport the equipment to the site. Testing and trial burns with the site soil are necessary to determine the optimal operating parameters for the site. The regulatory requirements for incinerators are often more stringent than for other technologies because of the air emissions.

The capacity of most mobile incinerators is 2 to 5 tons per hour. Since a cubic yard of soil weighs about 1 to 2 tons, incineration capacity is 1 to 3 cubic yards per hour. Therefore, the treatment time for the Potential Removal Action is in the range of 30 to 60 months if operated 24 hours a day. In addition, the regulations and guidance documents which pertain to hazardous waste incinerated are currently under intense review by the new administration.

It is unclear at this time how this would affect the permitting process for a hazardous waste incinerator at a CERCLA site.

4.3.3.4 Cost

The bend in the road area would be considered a small site (EPA, 1988b). Incineration costs for this size site were estimated to be $1,000 to $1,500 per ton or $1,000 to $3,000 per cubic yard, which covers treatment, mobilization, demobilization, ash disposal, and other incidental costs. Actual treatment costs are only a small part of the total. Costs for mobilization and demobilization are estimated to be over $1,000,000. Treatment costs are estimated at $200 per cubic yard. For 14,500 cubic yards, the treatment cost would be at a minimum $15,000,000. When other costs, such as those for permitting and site preparation, are added, the total treatment cost could be much higher. These costs are anticipated to be almost entirely capital costs. If it is necessary to landfill the residuals off-site, this will likely cost more than $200 per cubic yard to cover both landfill and transportation costs. Long-term costs should be minimal. Once the residuals are backfilled or landfilled, there will be no continuing costs.

4.3.4 Offsite Disposal

Offsite disposal was the last option evaluated in detail for this removal action. This technology consists of excavating the contaminated areas, segregating the different materials present (soil, debris, water, etc.), and disposing of each media off-site in an appropriate disposal facility. The contaminated media on-site are not a RCRA listed waste, but may be considered a characteristic hazardous waste. Each media would have to be tested prior to treatment and disposal.

4.3.4.1 Effectiveness

Off-site disposal is obviously very effective in removing the contamination from the site, since the soil will be removed. There are potential limits to the effectiveness. During the removal, many of the volatile contaminants will become mobile, and may spread to previously uncontaminated areas of the site, or migrate off-site. In addition, depending on the nature of the off-site disposal option chosen, the material may be simply moved to a landfill, and not permanently remedied. While this will reduce the threat at the site, it will not do away with the long-term threat from these contaminants.

4.4.3.2 Implementability

Off-site disposal is readily implementable at the SEAD Ash Landfill. A number of contractors are available who are very experienced in removing and transporting contaminated material. There is sufficient disposal capacity for this material at a number of treatment and disposal facilities. The equipment necessary for removal and transport is primarily standard earth moving and construction equipment and is readily available from a number of locations if not already owned by the contractor.

4.4.3.3 Cost

The cost of off-site disposal obtained from vendors based upon the current understanding of existing site conditions ranged, from $4,900,000to $7,100,000. Mobilization would be expected to take less than 1 month. The entire project including restoration would take an additional 2 to 3 months. The costs associated with off-site disposal include the following:

- development of Work Plans and Health and Safety Plans
- obtaining all the necessary permits
- development of sampling and analysis plans
- mobilization
- site development
- soils removal
- segregation operations
- sizing operations
- groundwater treatment (from excavation and dewatering operations if required)
- debris treatment
- transportation
- offsite disposal
- water discharge (to creek)
- backfill with clean soil operations
- site restoration
- ambient air monitoring
- soil and water sampling and analysis
- decontamination of all treatment equipment

- the safe disposal of all secondary wastes generated as a result of the treatment operations such as spent carbon
- demobilization

4.5 COMPARATIVE ANALYSIS

There are a number of advantages and disadvantages to each technology which were considered in detail in order to select the appropriate remedial technology. These advantages and disadvantages are summarized in **Table 4-2**.

Two of the technologies, offsite disposal and incineration were eliminated quickly from consideration. Incineration is very effective for treating soils contaminated with organics, but has several major drawbacks. First, it is far more expensive than any of the other options. Incineration is estimated to cost upwards of $15 million, or approximately $10 million more than any of the other options. There is also an increased regulatory burden associated with incineration. Even though an air permit would not be required for the incinerator, it would still be necessary to meet all the substantive requirements of the air permit process. This process could add significantly to the time and cost of incineration.

Offsite disposal also was eliminated at the beginning of the decision process. While offsite disposal is very effective in dealing with the site contamination, it is not a treatment option. The contaminated soil is simply moved to another location, in this case, a hazardous waste landfill. It is a goal of this removal action to treat the contaminated soil, and not just use a disposal option.

The two remaining options, SVE and thermal desorption were compared in greater detail. Each of these two options has some strong advantages, but also some disadvantages. The primary advantages to SVE are the low cost, ready implementability, and the ability to conduct the remediation in situ. The primary disadvantages are the long treatment time due to the nature of the soils at the site and the uncertainty that the remedial goals have been attained. A preliminary analysis of the effectiveness of the SVE suggests that it may take approximately 18 months to remediate the site, however this may increase to 2 years, if factors such as frozen ground or flooding conditions prevent effective removal rates. The cost would be expected to increase if the remediation time is extended. Another disadvantage is that SVE that it is not effective in removing the PAHs and other semivolatile organics present at the site.

TABLE 4-2

REMOVAL TECHNOLOGY COMPARISON

TECHNOLOGY	EFFECTIVENESS	IMPLEMENTABILITY	COST ($\$X10^6$)	ADVANTAGES	DISADVANTAGES
Soil Vapor Extraction	Demonstrated to be effective for volatile organics removal	• Highly implementable	2.5	• Lowest Cost • Minimum Fugitive Emissions • In-situ, no excavation required	• More uncertain in documenting remedial objectives • Length of treatment required is 1.5 to 2 years
Thermal Desorption	Demonstrated to be effective for volatile organics removal	• Highly implementable	3.5	• Fairly short schedule • Outcome is well documented	• Excavation required, increasing air emissions • Higher cost
Incineration	Very effective at destruction of all organics	• May be difficult to implement	15.0	• >99.99% destruction of all organics	• Highest cost • Ash may be toxic
Off-Site Disposal	Effective for removing the source of contamination	• Highly implementable	7.1	• Short schedule • Completely removes source	• Higher cost • Excavation required • Not a permanent solution

The primary advantages of thermal desorption are effectiveness for organics, and certainty of treatment. The treatment time required for thermal desorption is far more certain than for SVE, and will likely be in the 3 to 6 month range. Depending of the treatment temperature used for extraction, thermal desorption is effective for treating the small quanitities of PAHs and other semivolatile compounds present in the soils. While treating the semivolatile organics is not the primary goal of this removal action, removal of these compounds will further protect human health and the environment, and will minimize the potential requirement for future remedial actions. However, there are also disadvantages to thermal desorption. First, it will likely be more expensive than SVE. Secondly, there are more effluents from the system, including the treated soil, air, and water. In addition, any large sized debris removed during the excavation activities will need to be segregated, cleaned, and sent off-site to an appropriate landfill. It is anticipated that the debris will be able to be sent to a nonhazardous waste landfill.

After weighing all of the different options, thermal desorption has been selected as the technology of choice for this removal action. A full discussion of the rationale for selecting thermal desorption, along with a conceptual design is presented in Section 5 of this report.

5.0 RECOMMENDATION AND ANTICIPATED SCHEDULE

5.1 RECOMMENDATION

The remedial technology recommended for treatment of the soils containing organics at the Ash Landfill is thermal desorption. Thermal desorption, in coordination with air and water treatment units will be very effective in remediating the organic contamination present at the site. The bulk of the contaminated water generated during the removal action will come from the dewatering activities. It is proposed that this water will be collected in a holding tank, and then passed through a treatment train consisting of a multimedia filter followed by an air stripper. If necessary, ion exchange resins could also be used to control metals in the water. The offgas from the air stripper would be treated with either activated carbon or a catalytic or thermal oxidation unit.

The air emissions from the thermal desorber will also need to be treated. Several options for treating the off-gas are avaliable. For example, the effluent solvent ladden air may first pass through a condenser, which will separate the air and water. The water will be either reused in the process, or commingled with the dewatered groundwater for additional treatment. Depending upon the moisture content in the air and the concentration of the organics in the air could by-pass the condenser and pass through an organic treatment unit, either activated carbon or a thermal oxidizer. The exact configuration of the thermal desorption unit will vary from vendor to vendor, and may not exactly fit the description proposed here, but the final results will meet all the requirements described in Section 3.

Sizing and debris washing unit operations will also be required. Debris too large to pass through the thermal desorption unit will be segregated, washed, and shipped off-site to an appropriate landfill. Wastewater generated from the debris washing operations will be subject to the same or similar treatment as the dewatered groundwater.

5.2 CONCEPTUAL DESIGN

The removal action will include several unit operations, along with peripheral and support items. This section provides an overview of the proposed removal action, along with a discussion of several important issues. This section is not meant to be a detailed design. Each vendor has a slightly different unit for accomplishing the removal action. Control over the removal action will be accomplished with a set of performance specifications, which will cover everything from mobilization to treatment performance to site restoration. These specifications will be developed and issued as part of a bid package, which will be completed once the proposed removal action has been approved.

5.2.1 Site-Specific Work Plans

The first step in the removal action will be developing site specific work, health and safety, and sampling and analysis plans. The work plan will address the steps necessary to complete the remediation, and will include, at a minimum, the following items:

- Mobilization
- Site preparation
- Site layout
- Dewatering trench design and construction plan
- Groundwater removal and treatment
- Excavation plan
- Emissions control techniques
- Stockpiling and segregation plans
- Thermal desorption unit specifications
- System proveout plan
- Site restoration plan

A site-specific health and safety plan will also be developed. Since this is a hazardous waste site, the plan, to be developed by the contractor, will be prepared in compliance with all applicable OSHA regulations. A requirement of the bid package will be that the contractor be in full compliance with all OSHA regulations, including proper training and medical monitoring programs. This plan will address air monitoring which will be conducted as part of the health and safety program.

The last plan to be developed will be a site-specific sampling and analysis plan. Included within the sampling and analysis plan will be a QA/QC plan. The sampling and analysis plan will address several specific areas. First, soil samples will be collected from the extents of the excavation. These samples will ensure that no soils remaining in the ground, and therefore not treated, exceed the NYSDEC soil treatment standards. A statistical approach will be developed to determine the number and location of the soil samples to be collected.

The next item to be considred in the sampling and analysis plan is post-treatment sampling. Both soil and groundwater will need to be sampled after treatment to ensure that all the treatment criteria have been met prior to discharging the groundwater and backfilling the soil. Again, a statistical approach will be developed to determine the number and type of samples to be collected.

An important part of the sampling and analysis plan is the QA/QC plan. The QA/QC plan will describe the procedures to be followed to ensure that the data collected is valid, and will be accepted as evidence of a succesful removal action. At a minimum, the QA/QC plan will address sampling procedures, analytical procedures, data validation and reduction procedures, and quality assurance samples (duplicates, blanks, etc.). The analytical methods specified will be acceptable to NYSDEC and EPA, and will have detection limits low enough to ensure that the treatment criteria have been met.

5.2.2 Mobilization and Site Preparation

Once the work plans have been approved, site preparation and mobilization will begin. The contractor will bring all the necessary equipment to the site, arrange for all required utilities, and obtain all necessary permits. If necessary, pads will be constructed for the equipment, and run on and run off controls will be constructed.

The next step in the site preparation will be construction of a dewatering trench. Trenches will be constructed to hydraulically isolate the areas to be remediated, with room left to drive heavy equipment betweent the treatment area and the excavation. The trenches will be 2 to 3 feet wide, and approximately 8 feet deep (to bedrock) and will be lined with a geotextile. A 4-inch diameter PVC pipe placed in the trenches will be used to convey the water. The trench will then be backfilled with gravel. The water will collect in several sumps and will then be pumped to a holding tank prior to treatment. Groundwater treatment will consist of a multimedia filter, followed by an air stripper. If necessary, an ion-exchange unit may be used to reduce metals concentrations in the groundwater to levels suitable for discharge to surface water. The water discharged from the groundwater treatment unit will meet all NYSDEC SPDES requirements for discharge direct to Kendaia Creek.

Air from the stripper will pass through an organic treatment unit which will consist of an activated carbon unit or a catlytic or thermal oxidizer prior to discharge. The unit operations for air treatment will be specified to ensure that all ARARs (Section 3) are met.

5.2.3 Excavation

The areas to be excavated are highlighted in **Figure 5-1**. Excavation of materials will be limited to daylight hours. The rate of excavation will greatly exceed the material sizing and thermal desorption processing rate in order to maintain a sufficient stockpile of treatable material. The area to be excavated will be dewatered prior to the excavation, but if necessary, a pump will be used to remove water from the pit. This water will be pumped into the dewatering trenches, where it will be treated along with the remainder of the water. In order to minimize emissions, dust control foams and other housekeeping measures may be used in the area with the highest concentrations of TCE and DCE, the area adjacent to the bend in the road. The sides of the excavation will be sloped such that shoring will not be required for entry into the pit. The total depth of the excavation will be approximately 8 feet, which is the average depth to the competent shale at the site.

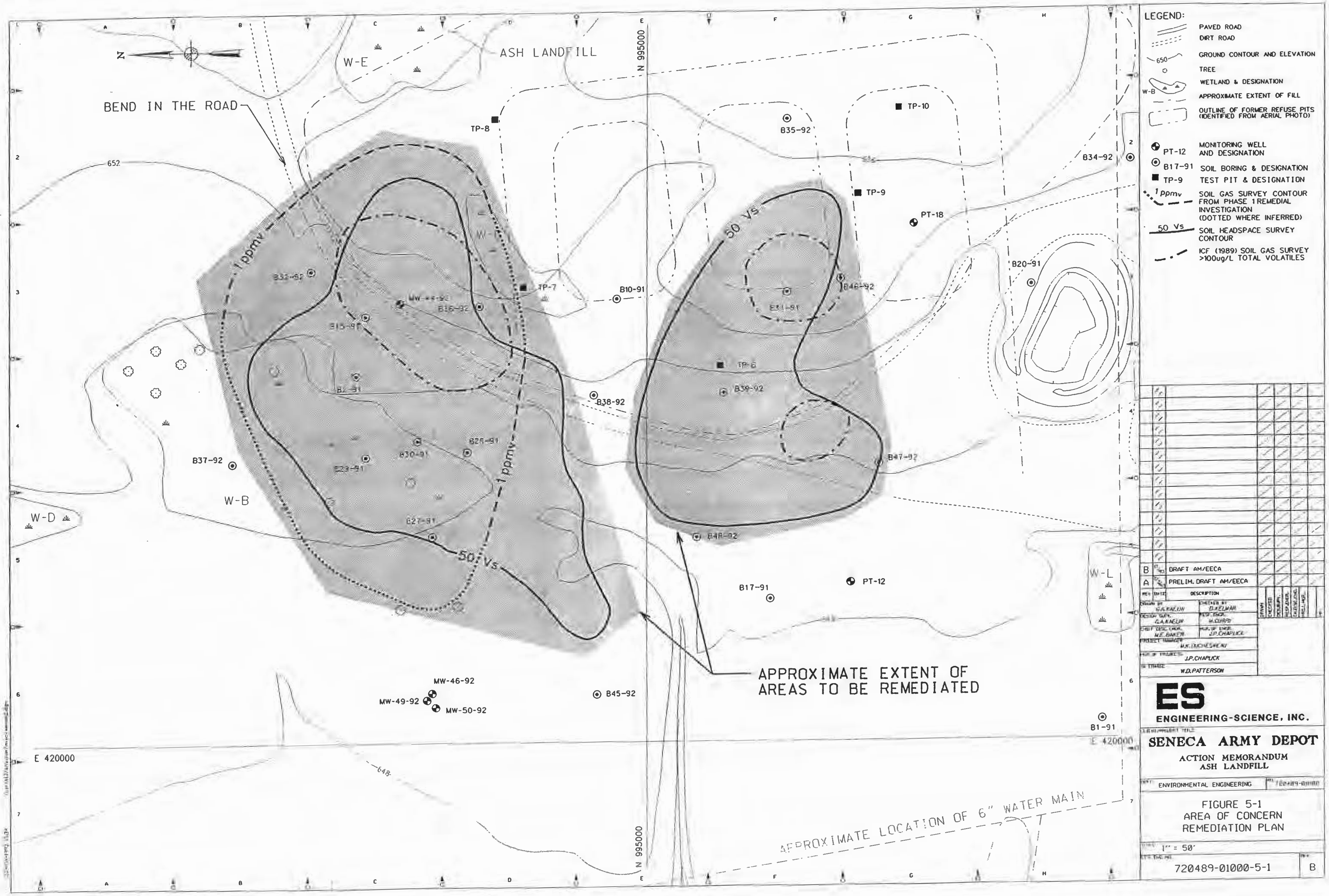
5.2.4 Material Sizing and Debris Washing Operations

Once the material is excavated, it will need to be sized prior to thermal desorption. A staging area will be set up for the stockpiled soil, which will include sizing and debris washing unit operations. Since a portion of the area to be excavated is in the old landfill, there is a potential for varied debris to be present, and material sizing will be important. Debris too large to pass through the thermal desorption unit will be segregated, washed, and shipped offsite to an appropriate landfill. It is believed that this material can go to a nonhazardous waste landfill. Water from the debris washing operations will be collected, and either reused in the process, or treated in a manner similar to the site groundwater.

5.2.5 Thermal Desorption

The heart of the proposed treatment process is the thermal desorption unit. As discussed above, each contractor has a unit with slightly different specifications, and this discussion is only meant to provide an overview of the process, not a detailed design.

First, the material is sized for the unit, and stockpiled. The sized material is then fed to the unit on a conveyor. Some units use a weigher in the conveyor to record the weight of material entering the unit. The material in the unit is then heated, either directly with a flame, or indirectly with heated augers. The material is only heated to a sufficient



ASH LANDFILL
BEND IN THE ROAD
W-E
W-B
W-D
W-L
652
648
N 995000
E 420000
1 ppmv
50 Vs
TP-8
TP-7
TP-6
TP-9
TP-10
B35-92
B34-92
PT-18
B20-91
B46-92
B10-91
B32-92
MW-44-92
B16-92
B15-91
B2-91
B38-92
B39-92
B37-92
B30-91
B28-91
B23-91
B27-91
B47-92
B48-92
B17-91
PT-12
MW-46-92
MW-49-92
MW-50-92
B45-92
B1-91
APPROXIMATE EXTENT OF AREAS TO BE REMEDIATED
APPROXIMATE LOCATION OF 6" WATER MAIN
LEGEND:
PAVED ROAD
DIRT ROAD
GROUND CONTOUR AND ELEVATION
TREE
WETLAND & DESIGNATION
APPROXIMATE EXTENT OF FILL
OUTLINE OF FORMER REFUSE PITS (IDENTIFIED FROM AERIAL PHOTO)
PT-12 MONITORING WELL AND DESIGNATION
B17-91 SOIL BORING & DESIGNATION
TP-9 TEST PIT & DESIGNATION
1 ppmv SOIL GAS SURVEY CONTOUR FROM PHASE 1 REMEDIAL INVESTIGATION (DOTTED WHERE INFERRED)
50 Vs SOIL HEADSPACE SURVEY CONTOUR
ICF (1989) SOIL GAS SURVEY >100ug/L TOTAL VOLATILES
B DRAFT AM/EECA
A PRELIM. DRAFT AM/EECA
DESCRIPTION
ES
ENGINEERING-SCIENCE, INC.
SENECA ARMY DEPOT
ACTION MEMORANDUM
ASH LANDFILL
ENVIRONMENTAL ENGINEERING
FIGURE 5-1
AREA OF CONCERN
REMEDIATION PLAN
1" = 50'
720489-01000-5-1
B

temperature to induce volatilization of the organics, and not to temperatures sufficient for combustion. For this site a higher temperature, in the range of 400° to 600° F will be necessary to ensure removal of the target volatile organics and the semivolatile organics present in the soil.

After the material has passed through the unit, it will be discharged to a "treated material" stockpile where it will be allowed to cool prior to post-treatment sampling. Once the material passes the site specific QA/QC requirements, it will be stockpiled in a "clean material stockpile" and then backfilled in the excavation. Materials which do not pass the testing will be reprocessed.

The air driven off form the soil will contain the organic constituents, and will pass through several treatment units. First, the air will be passed through a condenser, where the water will be removed. This water will either be reused in the process, or treated to the SPDES discharge requirements, and discharged to Kendaia Creek. The air will next pass through an organic treatment unit, which could be either activated carbon or a thermal or catalytic oxidizer. The treated air will then be discharged. The unit operations for air treatment will be specified so as to ensure that the air leaving the unit meets all of the air ARARs described in Section 3.

5.2.6 Backfill, Site Restoration, and Demobilization

Once sufficient stock of treated soil has been accumulated, backfill operations will begin. The excavated areas will be filled and restored to the original grade. Clean fill will be brought in as necessary to make up for the debris sent offsite and any volume reduction due to processing. The area will then be reseeded with native vegetation. The contractor will be responsible for maintaining the area for enough time for this vegetation to become established. The dewatering system will be removed, and the trenches backfilled with clean fill. At the discretion of the Army, the dewatering system may be left in place once the soil treatment has been completed if groundwater collected in the system still contains organic constituents.

All of the equipment used by the contractor will be decontaminated prior to leaving the site. Decontamination water will be collected and properly treated and/or disposed of.

5.2.7 Air Monitoring

There are two major sources of air emissions, the excavation and sizing activities and the thermal desorption unit. These two are very different, and merit separate discussions. The program will be designed to ensure compliance with all air ARARs, including the NYSDEC Community Air Monitoring Plan, which specifies action levels at a distance of 200 feet from the removal action, and at the nearest residence. An monitoring station be established at a distance of 200 feet from the operations. If the level of organics in the air reaches 5 ppm at the monitroing station, then monitoring must be conducted at the nearest residence. For this removal action, the depot fenceline will be used instead of the nearest residence, since this is much closer to the operations, and will therefore be more protective of the community. If unacceptable concetrations of target organics are detected at the fenceline, work will be shut down until this situation has been investigation and further controls are implemented to prevent the reoccurrence of this condition.

During excavation and sizing operations there will be emissions from the soil as it is agitated. In order to evaluate the impacts of these activities, the air emissions were modelled. Air emissions from the soil were estimated using the EPA model LAND7 and the 95th percentile upper confidence limit soil concentrations from the soil samples collected within the boundaries of the proposed removal action. The emission rates were then input into the EPA SCREEN model, which estimates the concentration at various downwind receptors. The air modelling data and results are presented in **Appendix C**. The model showed that even without any control measures, the concentration of organics at the 200-foot monitoring station would always be well below 5 ppm, and that the concentration at the depot fenceline and at the nearest residence would remain well below the NYSDEC annual guideline concentrations (AGCs) and short-term guideline concentrations (SGCs). The AGCs were calculated assuming that the unit would be in operation for an entire year, which is a conservative assumption, since the removal action should only last 3 to 4 months.

To further evaluate the air emissions, the SCREEN model was rerun using input values 10 times greater than estimated by LAND7. Again, all of the output values were well bellow their respective criteria. This indicates that emission controls during excavation and sizing will not be necessary to protect human health and the environment and to comply with the ARARs. However, in order to provide more control, the excavation rate will be minimized in the areas showing the highest concentrations of organics, and foams may be used during the excavation. If the excavation is conducted during the winter months, these additional controls may not be used.

Emissions from the thermal desorption units were also modeled with EPA SCREEN and are also presented in **Appendix** C. Unit specifications from several vendors were used. For the organic emission rate, the input rate of the organics as estimated from the soil concentrations were used. This assumes no emisson controls for organics, a worst-case assumption, since carbon or an oxidizer will be used on the unit.

The results indicate that for the Weston unit, TCE and vinyl chloride, may exceed the AGC value. However, the Canonie unit did not exceed any NYSDEC air guidance values. This is due to the larger amounts of air discharged by the Canonie unit because it is a direct heating type of treatment unit. The Weston unit is an indirect heating unit and therefore does not discharge large amounts of air. Regardless, it is anticipated that treatment of the off-gas will be utilized to protect against any unforseen discharges of potential air pollutants.

5.2.8 Site Health and Safety

The contractor will be responsible for complete compliance with all OSHA and EPA regulations for operations at hazardous waste sites. All workers will have receieved the mandatory training, and be part of a medical monitoring program. The contractor will prepare and follow a site-specific health and safety plan which will be approved by the Army prior to the start of work. Due to the presence of vinyl chloride at the site, there is a strong possiblity that level B protective equipemnt will be required for portions of the work. When level B actvities are conducted, the contractor will set up an exclusion zone, and not allow anyone inside the work area who is not in level B equipment. The health and safety plan will contain procedures for dealing with site visitors, including those visitors who have not received proper training. People not receiving proper training may be allowed on site, but will not be allowed in the work area.

5.2.9 Oversight

A third party contractor will be hired to provide oversight for the removal action activities. This contractor will prepare a construction quality assurance (CQA) plan which will document the procedures to be followed to ensure that the removal action meets the established specifications. CQA duties will include, but not be limited to the following acitivities:

- Confirmation sampling and analysis from the excavation, treated soil, and treated water
- Air monitoring
- Monitoring of the thermal desorption unit operating parameters

It is anticipated that an oversight conractor will be onsite for the duration of the removal action.

5.3 PROPOSED SCHEDULE

The overall project schedule is shown in **Figure 5-2**. The total duration for the removal action after regulatory approval is 18 months to two years.

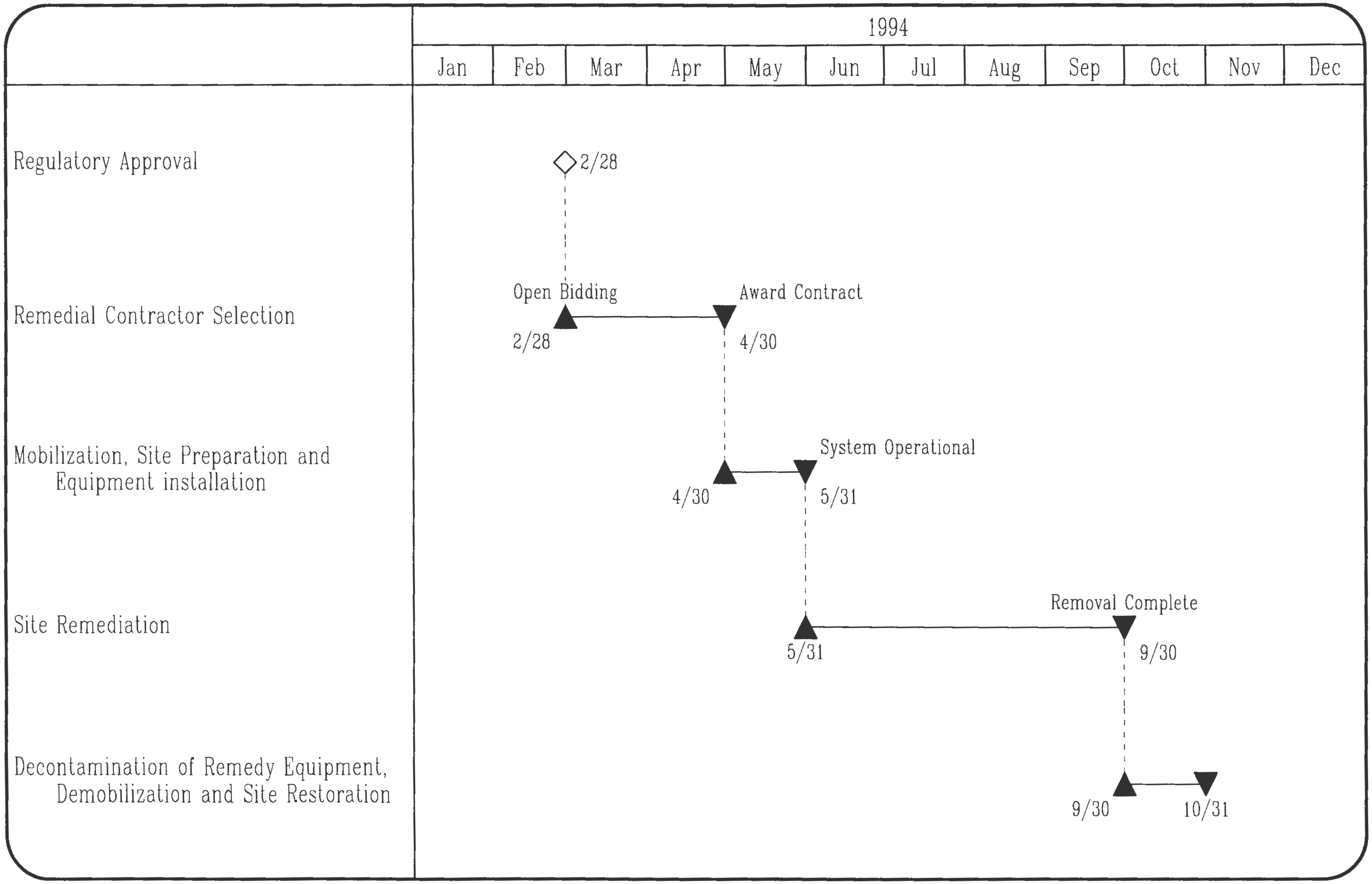
5.4 ESTIMATED COST

The estimated cost of $3,500,000 is based upon a preliminary estimate provided by Canonie and Weston. A more detailed cost estimate will be prepared in accordance with details and format of the Hunstville Division Design Manual for Architect Engineers.

Figure 5 -2
Proposed Schedule
Ash Landfill Removal Action

Page 1 of 1

10/12/1993



6.0 PUBLIC COMMENT

According to the NCP (section 300.415 [m][4]), where a removal action is appropriate at a site and where a planning period of at least 6 months exists prior to initiation of site activities, the lead agency (i.e., the Army) must publish a notice of availability and a brief description of the EE/CA. The public will then have an opportunity for not less than 30 calendar days to submit written and oral comments on the EE/CA to the Army. A public meeting could be held, if requested. The NCP also states that a written response to significant comments must be produced after the public comment period (i.e., the responsiveness summary and the action memorandum). Once the action memorandum and the responsiveness summary have been prepared, the removal action is initiated.

7.0 REFERENCES

Bouwer, H., and R.C. Rice, 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely of Partially Penetrating Wells. Water Resources Research, Vol. 12, No. 3, pp. 423-428.

Brown, 1983. Hazardous Waste Land Treatment. K. Brown et al. Butterworth Publishers.

Crain, L.J., 1974. Groundwater Resources of the Western Oswego River Basin, New York. U.S. Geological Survey and State of New York Basin Planning Report ORB-5.

Chas T. Main, Inc. (MAIN), 1992. Preliminary Site Characterization Report for the Seneca Army Depot Ash Landfill.

Engineering-Science (ES), 1993. Remedial Investigation Report at the Ash Landfill.

ESE, 1990. Work Plan, Remedial Investigation/Feasibility Study at Seneca Army Depot, Romulus, New York. Environmental Science & Engineering, Inc.

Freeman, 1989. Standard Handbook of Hazardous Waste Treatment and Disposal. Harry M. Freeman, editor. New York: McGraw-Hill Book Company.

Horslev, M.J., 1951. Time Lag and Soil Permeability in Groundwater Observations. Bulletin No. 36, Waterways Experiment Staion, U.S. Army Corps of Engineers.

Lasala, A.M., Jr., 1968. Groundwater Resources of the Erie-Niagra Basin, New York. basic Planning Report ENB-3, State of New York Conservation Department with Resources Commission.

Martin and Johnson, 1989. Hazardous Waste Management Engineering. Edward J. Martin, and James H. Johnson, Jr., editors. New York: Van Nostrand Reinhold Company.

Mazola, A.J., 1951. The Groundwater Resources of Seneca County, New York Bulletin GW-26. Water, Power, and Control Commission, Department of Conservation, State of New York, Albany, New York.

7.0 REFERENCES - Continued

Muller, E.H., and Cadwell, D.H., 1986. Surficial Geologic Map of New York State Finger Lakes Sheet. Survey, Map, and Chart Series No. 40.

Sims, 1990. "Soil Remediation Techniques at Uncontrolled Hazardous Waste Sites, a Critical Review," by Ronald C. Sims. Journal of the Air and Waste Management Association, (May 1990) 703-732.

SCS, 1972. Soil Survey of Seneca County, New York. U.S. Department of Agricultural, Soil Conservation Service.

Todd, D.K., 1976. Groundwater Hydrology. John Wiley and Sons, New York.

EPA, 1986. Handbook for Stabilization/Solidification of Hazardous Waste. EPA/540/2-86/001. Washington, D.C.: U.S. Environmental Protection Agency.

EPA, 1988a. Technology Screening Guide for Treatment of CERCLA Soils and Sludges. EPA/540/2-88/004. Washington, D.C.: U.S. Environmental Protection Agency.

EPA, 1988b. Experience in Incineration Applicable to Superfund Site Remediation. EPA/625/9-88/008. Washington, D.C.: U.S. Environmental Protection Agency.

EPA, 1988c. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. EPA/540/G-89/004. Washington, D.C. U.S. Environmental Protection Agency.

EPA, 1989a. Stabilization/Solidification of CERCLA and RCRA Wastes. EPA/625/6-89/022. Washington, D.C.: U.S. Environmental Protection Agency.

EPA, 1989b. Bioremediation of Contaminated Surface Soils. EPA/600/9-89/073. Washington, D.C.: U.S. Environmental Protection Agency.

7.0 REFERENCES - Continued

EPA, 1989c. Terra Vac In Situ Vacuum Extraction System, Applications Analysis Report. EPA/540/A5-89/003. Washington, D.C.: U.S. Environmental Protection Agency.

EPA, 1990. Handbook on In Situ Treatment of Hazardous Waste-Contaminated Soils. EPA/540/2-90/002. Washington, D.C.: U.S. Environmental Protection Agency.

United States Army Toxic and Hazardous Materials Agency (USATHAMA), 1989. Seneca Army Depot Landfill/Burning Pit Site Investigation.

APPENDIX B

ASH LANDFILL CHEMICAL ANALYSIS DATA FOR SOILS, INCLUDING TICS

DATA QUALIFIERS

EPA - defined qualifiers for Organic Analyses are as follows:

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number for the diluted sample, and all concentration values reported are flagged with the "D" flag.

E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data identification criteria but the result is less than the sample quantitation limit but greater than zero.

L - The analyte is a suspected laboratory contaminant. It's presence in the sample is unlikely (applies to volatile and semi-volatile organic results).

S - The compound was detected above instrument saturation levels (applies to semi-volatile organic results).

U - Indicates compound was analyzed for but not detected.

X - The reported result was derived from instrument response outside the calibration range (applies to pesticide/PCB results).

Y - The reported result is below the specified reporting limit (applies to pesticide/PCB results).

EPA - qualifiers for inorganic analyses are as follows:

B - Concentration qualifier which indicates that the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

U - The analyte was analyzed for but not detected.

SOIL

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-1	B-1	B-1	B-2	B-2	B-2	B-2	B-2
	DEPTH	0-2	2-4	4-6	0-2	0-2	2-4	2-4	6-8
	DATE	10/30/91	10/30/91	10/30/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1030-1	S1030-2	S1030-3	S1031-4	S1031-4DL(5)	S1031-5	S1031-5RE(4)	S1031-6
	LAB ID	147824	147825	147826	147827	147827	147828	147828	147829
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Bromomethane	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Vinyl Chloride	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	920 J
Chloroethane	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Methylene Chloride	ug/Kg	6 U	6 U		740 U J	5000 U R	7300 U R	730 U	780 U
Acetone	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Carbon Disulfide	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,1-Dichloroethene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,1-Dichloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,2-Dichloroethene (total)	ug/Kg	6 U	6 U		12000 J	10000 U R	73000 U R	1900	21000
Chloroform	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,2-Dichloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
2-Butanone	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
1,1,1-Trichloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Carbon Tetrachloride	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Vinyl Acetate	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Bromodichloromethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,2-Dichloropropane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
cis-1,3-Dichloropropene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Trichloroethene	ug/Kg	6 U	6 U		3900 R	28000	73000 U R	4400	17000 R
Dibromochloromethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,1,2-Trichloroethene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Benzene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
trans-1,3-Dichloropropene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Bromoform	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
4-Methyl-2-Pentanone	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
2-Hexanone	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Tetrachloroethene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Toluene	ug/Kg	6 U	6 U		560 J	5000 U R	73000 U R	220 J	280 J
Chlorobenzene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Ethylbenzene	ug/Kg	6 U	6 U		580 J	5000 U R	73000 U R	250 J	780 U
Styrene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Xylene (total)	ug/Kg	6 U	6 U		2900 J	1300 U R	73000 U R	1200	400 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-1	B-1	B-1	B-2	B-2	B-2	B-2	B-2
	DEPTH	0-2	2-4	4-6	0-2	0-2	2-4	2-4	6-8
	DATE	10/30/91	10/30/91	10/30/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1030-1	S1030-2	S1030-3	S1031-4	S1031-4DL(5)	S1031-5	S1031-5RE(4)	S1031-6
	LAB ID	147824	147825	147826	147827	147827	147828	147828	147829
	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
bis(2-Chloroethyl) ether	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Chlorophenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
1,3-Dichlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
1,4-Dichlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzyl Alcohol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
1,2-Dichlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Methylphenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
bis(2-Chloroisopropyl) ether	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Methylphenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
N-Nitroso-di-n-propylamine	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Hexachloroethane	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Nitrobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Isophorone	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Nitrophenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4-Dimethylphenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzoic acid	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
bis(2-Chloroethoxy) methane	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4-Dichlorophenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
1,2,4-Trichlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Naphthalene	ug/Kg	720 U	730 U	690 U	270 J		210 J		360 J
4-Chloroaniline	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Hexachlorobutadiene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Chloro-3-methylphenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Methylnaphthalene	ug/Kg	720 U	730 U	690 U	280 J		730 U		240 J
Hexachlorocyclopentadiene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4,6-Trichlorophenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4,5-Trichlorophenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
2-Chloronaphthalene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Nitroaniline	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
Dimethylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Acenaphthylene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,6-Dinitrotoluene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
3-Nitroaniline	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
Acenaphthene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4-Dinitrophenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
4-Nitrophenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
Dibenzofuran	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4-Dinitrotoluene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Diethylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Chlorophenyl-phenylether	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Fluorene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Nitroaniline	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
4,6-Dinitro-2-methylphenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
N-Nitrosodiphenylamine (1)	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Bromophenyl-phenylether	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Hexachlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Pentachlorophenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
Phenanthrene	ug/Kg	720 U	730 U	690 U	170 J		82 J		720 U
Anthracene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Carbazole									
Di-n-butylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Fluoranthene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Pyrene	ug/Kg	720 U	730 U	690 U	130 J		730 U		720 U
Butylbenzylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
3,3'-Dichlorobenzidine	ug/Kg	1400 U	1500 U	1400 U	1400 U		1500 U		1400 U
Benzo(a)anthracene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Chrysene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
bis(2-Ethylhexyl)phthalate	ug/Kg	720 U	730 U	530 J	710 U		730 U		720 U
Di-n-octylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzo(b)fluoranthene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
benzo(k)fluoranthene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzo(a)pyrene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Indeno(1,2,3-cd)pyrene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Dibenz(a,h)anthracene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzo(g,h,i)perylene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-1	B-1	B-1	B-2	B-2	B-2	B-2	B-2
	DEPTH	0-2	2-4	4-6	0-2	0-2	2-4	2-4	6-8
	DATE	10/30/91	10/30/91	10/30/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1030-1	S1030-2	S1030-3	S1031-4	S1031-4DL(5)	S1031-5	S1031-5RE(4)	S1031-6
	LAB ID	147824	147825	147826	147827	147827	147828	147828	147829
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
beta-BHC	ug/Kg	17 U	16 U	17 U	17 U		18 U		17 U
delta-BHC	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
gamma-BHC (Lindane)	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Heptachlor	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Aldrin	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Heptachlor epoxide	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Endosulfan I	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Dieldrin	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
4,4'-DDE	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Endrin	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Endosulfan II	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
4,4'-DDD	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Endosulfan sulfate	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
4,4'-DDT	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Methoxychlor	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Endrin ketone	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
gamma-Chlordane	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Toxaphene	ug/Kg	350 U	350 U	330 U	340 U		360 U		350 U
Aroclor-1016	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1221	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1232	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1242	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1248	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1254	ug/Kg	350 U	350 U	330 U	340 U		360 U		350 U
Aroclor-1260	ug/Kg	350 U	350 U	330 U	340		190 J		390
HERBICIDES									
2,4-D	ug/Kg	54 U J	55 U J	53 U J	54 U J		56 U J		55 U J
2,4-DB	ug/Kg	84 U J	350 J	53 U J	250 J		56 U J		55 U J
2,4,5-T	ug/Kg	5.4 U J	5.5 U J	5.3 U J	5.4 U J		5.6 U J		5.5 U J
2,4,5-TP (Silvex)	ug/Kg	5.4 U J	5.5 U J	5.3 U J	5.4 U J		5.6 U J		5.5 U J
Dalapon	ug/Kg	130 U J	130 U J	130 U J	130 U J		130 U J		130 U J
Dicamba	ug/Kg	5.4 U J	5.5 U J	5.3 U J	5.4 U J		5.6 U J		5.5 U J
Dichloroprop	ug/Kg	54 U J	55 U J	53 U J	54 U J		56 U J		55 U J
Dinoseb	ug/Kg	27 U J	27 U J	26 U J	27 U J		28 U J		27 U J
MCPA	ug/Kg	5400 U J	5500 U J	5300 U J	5400 U J		5600 U J		5500 U J
MCPP	ug/Kg	5400 U J	5500 U J	5300 U J	5400 U J		5600 U J		5500 U J
METALS									
Aluminum	mg/kg	17800	17600	13200	15800		17400		18100
Antimony	mg/kg	10 U J	9.5 U J	8 U J	11.1 U J		7.9 U J		8.1 U J
Arsenic	mg/kg	6.1	4.4	3.7	4.9		4.1		4
Barium	mg/kg	102	84.8	42.2	58		72.3		58.7
Beryllium	mg/kg	0.9 J	0.93	0.67 J	0.84 J		0.79		0.83
Cadmium	mg/kg	2.4	2.6	1.9	2.3		2.3		2.9
Calcium	mg/kg	22900	55200	71000	31500		32500		22300
Chromium	mg/kg	27.8	27.5	22	28.1		27.8		28.4
Cobalt	mg/kg	12.7	11.7	11.9	12.1		11.3		14.6
Copper	mg/kg	36.3 J	21.9 J	13.9 J	33.1 J		24.7 J		18.9 J
Iron	mg/kg	37500	34400	27800	35000		32900		36500
Lead	mg/kg	26.7	7.5	6.9	52.4		23		11.9 J
Magnesium	mg/kg	6870	7690	6900	7510		8440		8130
Manganese	mg/kg	748	943	802	403		673		505
Mercury	mg/kg	0.06 J	0.04 U	0.04 U	0.04 J		0.06 J		0.04 U
Nickel	mg/kg	44.6	42.4	33.3	43.1		40.3		46.9
Potassium	mg/kg	2420	1810	1410	1950		2280		2150
Selenium	mg/kg	0.93 U	0.59 U	0.9 U	0.21 U		0.17 U		0.18 U
Silver	mg/kg	1.5 U	1.4 U	1.2 U	1.7 U		1.2 U		1.2 U
Sodium	mg/kg	424 J	72.6 U J	151 J	84.9 U J		60.4 U J		62.2 U J
Thallium	mg/kg	0.52 U	0.33 U	0.5 U	0.6 U		0.48 U		0.5 U
Vanadium	mg/kg	23.9	22.8	15.8	17.8		22.1		20.3
Zinc	mg/kg	104	77.6	60.2	56.6		85.5		88.1
Cyanide	mg/kg	0.6 U	0.6 U	0.59 U	0.62 U		0.67 U		0.66 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-3
	DEPTH	6-6	8-10	8-10	0-2	0-2	2-4	4-6	6-8
	DATE	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1031-6DL(5)	S1031-7	S1031-7DL(5)	S1031-8	S1031-8RE(4)	S1031-9	S1031-10	S1031-11
	LAB ID	147829	147830	147830	147831	147831	147832	147833	147834
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Bromomethane	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Vinyl Chloride	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Chloroethane	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Methylene Chloride	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Acetone	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Carbon Disulfide	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,1-Dichloroethene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,1-Dichloroethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,2-Dichloroethene (total)	ug/Kg	20000 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Chloroform	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,2-Dichloroethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
2-Butanone	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
1,1,1-Trichloroethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Carbon Tetrachloride	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Vinyl Acetate	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Bromodichloromethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,2-Dichloropropane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
cis-1,3-Dichloropropene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Trichloroethene	ug/Kg	120000	63000 R	69000	23 J	11 J	6 U	6 U	5 J
Dibromochloromethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,1,2-Trichloroethene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Benzene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
trans-1,3-Dichloropropene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Bromoform	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
4-Methyl-2-Pentanone	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
2-Hexanone	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Tetrachloroethene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,1,2,2-Tetrachloroethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Toluene	ug/Kg	3100 U R	1400 U	2800 U R	4 J	3 J	2 J	1 J	4 J
Chlorobenzene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Ethylbenzene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Styrene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Xylene (total)	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-2 6-8 10/31/91 S1031-6DL(5) 147829	SOIL B-2 8-10 10/31/91 S1031-7 147830	SOIL B-2 8-10 10/31/91 S1031-7DL(5) 147830	SOIL B-3 0-2 10/31/91 S1031-8 147831	SOIL B-3 0-2 10/31/91 S1031-8RE(4) 147831	SOIL B-3 2-4 10/31/91 S1031-9 147832	SOIL B-3 4-6 10/31/91 S1031-10 147833	SOIL B-3 6-8 10/31/91 S1031-11 147834
SEMIVOLATILES									
Phenol	ug/Kg				890 U			730 U	
bis(2-Chloroethyl) ether	ug/Kg				890 U			730 U	
2-Chlorophenol	ug/Kg				890 U			730 U	
1,3-Dichlorobenzene	ug/Kg				890 U			730 U	
1,4-Dichlorobenzene	ug/Kg				890 U			730 U	
Benzyl Alcohol	ug/Kg				890 U			730 U	
1,2-Dichlorobenzene	ug/Kg				890 U			730 U	
2-Methylphenol	ug/Kg				890 U			730 U	
bis(2-Chloroisopropyl) ether	ug/Kg				890 U			730 U	
4-Methylphenol	ug/Kg				890 U			730 U	
N-Nitroso-di-n-propylamine	ug/Kg				890 U			730 U	
Hexachloroethane	ug/Kg				890 U			730 U	
Nitrobenzene	ug/Kg				890 U			730 U	
Isophorone	ug/Kg				890 U			730 U	
2-Nitrophenol	ug/Kg				890 U			730 U	
2,4-Dimethylphenol	ug/Kg				890 U			730 U	
Benzoic acid	ug/Kg				4300 U			3500 U	
bis(2-Chloroethoxy) methane	ug/Kg				890 U			730 U	
2,4-Dichlorophenol	ug/Kg				890 U			730 U	
1,2,4-Trichlorobenzene	ug/Kg				890 U			730 U	
Naphthalene	ug/Kg				890 U			730 U	
4-Chloroaniline	ug/Kg				890 U			730 U	
Hexachlorobutadiene	ug/Kg				890 U			730 U	
4-Chloro-3-methylphenol	ug/Kg				890 U			730 U	
2-Methylnaphthalene	ug/Kg				890 U			730 U	
Hexachlorocyclopentadiene	ug/Kg				890 U			730 U	
2,4,6-Trichlorophenol	ug/Kg				890 U			730 U	
2,4,5-Trichlorophenol	ug/Kg				4300 U			3500 U	
2-Chloronaphthalene	ug/Kg				890 U			730 U	
2-Nitroaniline	ug/Kg				4300 U			3500 U	
Dimethylphthalate	ug/Kg				890 U			730 U	
Acenaphthylene	ug/Kg				890 U			730 U	
2,6-Dinitrotoluene	ug/Kg				890 U			730 U	
3-Nitroaniline	ug/Kg				4300 U			3500 U	
Acenaphthene	ug/Kg				890 U			730 U	
2,4-Dinitrophenol	ug/Kg				4300 U			3500 U	
4-Nitrophenol	ug/Kg				4300 U			3500 U	
Dibenzofuran	ug/Kg				890 U			730 U	
2,4-Dinitrotoluene	ug/Kg				890 U			730 U	
Diethylphthalate	ug/Kg				890 U			730 U	
4-Chlorophenyl-phenylether	ug/Kg				890 U			730 U	
Fluorene	ug/Kg				890 U			730 U	
4-Nitroaniline	ug/Kg				4300 U			3500 U	
4,6-Dinitro-2-methylphenol	ug/Kg				4300 U			3500 U	
N-Nitrosodiphenylamine (1)	ug/Kg				890 U			730 U	
4-Bromophenyl-phenylether	ug/Kg				890 U			730 U	
Hexachlorobenzene	ug/Kg				890 U			730 U	
Pentachlorophenol	ug/Kg				4300 U			3500 U	
Phenanthrene	ug/Kg				420 J			730 U	
Anthracene	ug/Kg				890 U			730 U	
Carbazole									
Di-n-butylphthalate	ug/Kg				890 U			730 U	
Fluoranthene	ug/Kg				750 J			730 U	
Pyrene	ug/Kg				550 J			730 U	
Butylbenzylphthalate	ug/Kg				890 U			730 U	
3,3'-Dichlorobenzidine	ug/Kg				1800 U			1500 U	
Benzo(a)anthracene	ug/Kg				290 J			730 U	
Chrysene	ug/Kg				350 J			730 U	
bis(2-Ethylhexyl)phthalate	ug/Kg				890 U			730 U	
Di-n-octylphthalate	ug/Kg				890 U			730 U	
Benzo(b)fluoranthene	ug/Kg				220 J			730 U	
benzo(k)fluoranthene	ug/Kg				180 J			730 U	
Benzo(a)pyrene	ug/Kg				890 U			730 U	
Indeno(1,2,3-cd)pyrene	ug/Kg				890 U			730 U	
Dibenz(a,h)anthracene	ug/Kg				890 U			730 U	
Benzo(g,h,i)perylene	ug/Kg				890 U			730 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-3
	DEPTH	6-6	8-10	8-10	0-2	0-2	2-4	4-6	6-8
	DATE	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1031-6DL(5)	S1031-7	S1031-7DL(5)	S1031-8	S1031-8RE(4)	S1031-9	S1031-10	S1031-11
	LAB ID	147829	147830	147830	147831	147831	147832	147833	147834
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg				22 U			18 U	
beta-BHC	ug/Kg				22 U			16 U	
delta-BHC	ug/Kg				22 U			18 U	
gamma-BHC (Lindane)	ug/Kg				22 U			18 U	
Heptachlor	ug/Kg				22 U			18 U	
Aldrin	ug/Kg				22 U			18 U	
Heptachlor epoxide	ug/Kg				22 U			18 U	
Endosulfan I	ug/Kg				22 U			18 U	
Dieldrin	ug/Kg				43 U			35 U	
4,4'-DDE	ug/Kg				43 U			35 U	
Endrin	ug/Kg				43 U			35 U	
Endosulfan II	ug/Kg				43 U			35 U	
4,4'-DDD	ug/Kg				43 U			35 U	
Endosulfan sulfate	ug/Kg				43 U			35 U	
4,4'-DDT	ug/Kg				43 U			35 U	
Methoxychlor	ug/Kg				220 U			180 U	
Endrin ketone	ug/Kg				43 U			35 U	
Endrin aldehyde									
alpha-Chlordane	ug/Kg				220 U			180 U	
gamma-Chlordane	ug/Kg				220 U			180 U	
Toxaphene	ug/Kg				430 U			350 U	
Aroclor-1016	ug/Kg				220 U			180 U	
Aroclor-1221	ug/Kg				220 U			180 U	
Aroclor-1232	ug/Kg				220 U			180 U	
Aroclor-1242	ug/Kg				220 U			180 U	
Aroclor-1248	ug/Kg				220 U			180 U	
Aroclor-1254	ug/Kg				430 U			350 U	
Aroclor-1260	ug/Kg				430 U			350 U	
HERBICIDES									
2,4-D	ug/Kg				68 U J			56 U J	
2,4-DB	ug/Kg				68 U J			100 J	
2,4,5-T	ug/Kg				6.8 U J			5.6 U J	
2,4,5-TP (Silvex)	ug/Kg				6.8 U J			5.6 U J	
Dalapon	ug/Kg				160 U J			130 U J	
Dicamba	ug/Kg				6.8 U J			5.6 U J	
Dichloroprop	ug/Kg				68 U J			56 U J	
Dinoseb	ug/Kg				34 U J			28 U J	
MCPA	ug/Kg				6800 U J			5600 U J	
MCPP	ug/Kg				7500 J			5600 U J	
METALS									
Aluminum	mg/kg				11700			15100	
Antimony	mg/kg				78.3 J			6.5 U J	
Arsenic	mg/kg				66.3			3.8	
Barium	mg/kg				1010			56.9	
Beryllium	mg/kg				0.78 U			0.69	
Cadmium	mg/kg				43.1			2.2	
Calcium	mg/kg				15800			65800	
Chromium	mg/kg				57.9			22.5	
Cobalt	mg/kg				13.6			11	
Copper	mg/kg				836			14.8 J	
Iron	mg/kg				55600			30000	
Lead	mg/kg				1630			8.4	
Magnesium	mg/kg				3930			8120	
Manganese	mg/kg				615			547	
Mercury	mg/kg				0.86			0.04 U	
Nickel	mg/kg				65.4			34.5	
Potassium	mg/kg				1380			1490	
Selenium	mg/kg				1.1 U			0.17 U	
Silver	mg/kg				1.8 U			0.98 U	
Sodium	mg/kg				143 J			79.1 J	
Thallium	mg/kg				0.59 U			0.47 U	
Vanadium	mg/kg				18.1			17.6	
Zinc	mg/kg				55700			213	
Cyanide	mg/kg				1.6			0.66 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-3	B-4	B-4	B-4	B-5	B-5	B-5	B-5
	DEPTH	6-8	0-2	2-4	4-6	0-2	0-2	2-4	4-6
	DATE	10/31/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91
	MAIN ID	S1031-11RE(4)	S1101-12	S1101-13	S1101-14	S1101-15	S1101-15RE(4)	S1101-16	S1101-17
	LAB ID	147834	147885	147886	147887	147888	147888	147889	147890
	UNITS								
VOCs									
Chloromethane	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Bromomethane	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Vinyl Chloride	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Chloroethane	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Methylene Chloride	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Acetone	ug/Kg	12 U	13 U	11 U	11 U	15 U J	18 U J	11 U	11 U
Carbon Disulfide	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,1-Dichloroethene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,1-Dichloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,2-Dichloroethene (total)	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Chloroform	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,2-Dichloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
2-Butanone	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
1,1,1-Trichloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Carbon Tetrachloride	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Vinyl Acetate	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Bromodichloromethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,2-Dichloropropane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
cis-1,3-Dichloropropene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Trichloroethene	ug/Kg	4 J	130	6 U	2 J	7 U J	7 U J	5 U	6 U
Dibromochloromethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,1,2-Trichloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Benzene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
trans-1,3-Dichloropropene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Bromoform	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
2-Hexanone	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Tetrachloroethene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Toluene	ug/Kg	3 J	6 U	2 J	2 J	3 J	9 J	1 J	2 J
Chlorobenzene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Ethylbenzene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Styrene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Xylene (total)	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-3 6-8 10/31/91 S1031-11RE(4) 147834	SOIL B-4 0-2 11/01/91 S1101-12 147885	SOIL B-4 2-4 11/01/91 S1101-13 147886	SOIL B-4 4-6 11/01/91 S1101-14 147887	SOIL B-5 0-2 11/01/91 S1101-15 147888	SOIL B-5 0-2 11/01/91 S1101-15RE(4) 147888	SOIL B-5 2-4 11/01/91 S1101-16 147889	SOIL B-5 4-6 11/01/91 S1101-17 147890
SEMIVOLATILES									
Phenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
bis(2-Chloroethyl) ether	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Chlorophenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
1,3-Dichlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
1,4-Dichlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Benzyl Alcohol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
1,2-Dichlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Methylphenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
bis(2-Chloroisopropyl) ether	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
4-Methylphenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
N-Nitroso-di-n-propylamine	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Hexachloroethane	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Nitrobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Isophorone	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Nitrophenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2,4-Dimethylphenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Benzoic acid	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
bis(2-Chloroethoxy) methane	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2,4-Dichlorophenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
1,2,4-Trichlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Naphthalene	ug/Kg		2400	720 U	710 U	210 J		730 U	760 U
4-Chloroaniline	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Hexachlorobutadiene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
4-Chloro-3-methylphenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Methylnaphthalene	ug/Kg		610 J	720 U	710 U	120 J		730 U	760 U
Hexachlorocyclopentadiene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2,4,6-Trichlorophenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2,4,5-Trichlorophenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
2-Chloronaphthalene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Nitroaniline	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
Dimethylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Acenaphthylene	ug/Kg		1300 U	720 U	710 U	310 J		730 U	760 U
2,6-Dinitrotoluene	ug/Kg		1300 U	720 U	710 U	640 U		730 U	760 U
3-Nitroaniline	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
Acenaphthene	ug/Kg		2200	720 U	710 U	190 J		730 U	760 U
2,4-Dinitrophenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
4-Nitrophenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
Dibenzofuran	ug/Kg		1400	720 U	710 U	160 J		730 U	760 U
2,4-Dinitrotoluene	ug/Kg		2000	720 U	710 U	320 J		730 U	760 U
Diethylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
4-Chlorophenyl-phenylether	ug/Kg		1300 U	720 U	710 U	640 U		730 U	760 U
Fluorene	ug/Kg		2000	720 U	710 U	310 J		730 U	760 U
4-Nitroaniline	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
4,6-Dinitro-2-methylphenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
N-Nitrosodiphenylamine (1)	ug/Kg		450 J	720 U	710 U	640 U		730 U	760 U
4-Bromophenyl-phenylether	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Hexachlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Pentachlorophenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
Phenanthrene	ug/Kg		13000	130 J	120 J	3900		730 U	760 U
Anthracene	ug/Kg		4200	720 U	710 U	790 J		730 U	760 U
Carbazole									
Di-n-butylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Fluoranthene	ug/Kg		14000	160 J	150 J	6200		73 J	89 J
Pyrene	ug/Kg		12000	140 J	120 J	5100		69 J	73 J
Butylbenzylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
3,3'-Dichlorobenzidine	ug/Kg		2600 U	1400 U	1400 U	1700 U		1500 U	1500 U
Benzo(a)anthracene	ug/Kg		6800	110 J	86 J	3000		730 U	75 J
Chrysene	ug/Kg		8000	110 J	90 J	3100		730 U	76 J
bis(2-Ethylhexyl)phthalate	ug/Kg		160 J	720 U	710 U	840 U		3600	760 U
Di-n-octylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Benzo(b)fluoranthene	ug/Kg		8800	91 J	710 U	2600		730 U	74 J
benzo(k)fluoranthene	ug/Kg		6700	85 J	710 U	2300		730 U	70 J
Benzo(a)pyrene	ug/Kg		9000	110 J	78 J	2100		730 U	81 J
Indeno(1,2,3-cd)pyrene	ug/Kg		4800	720 U	710 U	1300		730 U	760 U
Dibenz(a,h)anthracene	ug/Kg		2000	720 U	710 U	640 J		730 U	760 U
Benzo(g,h,i)perylene	ug/Kg		5000	720 U	710 U	1400		730 U	760 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-3 6-8 10/31/91 S1031-11RE(4) 147834	SOIL B-4 0-2 11/01/91 S1101-12 147885	SOIL B-4 2-4 11/01/91 S1101-13 147886	SOIL B-4 4-6 11/01/91 S1101-14 147887	SOIL B-5 0-2 11/01/91 S1101-15 147888	SOIL B-5 0-2 11/01/91 S1101-15RE(4) 147888	SOIL B-5 2-4 11/01/91 S1101-16 147889	SOIL B-5 4-6 11/01/91 S1101-17 147890
PESTICIDES/PCBs									
alpha-BHC	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
beta-BHC	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
delta-BHC	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
gamma-BHC (Lindane)	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Heptachlor	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Aldrin	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Heptachlor epoxide	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Endosulfan I	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Dieldrin	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
4,4'-DDE	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Endrin	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Endosulfan II	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
4,4'-DDD	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Endosulfan sulfate	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
4,4'-DDT	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Methoxychlor	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Endrin ketone	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
gamma-Chlordane	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Toxaphene	ug/Kg		380 U	350 U	340 U	410 U		350 U	370 U
Aroclor-1016	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1221	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1232	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1242	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1248	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1254	ug/Kg		380 U	350 U	340 U	410 U		350 U	370 U
Aroclor-1260	ug/Kg		380 U	350 U	340 U	410 U		350 U	370 U
HERBICIDES									
2,4-D	ug/Kg		59 U J	55 U J	54 U J	64 U J		55 U J	58 U J
2,4-DB	ug/Kg		59 U J	140 J	230 J	64 U J		55 U J	180 J
2,4,5-T	ug/Kg		5.9 U J	5.5 U J	5.4 U J	6.4 U J		5.5 U J	5.8 U J
2,4,5-TP (Silvex)	ug/Kg		5.9 U J	5.5 U J	5.4 U J	6.4 U J		5.5 U J	5.8 U J
Dalapon	ug/Kg		140 U J	130 U J	130 U J	150 U J		130 U J	140 U J
Dicamba	ug/Kg		5.9 U J	5.5 U J	5.4 U J	6.4 U J		5.5 U J	5.8 U J
Dichloroprop	ug/Kg		59 U J	55 U J	54 U J	64 U J		55 U J	58 U J
Dinoseb	ug/Kg		30 U J	27 U J	27 U J	32 U J		27 U J	29 U J
MCPA	ug/Kg		5900 U J	5500 U J	6400 U J	6400 U J		5500 U J	5800 U J
MCPP	ug/Kg		5900 U J	5500 U J	6400 U J	6400 U J		5500 U J	5800 U J
METALS									
Aluminum	mg/kg		16400	11500	16100	8610		14000	14900
Antimony	mg/kg		18.3 J	8.3 J	10.4 U J	12 U J		8.5 U J	8.7 U J
Arsenic	mg/kg		11.4	5.6	6.5	17.3		5.1	5.3
Barium	mg/kg		455	62.9	58.5	399		61.3	78.7
Beryllium	mg/kg		0.75 U	0.59 J	0.67 J	0.79 U		0.7 J	0.82
Cadmium	mg/kg		7.9	1.7	2.4	10.4		2	2.4
Calcium	mg/kg		27500	134000	42200	104000		89100	29700
Chromium	mg/kg		62	16.6	24.2	57		20.2	21.6
Cobalt	mg/kg		15.7	8.2	14.5	10.9 J		12.5	17.3
Copper	mg/kg		311	19.6 J	21.5 J	498		26.5 J	27.7 J
Iron	mg/kg		83600	23200	37200	81400		30900	642000
Lead	mg/kg		2690	10.1	10.5	1750		248	16.2 J
Magnesium	mg/kg		6990	13100	9050	4090		8450	5460
Manganese	mg/kg		606	485	549	964		796	1000
Mercury	mg/kg		1.1	0.04 U	0.04 J	1		0.07 J	0.06 J
Nickel	mg/kg		67.2	26.1	39	74.6		32	39.8
Potassium	mg/kg		2350	1720	1740	1380		1750	1780
Selenium	mg/kg		0.19 U	0.7 U	0.2 U	0.25 U		0.17 U	0.91 U
Silver	mg/kg		2.8	1.1 U	1.6 U	1.6 U		1.3 U	1.3 U
Sodium	mg/kg		265 J	83 J	79.6 U J	196 J		65.4 U J	66.2 U J
Thallium	mg/kg		0.54 U	0.39 U	0.57 U	0.7 U		0.47 U	0.51 U
Vanadium	mg/kg		24.9	15.3	18.1	14.5		20.2	20.1
Zinc	mg/kg		3050	74.4	92.7	27600		513	641
Cyanide	mg/kg		0.69 U	0.63 U	0.6 U	0.81 U		0.64 U	0.68 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-5	B-5	B-6	B-6	B-7	B-7	B-7	B-8
	DEPTH	8-10	8-10	0-2	2-4	0-2	2-4	10-12	0-2
	DATE	11/01/91	11/01/91	11/04/91	11/04/91	11/04/91	11/04/91	11/04/91	11/05/91
	MAIN ID	S1101-18	S1101-18RE(4)	S1104-19	S1104-20	S1104-21	S1104-22	S1104-23	S1105-24
	LAB ID	147891	147891	148021	148022	148023	148024	148025	148026
	UNITS								
VOCs									
Chloromethane	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Bromomethane	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Vinyl Chloride	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Chloroethane	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Methylene Chloride	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Acetone	ug/Kg	24 U J	29 U J	12 U	11 U	13 U	11 U	29 U	13 U
Carbon Disulfide	ug/Kg	3 U J	3 J	6 U	6 U	6 U	5 U	7 U	6 U
1,1-Dichloroethene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,1-Dichloroethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,2-Dichloroethene (total)	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	12	8	6 U
Chloroform	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	2 J
1,2-Dichloroethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
2-Butanone	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
1,1,1-Trichloroethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Carbon Tetrachloride	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Vinyl Acetate	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Bromodichloromethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,2-Dichloropropane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
cis-1,3-Dichloropropene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Trichloroethene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 J	4 J	6 U
Dibromochloromethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,1,2-Trichloroethene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Benzene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
trans-1,3-Dichloropropene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Bromoform	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
4-Methyl-2-Pentanone	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
2-Hexanone	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Tetrachloroethene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Toluene	ug/Kg	6 J	6 J	6 U	6 U	6 U	5 J	7 U	2 J
Chlorobenzene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Ethylbenzene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	2 J	7 U	6 U
Styrene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Xylene (total)	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	8	7 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL B-5 6-10 11/01/91 S1101-18 147891	SOIL B-5 6-10 11/01/91 S1101-18RE(4) 147891	SOIL B-6 0-2 11/04/91 S1104-19 148021	SOIL B-6 2-4 11/04/91 S1104-20 148022	SOIL B-7 0-2 11/04/91 S1104-21 148023	SOIL B-7 2-4 11/04/91 S1104-22 148024	SOIL B-7 10-12 11/04/91 S1104-23 148025	SOIL B-8 0-2 11/05/91 S1105-24 148026
SEMIVOLATILES									
Phenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
bis(2-Chloroethyl) ether	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Chlorophenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
1,3-Dichlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
1,4-Dichlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Benzyl Alcohol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
1,2-Dichlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Methylphenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
bis(2-Chloroisopropyl) ether	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
4-Methylphenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
N-Nitroso-di-n-propylamine	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Hexachloroethane	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Nitrobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Isophorone	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Nitrophenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,4-Dimethylphenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Benzoic acid	ug/Kg			3800 U	3600 U	9000 U	500 J	4200 U	3700 U
bis(2-Chloroethoxy) methane	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,4-Dichlorophenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
1,2,4-Trichlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Naphthalene	ug/Kg			780 U	740 U	830 J	440 J	870 U	760 U
4-Chloroaniline	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Hexachlorobutadiene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
4-Chloro-3-methylphenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Methylnaphthalene	ug/Kg			780 U	740 U	430 J	360 J	870 U	760 U
Hexachlorocyclopentadiene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,4,6-Trichlorophenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,4,5-Trichlorophenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
2-Chloronaphthalene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Nitroaniline	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
Dimethylphthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Acenaphthylene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,6-Dinitrotoluene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
3-Nitroaniline	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
Acenaphthene	ug/Kg			780 U	740 U	2200	1000	870 U	760 U
2,4-Dinitrophenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
4-Nitrophenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
Dibenzofuran	ug/Kg			780 U	740 U	980 J	400 J	870 U	760 U
2,4-Dinitrotoluene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Diethylphthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
4-Chlorophenyl-phenylether	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Fluorene	ug/Kg			780 U	740 U	2000	880	870 U	760 U
4-Nitroaniline	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
4,6-Dinitro-2-methylphenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
N-Nitrosodiphenylamine (1)	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
4-Bromophenyl-phenylether	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Hexachlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Pentachlorophenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
Phenanthrene	ug/Kg			780 U	740 U	15000	5200	870 U	760 U
Anthracene	ug/Kg			780 U	740 U	3500	1300	870 U	760 U
Carbazole									
Di-n-butylphthalate	ug/Kg			780 U	740 U	1900 U	630 J	870 U	760 U
Fluoranthene	ug/Kg			780 U	740 U	22000	6700	870 U	760 U
Pyrene	ug/Kg			780 U	740 U	16000	4800	870 U	760 U
Butylbenzylphthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
3,3'-Dichlorobenzidine	ug/Kg			1600 U	1500 U	3700 U	1400 U	1700 U	1500 U
Benzo(a)anthracene	ug/Kg			780 U	740 U	9600	3000	870 U	760 U
Chrysene	ug/Kg			780 U	740 U	9900	3200	870 U	760 U
bis(2-Ethylhexyl)phthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Di-n-octylphthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Benzo(b)fluoranthene	ug/Kg			780 U	740 U	9500	2900	870 U	760 U
benzo(k)fluoranthene	ug/Kg			780 U	740 U	6100	1700	870 U	760 U
Benzo(a)pyrene	ug/Kg			780 U	740 U	8400	2500	870 U	760 U
Indeno(1,2,3-cd)pyrene	ug/Kg			780 U	740 U	4600	1200	870 U	760 U
Dibenz(a,h)anthracene	ug/Kg			780 U	740 U	1800 J	620 J	870 U	760 U
Benzo(g,h,i)perylene	ug/Kg			780 U	740 U	4000	1200	870 U	760 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-5 8-10 11/01/91 S1101-18 147891	SOIL B-5 8-10 11/01/91 S1101-18RE(4) 147891	SOIL B-6 0-2 11/04/91 S1104-19 148021	SOIL B-6 2-4 11/04/91 S1104-20 148022	SOIL B-7 0-2 11/04/91 S1104-21 148023	SOIL B-7 2-4 11/04/91 S1104-22 148024	SOIL B-7 10-12 11/04/91 S1104-23 148025	SOIL B-8 0-2 11/05/91 S1105-24 148026
PESTICIDES/PCBs									
alpha-BHC	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
beta-BHC	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
delta-BHC	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
gamma-BHC (Lindane)	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Heptachlor	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Aldrin	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Heptachlor epoxide	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Endosulfan I	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Dieldrin	ug/Kg			38 U	36 U	36 U	35 U	42 U	37 U
4,4'-DDE	ug/Kg			38 U	36 U	27 J	18 J	42 U	37 U
Endrin	ug/Kg			38 U	36 U	36 U	35 U	42 U	37 U
Endosulfan II	ug/Kg			38 U	36 U	36 U	35 U	42 U	37 U
4,4'-DDD	ug/Kg			36 U	36 U	27 J	29 J	42 U	37 U
Endosulfan sulfate	ug/Kg			36 U	36 U	36 U	35 U	42 U	37 U
4,4'-DDT	ug/Kg			38 U	36 U	36	19 J	42 U	37 U
Methoxychlor	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Endrin ketone	ug/Kg			38 U	36 U	36 U	35 U	42 U	37 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
gamma-Chlordane	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Toxaphene	ug/Kg			380 U	360 U	360 U	350 U	420 U	370 U
Aroclor-1016	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1221	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1232	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1242	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1248	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1254	ug/Kg			380 U	360 U	360 U	350 U	420 U	370 U
Aroclor-1260	ug/Kg			380 U	360 U	360 U	350 U	420 U	370 U
HERBICIDES									
2,4-D	ug/Kg			59 U J	56 U J	56 U J	54 U J	66 U J	58 U J
2,4-DB	ug/Kg			91 U	56 U J	56 U J	54 U J	66 U J	58 U J
2,4,5-T	ug/Kg			5.9 U J	5.6 U J	6 U J	5 U J	7 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg			5.9 U J	5.6 U J	6 U J	5 U J	7 U J	6 U J
Dalapon	ug/Kg			140 U J	130 U J	130 U J	130 U J	160 U J	140 U J
Dicamba	ug/Kg			5.9 U J	5.6 U J	6 U J	5 U J	7 U J	6 U J
Dichloroprop	ug/Kg			59 U J	56 U J	56 U J	54 U J	66 U J	58 U J
Dinoseb	ug/Kg			29 U J	28 U J	28 U J	27 U J	33 U J	29 U J
MCPA	ug/Kg			5900 U J	5600 U J	5600 U J	5400 U J	6600 U J	5800 U J
MCPP	ug/Kg			5900 U J	5600 U J	5600 U J	5400 U J	6600 U J	5800 U J
METALS									
Aluminum	mg/kg			20800	22500	15200		21600	19200
Antimony	mg/kg			7.7 U J	11.2 J	11.8 U J		10.8 U J	10.3 U J
Arsenic	mg/kg			6.7	8.1	7.1 J		6.1 J	5.1 J
Barium	mg/kg			123	108	181 J		119 J	136 J
Beryllium	mg/kg			1.2	1.4	1.2		1.4	1.4
Cadmium	mg/kg			2.5	2.7	3.2		3.1	2.6
Calcium	mg/kg			2710	9730	47000		4760	5390
Chromium	mg/kg			27.9	31.5	33.7 J		29.3 J	27.4 J
Cobalt	mg/kg			14.5	18.7	12.9		17.3	13.8
Copper	mg/kg			33.7 J	33.5 J	46.4		23.9	22.3
Iron	mg/kg			31000	37900	34100		38500	37200
Lead	mg/kg			12	10.8	85.9		14.3	14.5
Magnesium	mg/kg			5360	8910	9900		5620	5850
Manganese	mg/kg			917	739	688		1240	1130
Mercury	mg/kg			0.05 J	0.06 J	0.29		0.09 J	0.09
Nickel	mg/kg			37.4	50.4	43		33.9	42.3
Potassium	mg/kg			2080	3030	2300		2270	1910
Selenium	mg/kg			0.18 J	0.13 U	0.18 U J		0.22 U J	0.17 U J
Silver	mg/kg			1.2 U	1.7 U	2.2		2.2	1.6 U
Sodium	mg/kg			56.9 U J	85.5 U J	127 J		83.6 J	79.2 U
Thallium	mg/kg			0.43 U	0.37 U	0.5 U		0.61 U	0.47 U
Vanadium	mg/kg			32.7	31.3	36.8		29.2	32.2
Zinc	mg/kg			89.6	108	252 J		94.9 J	85.1 J
Cyanide	mg/kg			0.68 U	0.68 U	0.67 U		0.77 U	0.6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-8	B-8	B-8	B-9	B-9	B-9	B-9	B-10
	DEPTH	2-4	2-4	6-8	0-2	2-4	6-8	6-8	0-2
	DATE	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/06/91
	MAIN ID	S1105-25	S1105-26(1)	S1105-27	S1105-28	S1105-29	S1105-30	S1105-30RE(4)	S1106-31
	LAB ID	148027	148028	148029	148030	148031	148032	148032RI	148457
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Bromomethane	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Vinyl Chloride	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Chloroethane	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Methylene Chloride	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Acetone	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Carbon Disulfide	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,1-Dichloroethene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,1-Dichloroethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,2-Dichloroethene (total)	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Chloroform	ug/Kg	5 U	4 J	5 U	6 U	4 J	1 J		
1,2-Dichloroethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
2-Butanone	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
1,1,1-Trichloroethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Carbon Tetrachloride	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Vinyl Acetate	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Bromodichloromethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,2-Dichloropropane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
cis-1,3-Dichloropropene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Trichloroethene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Dibromochloromethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,1,2-Trichloroethene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Benzene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
trans-1,3-Dichloropropene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Bromoform	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
2-Hexanone	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Tetrachloroethene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Toluene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Chlorobenzene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Ethylbenzene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Styrene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Xylene (total)	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-8 2-4 11/05/91 S1105-25 148027	SOIL B-8 2-4 11/05/91 S1105-26(1) 148028	SOIL B-8 6-8 11/05/91 S1105-27 148029	SOIL B-9 0-2 11/05/91 S1105-28 148030	SOIL B-9 2-4 11/05/91 S1105-29 148031	SOIL B-9 6-8 11/05/91 S1105-30 148032	SOIL B-9 6-8 11/05/91 S1105-30RE(4) 148032RI	SOIL B-10 0-2 11/06/91 S1106-31 148457
SEMIVOLATILES									
Phenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
bis(2-Chloroethyl) ether	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Chlorophenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
1,3-Dichlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
1,4-Dichlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Benzyl Alcohol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
1,2-Dichlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Methylphenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
bis(2-Chloroisopropyl) ether	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
4-Methylphenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
N-Nitroso-di-n-propylamine	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Hexachloroethane	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Nitrobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Isophorone	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Nitrophenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,4-Dimethylphenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Benzoic acid	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
bis(2-Chloroethoxy) methane	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,4-Dichlorophenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
1,2,4-Trichlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Naphthalene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		310 J
4-Chloroaniline	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Hexachlorobutadiene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
4-Chloro-3-methylphenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Methylnaphthalene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		140 J
Hexachlorocyclopentadiene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,4,6-Trichlorophenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,4,5-Trichlorophenol	ug/Kg	3600 U	3500 U	3400 U	3500 U	3500 U J	3400 U		3600 U
2-Chloronaphthalene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Nitroaniline	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
Dimethylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Acenaphthylene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,6-Dinitrotoluene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
3-Nitroaniline	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
Acenaphthene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		640 J
2,4-Dinitrophenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
4-Nitrophenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
Dibenzofuran	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		310 J
2,4-Dinitrotoluene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		640 U
Diethylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
4-Chlorophenyl-phenylether	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Fluorene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		570 J
4-Nitroaniline	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
4,6-Dinitro-2-methylphenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
N-Nitrosodiphenylamine (1)	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
4-Bromophenyl-phenylether	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Hexachlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Pentachlorophenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
Phenanthrene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		4400
Anthracene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		1200
Carbazole									
Di-n-butylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Fluoranthene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		5400
Pyrene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		5000
Butylbenzylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
3,3'-Dichlorobenzidine	ug/Kg	1500 U	1400 U	1400 U	1600 U	1500 U J	1400 U		1500 U
Benzo(a)anthracene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		2700
Chrysene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		2200
bis(2-Ethylhexyl)phthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		600 J
Di-n-octylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Benzo(b)fluoranthene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		2500
benzo(k)fluoranthene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		1400
Benzo(a)pyrene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		2200
Indeno(1,2,3-cd)pyrene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		1200
Dibenz(a,h)anthracene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		630 J
Benzo(g,h,i)perylene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		1200

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-8	B-8	B-8	B-9	B-9	B-9	B-9	B-10
	DEPTH	2-4	2-4	6-8	0-2	2-4	6-8	6-8	0-2
	DATE	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/06/91
	MAIN ID	S1105-25	S1105-26(1)	S1105-27	S1105-28	S1105-29	S1105-30	S1105-30RE(4)	S1106-31
	LAB ID	148027	148028	148029	148030	148031	148032	148032RI	148457
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
beta-BHC	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
delta-BHC	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
gamma-BHC (Lindane)	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Heptachlor	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Aldrin	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Heptachlor epoxide	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Endosulfan I	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Dieldrin	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
4,4'-DDE	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		30 J
Endrin	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
Endosulfan II	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
4,4'-DDD	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		23 J
Endosulfan sulfate	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
4,4'-DDT	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
Methoxychlor	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Endrin ketone	ug/Kg	36 U	35 U	34 U	35 U	35 U J	34 U J		36 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
gamma-Chlordane	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Toxaphene	ug/Kg	360 U	350 U	340 U	380 U	350 U J	340 U J		360 U
Aroclor-1016	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1221	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1232	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1242	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1248	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1254	ug/Kg	360 U	350 U	340 U	380 U	350 U J	340 U J		360 U
Aroclor-1260	ug/Kg	360 U	350 U	340 U	380 U	350 U J	340 U J		360 U
HERBICIDES									
2,4-D	ug/Kg	56 U J	56 U J	53 U J	60 U J	56 U J		54 U J	57 U J
2,4-DB	ug/Kg	56 U J	56 U J	53 U J	60 U J	56 U J		54 U J	57 U J
2,4,5-T	ug/Kg	6 U J	6 U J	5 U J	6 U J	6 U J		5 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J	6 U J	5 U J	6 U J	6 U J		5 U J	10 J
Dalapon	ug/Kg	130 U J	130 U J	130 U J	140 U J	130 U J		130 U J	140 U J
Dicamba	ug/Kg	6 U J	6 U J	5 U J	6 U J	6 U J		5 U J	6 U J
Dichloroprop	ug/Kg	56 U J	56 U J	53 U J	60 U J	56 U J		54 U J	57 U J
Dinoseb	ug/Kg	28 U J	28 U J	27 U J	30 U J	28 U J		27 U J	29 U J
MCPA	ug/Kg	5600 U J	5600 U J	5300 U J	6000 U J	5600 U J		5400 U J	5700 U J
MCPP	ug/Kg	5600 U J	5600 U J	5300 U J	6000 U J	5600 U J		5400 U J	13000 J
METALS									
Aluminum	mg/kg	20500	17700	12700	14800	8880	7160		16600
Antimony	mg/kg	6.8 U J	8.2 U J	8.4 U J	9.9 U J	9.9 U J	7 U J		8 U J
Arsenic	mg/kg	6.1 J	6 J	4.2 J	4.3 J	3.8 J	4.4 J		9.8 J
Barium	mg/kg	96.9 J	86.7 J	56.2 J	101 J	110 J	39.9 J		170 J
Beryllium	mg/kg	1.2	1	0.78 J	1.1	0.76	0.52 J		0.67 J
Cadmium	mg/kg	2.9	2.4	1.9	2.3	1.7	1.5		5.6
Calcium	mg/kg	4870	3560	85900	45600	104000	101000		48500
Chromium	mg/kg	30.1 J	26.9 J	19.6 J	22.5 J	13.8 J	11.2 J		38.5 J
Cobalt	mg/kg	18.4	14	14.2	13.7	10.7	8.1		14.7
Copper	mg/kg	27.6	26	16.2	22.6	21.6	19.3		105
Iron	mg/kg	36100	32500	27400	31000	19600	17300		71100
Lead	mg/kg	11.4	13.6	10.1	10.8	10.1	7.8		191
Magnesium	mg/kg	7300	6490	6720	8860	17000	12600		13300
Manganese	mg/kg	956	832	926	903	532	514		670
Mercury	mg/kg	0.06 J	0.06 J	0.05 J	0.06 J	0.04 J	0.05 J		0.24
Nickel	mg/kg	48.7	44.4	30.4	38.4	23.6	19		43.3
Potassium	mg/kg	2110	1760	1430	1320	1060	1050		1730
Selenium	mg/kg	0.21 U J	0.2 U J	0.61 U J	0.21 U J	0.65 U J	0.21 U J		0.17 U J
Silver	mg/kg	1.3 U	1.2 U	1.3 U	1.5 U	1.5 U	1.1 U		1.6
Sodium	mg/kg	67.5 U	62.6 U	75.3 J	84.2 J	112 J	116 J		706 R
Thallium	mg/kg	0.56 U	0.57 U	0.34 U	0.59 U	0.36 U	0.6 U		4.7 U
Vanadium	mg/kg	25.4	26.4	15.7	19.7	19.5	12.9		22.1
Zinc	mg/kg	94.2 J	85 J	75 J	126 J	84.3 J	74.8 J		1940 U
Cyanide	mg/kg	0.63 U	0.67 U	0.56 U	0.7 U	0.63 U	0.62 U		0.66

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-10 2-4 11/06/91 S1106-32 148458	SOIL B-10 2-4 11/06/91 S1106-33 (1) 148459	SOIL B-10 6-8 11/06/91 S1106-34 148460	SOIL B-10 6-8 11/06/91 S1106-34DL(5) 148460	SOIL B-11 0-2 11/06/91 S1106-36 148462	SOIL B-11 2-4 11/06/91 S1106-37 148463	SOIL B-11 6-8 11/06/91 S1106-38 148464	SOIL B-12 0-2 11/07/91 S1107-39 148704
VOCs									
Chloromethane	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
Bromomethane	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
Vinyl Chloride	ug/Kg	12 U	11 U	82	71 R	11 U	10 U	11 U	12 U
Chloroethane	ug/Kg	12 U	11 U	3 J	52 U R	11 U	10 U	11 U	12 U
Methylene Chloride	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Acetone	ug/Kg	43	11 U	11 U	52 U R	11 U	10 U	36 U	12 U
Carbon Disulfide	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,1-Dichloroethene	ug/Kg	6 U	6 U	1 J	26 U R	6 U	5 U	6 U	6 U
1,1-Dichloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,2-Dichloroethene (total)	ug/Kg	6 U	6 U	1400 R	1300	6 U	5 U	6 U	6 U
Chloroform	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,2-Dichloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
2-Butanone	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	6 J	12 U
1,1,1-Trichloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Carbon Tetrachloride	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Vinyl Acetate	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
Bromodichloromethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,2-Dichloropropane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
cis-1,3-Dichloropropene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Trichloroethene	ug/Kg	4 J	6 U	220	230 R	6 U	5 U	6 U	6 U
Dibromochloromethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,1,2-Trichloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Benzene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
trans-1,3-Dichloropropene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Bromoform	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
2-Hexanone	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
Tetrachloroethene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Toluene	ug/Kg	2 J	2 J	6 U	26 U R	6 U	5 U	6 U	6 U
Chlorobenzene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Ethylbenzene	ug/Kg	6 U	3 J	6 U	26 U R	6 U	5 U	6 U	6 U
Styrene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Xylene (total)	ug/Kg	5 J	20 J	6 U	26 U R	6 U	5 U	6 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-10	B-10	B-10	B-10	B-11	B-11	B-11	B-12
	DEPTH	2-4	2-4	6-8	6-8	0-2	2-4	6-8	0-2
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/07/91
	MAIN ID	S1106-32	S1106-33 (1)	S1106-34	S1106-34DL(5)	S1106-36	S1106-37	S1106-38	S1107-39
	LAB ID	148458	148459	148460	148460	148462	148463	148464	148704
	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
bis(2-Chloroethyl) ether	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2-Chlorophenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
1,3-Dichlorobenzene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
1,4-Dichlorobenzene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Benzyl Alcohol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
1,2-Dichlorobenzene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2-Methylphenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
bis(2-Chloroisopropyl) ether	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
4-Methylphenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
N-Nitroso-di-n-propylamine	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Hexachloroethane	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Nitrobenzene	ug/Kg	730 U	760 U	760 U		760 U	710 U	720 U	760 U
Isophorone	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2-Nitrophenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2,4-Dimethylphenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Benzoic acid	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
bis(2-Chloroethoxy) methane	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2,4-Dichlorophenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
1,2,4-Trichlorobenzene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Naphthalene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
4-Chloroaniline	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Hexachlorobutadiene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
4-Chloro-3-methylphenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2-Methylnaphthalene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Hexachlorocyclopentadiene	ug/Kg	730 U	760 U	760 U		760 U	710 U	720 U	760 U
2,4,6-Trichlorophenol	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2,4,5-Trichlorophenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
2-Chloronaphthalene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2-Nitroaniline	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
Dimethylphthalate	ug/Kg	730 U	760 U	760 U		760 U	710 U	720 U	760 U
Acenaphthylene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2,6-Dinitrotoluene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
3-Nitroaniline	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
Acenaphthene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2,4-Dinitrophenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
4-Nitrophenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
Dibenzofuran	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
2,4-Dinitrotoluene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Diethylphthalate	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
4-Chlorophenyl-phenylether	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Fluorene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
4-Nitroaniline	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
4,6-Dinitro-2-methylphenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
N-Nitrosodiphenylamine (1)	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
4-Bromophenyl-phenylether	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Hexachlorobenzene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Pentachlorophenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
Phenanthrene	ug/Kg	160 J	180 J	750 U		67 J	710 U	720 U	760 U
Anthracene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Carbazole									
Di-n-butylphthalate	ug/Kg	77 J	760 U	750 U		760 U	710 U	720 U	760 U
Fluoranthene	ug/Kg	280 J	300 J	750 U		110 J	710 U	720 U	760 U
Pyrene	ug/Kg	250 J	240 J	750 U		91 J	710 U	720 U	760 U
Butylbenzylphthalate	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
3,3'-Dichlorobenzidine	ug/Kg	1500 U	1500 U	1500 U		1600 U	1400 U	1400 U	1500 U
Benzo(a)anthracene	ug/Kg	160 J	150 J	750 U		76 J	710 U	720 U	760 U
Chrysene	ug/Kg	160 J	180 J	750 U		79 J	710 U	720 U	760 U
bis(2-Ethylhexyl)phthalate	ug/Kg	100 J	360 J	100 J		760 U	710 U	720 U	760 U
Di-n-octylphthalate	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Benzo(b)fluoranthene	ug/Kg	160 J	140 J	750 U		760 U	710 U	720 U	760 U
benzo(k)fluoranthene	ug/Kg	110 J	140 J	750 U		760 U	710 U	720 U	760 U
Benzo(a)pyrene	ug/Kg	170 J	150 J	750 U		760 U	710 U	720 U	760 U
Indeno(1,2,3-cd)pyrene	ug/Kg	110 J	96 J	750 U		760 U	710 U	720 U	760 U
Dibenz(a,h)anthracene	ug/Kg	730 U	760 U	750 U		760 U	710 U	720 U	760 U
Benzo(g,h,i)perylene	ug/Kg	120 J	99 J	750 U		760 U	710 U	720 U	760 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-10	B-10	B-10	B-10	B-11	B-11	B-11	B-12
	DEPTH	2-4	2-4	6-8	6-8	0-2	2-4	6-8	0-2
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/07/91
	MAIN ID	S1106-32	S1106-33 (1)	S1106-34	S1106-34DL(5)	S1106-36	S1106-37	S1106-38	S1107-39
	LAB ID	148458	148459	148460	148460	148462	148463	148464	148704
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
beta-BHC	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
delta-BHC	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
gamma-BHC (Lindane)	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
Heptachlor	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	14 J
Aldrin	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
Heptachlor epoxide	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
Endosulfan I	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
Dieldrin	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	46
4,4'-DDE	ug/Kg	28 J	30 J	36 U		36 U	34 U	35 U	37 U
Endrin	ug/Kg	36 U	37 U	36 U		36 U	34 U	35 U	37 U
Endosulfan II	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	37 U
4,4'-DDD	ug/Kg	36	34 J	36 U		38 U	34 U	35 U	37 U
Endosulfan sulfate	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	37 U
4,4'-DDT	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	37 U
Methoxychlor	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Endrin ketone	ug/Kg	36 U	37 U	36 U		36 U	34 U	35 U	37 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
gamma-Chlordane	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Toxaphene	ug/Kg	360 U	370 U	360 U		360 U	340 U	350 U	370 U
Aroclor-1016	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1221	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1232	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1242	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1248	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1254	ug/Kg	360 U	370 U	360 U		360 U	340 U	350 U	370 U
Aroclor-1260	ug/Kg	360 U	370 U	360 U		360 U	340 U	350 U	370 U
HERBICIDES									
2,4-D	ug/Kg	56 U J	57 U J	57 U J		60 U J	54 U J	55 U J	59 U J
2,4-DB	ug/Kg	56 U J	57 U J	57 U J		60 U J	54 U J	55 U J	59 U J
2,4,5-T	ug/Kg	6 U J	6 U J	6 U J		6 U J	5 U J	5 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J	6 U J	6 U J		6 U J	5 U J	5 U J	6 U J
Dalapon	ug/Kg	140 U J	140 U J	140 U J		140 U J	130 U J	130 U J	140 U J
Dicamba	ug/Kg	6 U J	6 U J	6 U J		6 U J	5 U J	5 U J	6 U J
Dichloroprop	ug/Kg	56 U J	57 U J	57 U J		60 U J	54 U J	55 U J	59 U J
Dinoseb	ug/Kg	28 U J	29 U J	28 U J		30 U J	27 U J	27 U J	29 U J
MCPA	ug/Kg	5600 U J	5700 U J	5700 U J		6000 U J	5400 U J	5500 U J	5900 U J
MCPP	ug/Kg	5600 U J	5700 U J	5700 U J		24000 J	5400 U J	5500 U J	18000 J
METALS									
Aluminum	mg/kg	17300	15100	18800		19000	15800	19600	17500
Antimony	mg/kg	8.4 U J	10.3 U J	10.2 U J		12.3 U J	10.9 U J	8 U J	10.2 U J
Arsenic	mg/kg	9.7 J	6.1 J	4.9 J		11.4 J	6 J	5 J	4.8 J
Barium	mg/kg	145 J	83 J	56.9 J		190 J	82.6 J	73.6 J	91.4 J
Beryllium	mg/kg	0.94	0.85 J	1		1.1 J	1.1	0.93	0.99
Cadmium	mg/kg	3.1	2.8	2.9		4.2	2.8	2.5	1.9
Calcium	mg/kg	53600	43900	31000		6440	25400	28800	9480
Chromium	mg/kg	30.4 J	26.5 J	28.3 J		39.3 J	21.8 J	29.9 J	24.2 J
Cobalt	mg/kg	13.8	10.7	15.8		13.4	12.4	13	11.1
Copper	mg/kg	56.9	41.2	25.6		109	29.2	34.4	26.9
Iron	mg/kg	32200	34900	35400		129000	33000	31500	32300
Lead	mg/kg	83.1	54.8	14.1		244	13.3	41.3	40.2
Magnesium	mg/kg	16900	12000	8150		5390	5170	7460	5570
Manganese	mg/kg	732	632	953		975	1050	602	1090
Mercury	mg/kg	0.33	0.47	0.05 J		0.48	0.11	0.09	0.06 J
Nickel	mg/kg	42.2	40.6	44.5		40.6	30.4	41.2	35.5
Potassium	mg/kg	2380	2150	2180		2930	19000	2270	2150
Selenium	mg/kg	0.13 U J	0.16 U J	0.16 U J		0.18 U J	0.18 U J	0.18 U J	0.16 U J
Silver	mg/kg	5.6	4.3	1.5 U		1.8 U	1.6 U	1.2 U	1.6 J
Sodium	mg/kg	707 R	466 R	115 R		94 U	83.1 U	91.9 R	77.9 U
Thallium	mg/kg	0.36 U	0.46 U	0.44 U		0.49 U	0.5 U	0.51 U	0.44 U
Vanadium	mg/kg	28.6	21.6	28		29.6	20	21.7	26.4
Zinc	mg/kg	554	537	114 J		1060 J	121 J	240 J	110 J
Cyanide	mg/kg	0.64 U	0.68 U	0.65 U		0.71 U	0.64 U	0.62 U	0.71 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-12	B-12	B-13	B-13	B-13	B-14	B-14	B-14
	DEPTH	2-4	6-8	0-2	2-4	6-8	0-2	2-4	2-4
	DATE	11/07/91	11/07/91	11/07/91	11/07/91	11/07/91	11/06/91	11/06/91	11/06/91
	MAIN ID	S1107-40	S1107-41	S1107-42	S1107-43	S1107-44	S1106-45	S1106-46	S1106-47(
	LAB ID	148705	148706	148707	148708	148709	148710	148711	148712
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Bromomethane	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Vinyl Chloride	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Chloroethane	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Methylene Chloride	ug/Kg	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
Acetone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Carbon Disulfide	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,1-Dichloroethene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,1-Dichloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,2-Dichloroethene (total)	ug/Kg	2 J	5 U	6 U	5 U	5 U	4 J	3 J	16 J
Chloroform	ug/Kg	5 U	5 U	6 U	5 U	5 J	6 U	5 U	5 U
1,2-Dichloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
2-Butanone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
1,1,1-Trichloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Carbon Tetrachloride	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Vinyl Acetate	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Bromodichloromethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,2-Dichloropropane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
cis-1,3-Dichloropropene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Trichloroethene	ug/Kg	2 J	2 J	6 U	5 U	5 U	7	3 J	8 J
Dibromochloromethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,1,2-Trichloroethene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Benzene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
trans-1,3-Dichloropropene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Bromoform	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
2-Hexanone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Tetrachloroethene	ug/Kg	5 U	5 J	6 U	5 U	5 U	6 U	5 U	5 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Toluene	ug/Kg	5 U	5 U	6 U	5 U	1 J	2 J	5 U	5 U
Chlorobenzene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Ethylbenzene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Styrene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Xylene (total)	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND									
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-12	B-12	B-13	B-13	B-13	B-14	B-14	B-14
	DEPTH	2-4	6-8	0-2	2-4	6-8	0-2	2-4	2-4
	DATE	11/07/91	11/07/91	11/07/91	11/07/91	11/07/91	11/08/91	11/08/91	11/08/91
	MAIN ID	S1107-40	S1107-41	S1107-42	S1107-43	S1107-44	S1108-45	S1108-46	S1108-47(
	LAB ID	148705	148706	148707	148708	148709	148710	148711	148712
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
bis(2-Chloroethyl) ether	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Chlorophenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
1,3-Dichlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
1,4-Dichlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Benzyl Alcohol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
1,2-Dichlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Methylphenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
bis(2-Chloroisopropyl) ether	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Methylphenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
N-Nitroso-di-n-propylamine	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Hexachloroethane	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Nitrobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Isophorone	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Nitrophenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4-Dimethylphenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Benzoic acid	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
bis(2-Chloroethoxy) methane	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4-Dichlorophenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
1,2,4-Trichlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Naphthalene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Chloroaniline	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Hexachlorobutadiene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Chloro-3-methylphenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Methylnaphthalene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Hexachlorocyclopentadiene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4,6-Trichlorophenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4,5-Trichlorophenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
2-Chloronaphthalene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Nitroaniline	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
Dimethylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Acenaphthylene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,6-Dinitrotoluene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
3-Nitroaniline	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
Acenaphthene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4-Dinitrophenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
4-Nitrophenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
Dibenzofuran	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4-Dinitrotoluene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Diethylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Chlorophenyl-phenylether	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Fluorene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Nitroaniline	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
4,6-Dinitro-2-methylphenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
N-Nitrosodiphenylamine (1)	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Bromophenyl-phenylether	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Hexachlorobenzene	ug/Kg	700 U		610 U	710 U	670 U	760 U	700 U	720 U
Pentachlorophenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
Phenanthrene	ug/Kg	700 U		250 J	710 U	670 U	310 J	700 U	720 U
Anthracene	ug/Kg	700 U		810 U	710 U	670 U	71 J	700 U	720 U
Carbazole									
Di-n-butylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Fluoranthene	ug/Kg	700 U		240 J	710 U	670 U	290 J	700 U	720 U
Pyrene	ug/Kg	700 U		260 J	710 U	670 U	240 J	700 U	720 U
Butylbenzylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
3,3'-Dichlorobenzidine	ug/Kg	1400 U		1600 U	1400 U	1300 U	1500 U	1400 U	1400 U
Benzo(a)anthracene	ug/Kg	700 U		130 J	710 U	670 U	160 J	700 U	720 U
Chrysene	ug/Kg	700 U		130 J	710 U	670 U	150 J	700 U	720 U
bis(2-Ethylhexyl)phthalate	ug/Kg	700 U		810 U	710 U	670 U	1300	290 J	2000 J
Di-n-octylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Benzo(b)fluoranthene	ug/Kg	700 U		140 J	710 U	670 U	110 J	700 U	720 U
benzo(k)fluoranthene	ug/Kg	700 U		98 J	710 U	670 U	140 J	700 U	720 U
Benzo(a)pyrene	ug/Kg	700 U		130 J	710 U	670 U	140 J	700 U	720 U
Indeno(1,2,3-cd)pyrene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Dibenz(a,h)anthracene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Benzo(g,h,i)perylene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-12	B-12	B-13	B-13	B-13	B-14	B-14	B-14
	DEPTH	2-4	6-8	0-2	2-4	6-8	0-2	2-4	2-4
	DATE	11/07/91	11/07/91	11/07/91	11/07/91	11/07/91	11/08/91	11/08/91	11/08/91
	MAIN ID	S1107-40	S1107-41	S1107-42	S1107-43	S1107-44	S1108-45	S1108-46	S1108-47(
	LAB ID	148705	148706	148707	148708	148709	148710	148711	148712
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
beta-BHC	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
delta-BHC	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
gamma-BHC (Lindane)	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Heptachlor	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Aldrin	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Heptachlor epoxide	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Endosulfan I	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Dieldrin	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
4,4'-DDE	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Endrin	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Endosulfan II	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
4,4'-DDD	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Endosulfan sulfate	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
4,4'-DDT	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Methoxychlor	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Endrin ketone	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
gamma-Chlordane	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Toxaphene	ug/Kg	340 U		400 U	340 U	320 U	370 U	340 U	350 U
Aroclor-1016	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1221	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1232	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1242	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1248	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1254	ug/Kg	340 U		400 U	340 U	320 U	370 U	340 U	350 U
Aroclor-1260	ug/Kg	340 U		400 U	340 U	320 U	370 U	340 U	350 U
HERBICIDES									
2,4-D	ug/Kg	54 U J		61 U J	55 U J	52 U J	57 U J	54 U J	55 U J
2,4-DB	ug/Kg	54 U J		61 U J	555 U J	52 U J	57 U J	54 U J	55 U J
2,4,5-T	ug/Kg	5 U J		6 U J	5 U J	5 U J	6 U J	5 U J	5 U J
2,4,5-TP (Silvex)	ug/Kg	5 U J		6 U J	5 U J	5 U J	6 U J	5 U J	5 U J
Dalapon	ug/Kg	130 U J		150 U J	130 U J	120 U J	140 U J	130 U J	130 U J
Dicamba	ug/Kg	5 U J		6 U J	5 U J	5 U J	6 U J	5 U J	5 U J
Dichloroprop	ug/Kg	54 U J		61 U J	55 U J	52 U J	57 U J	54 U J	55 U J
Dinoseb	ug/Kg	27 U J		31 U J	27 U J	26 U J	29 U J	27 U J	27 U J
MCPA	ug/Kg	5400 U J		6100 U J	5500 U J	5200 U J	5700 U J	5400 U J	5500 U J
MCPP	ug/Kg	5400 U J		6100 U J	5500 U J	5200 U J	8800 J	5400 U J	5500 U J
METALS									
Aluminum	mg/kg	14200		19900	14400	18200	12600	12400	12600
Antimony	mg/kg	10 U		12.5 U J	10.8 U J	8.4 U J	10.6 U J	10.6 U J	9.3 U J
Arsenic	mg/kg	4.2		5.4	4.7	5.6	5	4	4.6
Barium	mg/kg	64.5		360	78.3	101	86.1	56.7	64
Beryllium	mg/kg	0.73 J		1.2	0.77 J	0.88	0.69 U	0.71 J	0.69 J
Cadmium	mg/kg	3.2 J		4.7 J	3.2 J	4.2 J	3.4 J	2.9 J	2.7
Calcium	mg/kg	53100		11400	61400	26700	49200	87500	93800
Chromium	mg/kg	21		30.9	22.7	27.7	22.1	19	18.9
Cobalt	mg/kg	12.2		16.6	10.8	16.3	8.2 J	10.3	8.4 J
Copper	mg/kg	23		55	25.9	23.4	43	22.3	21.1
Iron	mg/kg	30900		37000	29500	36000	27000	24900	24600
Lead	mg/kg	6.4 J		65.6	15.8	11.6 J	141	11.9 J	9.3
Magnesium	mg/kg	8410		5740	9940	7670	10300	8500	8260
Manganese	mg/kg	586		2740	572	470	330	520	557
Mercury	mg/kg	0.04 J		0.09 J	0.04 U	0.04 J	0.07 J	0.04 U	0.04 U
Nickel	mg/kg	34		37.2	36.4	44	20.9	29.3	29
Potassium	mg/kg	1330		2420	2030	1790	1730	1480	1640
Selenium	mg/kg	1 U J		0.4 U J	1.5 U J	0.31 U J	0.33 U J	1.4 U J	1.5 U J
Silver	mg/kg	5.4 J		1.9 U J	1.6 U J	1.3 U J	1.6 U J	1.6 U J	1.4 U J
Sodium	mg/kg	264 R		132 R	140 R	116 R	96.4 R	114 R	116 R
Thallium	mg/kg	0.34 U		0.68 U	0.51 U	0.51 U	5.4 U	4.7 U	4.6 U
Vanadium	mg/kg	19		31.8	21.6	21.6	22.7	18.1	18.1
Zinc	mg/kg	95.3		461	164	118	357	65.7	87.1
Cyanide	mg/kg	0.64 U		0.68 U	0.61 U	0.61 U	0.67 U	0.63 U	0.58 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-14	B-14	B-15	B-15	B-15	B-15	B-15	B-15
	DEPTH	4-6	4-6	0-2	0-2	2-4	2-4	2-4	2-4
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91
	MAIN ID 1)	S1106-48	S1106-48RE(4)	S1106-49	S1106-49DL(5)	S1106-50	S1106-50DL(5)	S1106-50RE(4)	S1106-51
	LAB ID	148713	148713	148714	148714	148715	148715	148715	148716
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Bromomethane	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Vinyl Chloride	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Chloroethane	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Methylene Chloride	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Acetone	ug/Kg	12 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		8400 U J
Carbon Disulfide	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,1-Dichloroethene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,1-Dichloroethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,2-Dichloroethene (total)	ug/Kg	6 J	3 J	6600 R	29000	40000 J	36000 U R		79000 J
Chloroform	ug/Kg	5 U J	5 U J	18 J	3100 U R	1100 U J	14000 U R		14000 U J
1,2-Dichloroethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
2-Butanone	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
1,1,1-Trichloroethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Carbon Tetrachloride	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Vinyl Acetate	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Bromodichloromethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,2-Dichloropropane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
cis-1,3-Dichloropropene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Trichloroethene	ug/Kg	8 J	5 J	13000 R	110000	580000 R	470000 J		740000 R
Dibromochloromethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,1,2-Trichloroethene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Benzene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
trans-1,3-Dichloropropene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Bromoform	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
4-Methyl-2-Pentanone	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
2-Hexanone	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Tetrachloroethene	ug/Kg	5 U J	5 U J	7 J	3100 U R	1100 U J	14000 U R		14000 U J
1,1,2,2-Tetrachloroethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Toluene	ug/Kg	3 U J	2 J	4 J	570 R	3700 J	4600 R		5700 J
Chlorobenzene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Ethylbenzene	ug/Kg	5 U J	5 U J	19 U	3100 U R	2000 J	14000 U R		2800 U J
Styrene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Xylene (total)	ug/Kg	5 U J	5 U J	19 U	3100 U R	14000 J	15000 U R		17000 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND									
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-14	B-14	B-15	B-15	B-15	B-15	B-15	B-15
	DEPTH	4-6	4-6	0-2	0-2	2-4	2-4	2-4	2-4
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91
	MAIN ID 1)	S1106-48	S1106-48RE(4)	S1106-49	S1106-49DL(5)	S1106-50	S1106-50DL(5)	S1106-50RE(4)	S1106-51
	LAB ID	148713	148713	148714	148714	148715	148715	148715	148716
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
bis(2-Chloroethyl) ether	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Chlorophenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
1,3-Dichlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
1,4-Dichlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Benzyl Alcohol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
1,2-Dichlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Methylphenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
bis(2-Chloroisopropyl) ether	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Methylphenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
N-Nitroso-di-n-propylamine	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Hexachloroethane	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Nitrobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Isophorone	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Nitrophenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4-Dimethylphenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Benzoic acid	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
bis(2-Chloroethoxy) methane	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4-Dichlorophenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
1,2,4-Trichlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Naphthalene	ug/Kg	690 U		700 U		1600 J		2000 J	2500 J
4-Chloroaniline	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Hexachlorobutadiene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Chloro-3-methylphenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Methylnaphthalene	ug/Kg	690 U		700 U		2000 J		2000 J	2700 J
Hexachlorocyclopentadiene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4,6-Trichlorophenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4,5-Trichlorophenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
2-Chloronaphthalene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Nitroaniline	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
Dimethylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Acenaphthylene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,6-Dinitrotoluene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
3-Nitroaniline	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
Acenaphthene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4-Dinitrophenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
4-Nitrophenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
Dibenzofuran	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4-Dinitrotoluene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Diethylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Chlorophenyl-phenylether	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Fluorene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Nitroaniline	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
4,6-Dinitro-2-methylphenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
N-Nitrosodiphenylamine (1)	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Bromophenyl-phenylether	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Hexachlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Pentachlorophenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
Phenanthrene	ug/Kg	690 U		700 U		300 J		290 J	420 J
Anthracene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Carbazole									
Di-n-butylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Fluoranthene	ug/Kg	690 U		96 J		1600 U J		1600 U J	2000 U J
Pyrene	ug/Kg	690 U		100 J		180 J		160 J	230 J
Butylbenzylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
3,3'-Dichlorobenzidine	ug/Kg	1400 U		1400 U		3200 U J		3200 U J	3900 U J
Benzo(a)anthracene	ug/Kg	690 U		97 J		1600 U J		1600 U J	2000 U J
Chrysene	ug/Kg	690 U		120 J		1600 U J		1600 U J	2000 U J
bis(2-Ethylhexyl)phthalate	ug/Kg	690 U		460 J		450 J		360 J	940 J
Di-n-octylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Benzo(b)fluoranthene	ug/Kg	690 U		140 J		1600 U J		1600 U J	2000 U J
benzo(k)fluoranthene	ug/Kg	690 U		140 J		1600 U J		1600 U J	2000 U J
Benzo(a)pyrene	ug/Kg	690 U		150 J		1600 U J		1600 U J	2000 U J
Indeno(1,2,3-cd)pyrene	ug/Kg	690 U		180 J		1600 U J		1600 U J	2000 U J
Dibenz(a,h)anthracene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Benzo(g,h,i)perylene	ug/Kg	690 U		190 J		1600 U J		1600 U J	2000 U J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-14	B-14	B-15	B-15	B-15	B-15	B-15	B-15
	DEPTH	4-6	4-6	0-2	0-2	2-4	2-4	2-4	2-4
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91
	MAIN ID 1)	S1106-48	S1106-48RE(4)	S1106-49	S1106-49DL(5)	S1106-50	S1106-50DL(5)	S1106-50RE(4)	S1106-51
	LAB ID	148713	148713	148714	148714	148715	148715	148715	148716
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U		17 U		19 U			19 U
beta-BHC	ug/Kg	17 U		17 U		19 U			19 U
delta-BHC	ug/Kg	17 U		17 U		19 U			19 U
gamma-BHC (Lindane)	ug/Kg	17 U		17 U		19 U			19 U
Heptachlor	ug/Kg	17 U		17 U		19 U			19 U
Aldrin	ug/Kg	17 U		17 U		19 U			19 U
Heptachlor epoxide	ug/Kg	17 U		17 U		19 U			19 U
Endosulfan I	ug/Kg	17 U		17 U		19 U			19 U
Dieldrin	ug/Kg	33 U		34 U		39 U			36 U
4,4'-DDE	ug/Kg	33 U		250		39 U			36 U
Endrin	ug/Kg	33 U		34 U		39 U			38 U
Endosulfan II	ug/Kg	33 U		34 U		39 U			38 U
4,4'-DDD	ug/Kg	33 U		34 U		39 U			36 U
Endosulfan sulfate	ug/Kg	33 U		34 U		39 U			38 U
4,4'-DDT	ug/Kg	33 U		34 U		39 U			38 U
Methoxychlor	ug/Kg	170 U		170 U		190 U			190 U
Endrin ketone	ug/Kg	33 U		34 U		39 U			38 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U		170 U		190 U			190 U
gamma-Chlordane	ug/Kg	170 U		170 U		190 U			190 U
Toxaphene	ug/Kg	330 U		340 U		390 U			380 U
Aroclor-1016	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1221	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1232	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1242	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1248	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1254	ug/Kg	330 U		340 U		390 U			380 U
Aroclor-1260	ug/Kg	330 U		330 J		370 J			430
HERBICIDES									
2,4-D	ug/Kg	53 U J		53 U J		60 U J			59 U J
2,4-DB	ug/Kg	53 U J		53 U J		60 U J			59 U J
2,4,5-T	ug/Kg	5 U J		5 U J		6 U J			6 U J
2,4,5-TP (Silvex)	ug/Kg	5 U J		5 U J		6 U J			6 U J
Dalapon	ug/Kg	130 U J		130 U J		140 U J			140 U J
Dicamba	ug/Kg	5 U J		5 U J		6 U J			6 U J
Dichloroprop	ug/Kg	53 U J		53 U J		60 U J			59 U J
Dinoseb	ug/Kg	26 U J		26 U J		30 U J			30 U J
MCPA	ug/Kg	5300 U J		5300 U J		6000 U J			5900 U J
MCPP	ug/Kg	5300 U J		5300 U J		6000 U J			5900 U J
METALS									
Aluminum	mg/kg	16100		16100		13900			18100
Antimony	mg/kg	10.5 U J		11 U J		10.6 J			12.1 U J
Arsenic	mg/kg	2.7		4.1		5.5 U			5
Barium	mg/kg	55.8		121		75.7			109
Beryllium	mg/kg	0.87 J		0.89 J		0.78 J			1 J
Cadmium	mg/kg	3.7 J		3.4 J		3.2 J			3.4 J
Calcium	mg/kg	29700		30900		50000 J			10500 J
Chromium	mg/kg	26.2		30.5		22			26.5
Cobalt	mg/kg	14.1		14		10.1			13.7
Copper	mg/kg	15.6		36.6		25.4			26.9
Iron	mg/kg	37800		35300		27700			32600
Lead	mg/kg	5.4 J		40.7		27			33.1
Magnesium	mg/kg	7770		8190		6190			5840
Manganese	mg/kg	483		476		653			600
Mercury	mg/kg	0.04 U		0.06 J		0.05 J			0.06 J
Nickel	mg/kg	41		53		37			35.6
Potassium	mg/kg	1770		1910		1260			2200
Selenium	mg/kg	1.6 U J		0.31 U J		1.4 U J			1.5 U J
Silver	mg/kg	1.6 U J		1.7 U J		1.6 U J			1.8 U J
Sodium	mg/kg	116 R		97.3 R		81.1 U			92.4 U
Thallium	mg/kg	0.52 U		0.52 U		0.46 U			0.49 U
Vanadium	mg/kg	21.8		23.3		21			26.6
Zinc	mg/kg	99		117		123			106
Cyanide	mg/kg	0.6 U		0.47 U		0.59 U			0.68 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-15	B-15	B-15	B-16	B-16	B-16	B-17	B-17
	DEPTH	2-4	6-8	6-8	0-2	2-4	6-8	0-2	0-2
	DATE	11/06/91	11/06/91	11/06/91	11/12/91	11/12/91	11/12/91	11/13/91	11/13/91
	MAIN ID (1)	S1106-51DL(5)	S1106-52	S1106-52DL(5)	S1112-53	S1112-54	S1112-55	S1113-56	S1113-56R
	LAB ID	148716	148717	148717	148925	148926	148927	148928	148928
	UNITS								
VOCs									
Chloromethane	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Bromomethane	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Vinyl Chloride	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Chloroethane	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Methylene Chloride	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	6 U J
Acetone	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	15 U	27 U	11 U J	16 U J
Carbon Disulfide	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,1-Dichloroethene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,1-Dichloroethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,2-Dichloroethene (total)	ug/Kg	69000 U R	11000 J	19000 R	6 U	6 U	6 U	6 U J	5 U J
Chloroform	ug/Kg	5300 R	680 U J	1700 U R	6 U	2 J	5 U	5 U J	5 U J
1,2-Dichloroethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
2-Butanone	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
1,1,1-Trichloroethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Carbon Tetrachloride	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Vinyl Acetate	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Bromodichloromethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,2-Dichloropropane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
cis-1,3-Dichloropropene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Trichloroethene	ug/Kg	540000 J	29000 R	38000 J	6 U	6 U	7	9 J	9 J
Dibromochloromethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,1,2-Trichloroethene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Benzene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
trans-1,3-Dichloropropene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Bromoform	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
4-Methyl-2-Pentanone	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
2-Hexanone	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Tetrachloroethene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,1,2,2-Tetrachloroethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Toluene	ug/Kg	6900 R	850 J	970 R	6 U	6 U	6	5 U J	1 J
Chlorobenzene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Ethylbenzene	ug/Kg	24000 U R	800 J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Styrene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Xylene (total)	ug/Kg	18000 R	4900 J	12000 R	6 U	6 U	26	5 U J	5 U J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-15	B-15	B-15	B-16	B-16	B-16	B-17	B-17
	DEPTH	2-4	6-8	6-8	0-2	2-4	6-8	0-2	0-2
	DATE	11/08/91	11/08/91	11/08/91	11/12/91	11/12/91	11/12/91	11/13/91	11/13/91
	MAIN ID (1)	S1108-51DL(5)	S1108-52	S1108-52DL(5)	S1112-53	S1112-54	S1112-55	S1113-56	S1113-56R
	LAB ID	148716	148717	148717	148925	148926	148927	148928	148928
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
bis(2-Chloroethyl) ether	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Chlorophenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
1,3-Dichlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
1,4-Dichlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Benzyl Alcohol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
1,2-Dichlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Methylphenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
bis(2-Chloroisopropyl) ether	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Methylphenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
N-Nitroso-di-n-propylamine	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Hexachloroethane	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Nitrobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Isophorone	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Nitrophenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4-Dimethylphenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Benzoic acid	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
bis(2-Chloroethoxy) methane	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4-Dichlorophenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
1,2,4-Trichlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Naphthalene	ug/Kg	2400 J	1200 J		800 U	730 U	710 U	740 U	
4-Chloroaniline	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Hexachlorobutadiene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Chloro-3-methylphenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Methylnaphthalene	ug/Kg	2600 J	950 U J		800 U	730 U	710 U	740 U	
Hexachlorocyclopentadiene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4,6-Trichlorophenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4,5-Trichlorophenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
2-Chloronaphthalene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Nitroaniline	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
Dimethylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Acenaphthylene	ug/Kg	2000 U J	950 U J		510 J	730 U	710 U	740 U	
2,6-Dinitrotoluene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
3-Nitroaniline	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
Acenaphthene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4-Dinitrophenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
4-Nitrophenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
Dibenzofuran	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4-Dinitrotoluene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Diethylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Chlorophenyl-phenylether	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Fluorene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Nitroaniline	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
4,6-Dinitro-2-methylphenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
N-Nitrosodiphenylamine (1)	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Bromophenyl-phenylether	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Hexachlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Pentachlorophenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
Phenanthrene	ug/Kg	400 J	170 J		170 J	730 U	710 U	740 U	
Anthracene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Carbazole									
Di-n-butylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Fluoranthene	ug/Kg	2000 U J	950 U J		800	730 U	710 U	740 U	
Pyrene	ug/Kg	2000 U J	150 J		1800	730 U	710 U	740 U	
Butylbenzylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
3,3'-Dichlorobenzidine	ug/Kg	3900 U J	1900 U J		1600 U	1500 U	1400 U	1500 U	
Benzo(a)anthracene	ug/Kg	2000 U J	950 U J		1300	730 U	710 U	740 U	
Chrysene	ug/Kg	2000 U J	950 U J		1800	730 U	710 U	740 U	
bis(2-Ethylhexyl)phthalate	ug/Kg	790 J	110 J		800 U	730 U	700 J	740 U	
Di-n-octylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Benzo(b)fluoranthene	ug/Kg	2000 U J	950 U J		740 J	730 U	710 U	740 U	
benzo(k)fluoranthene	ug/Kg	2000 U J	950 U J		870	730 U	710 U	740 U	
Benzo(a)pyrene	ug/Kg	2000 U J	950 U J		1500	730 U	710 U	740 U	
Indeno(1,2,3-cd)pyrene	ug/Kg	2000 U J	950 U J		660 J	730 U	710 U	740 U	
Dibenz(a,h)anthracene	ug/Kg	2000 U J	950 U J		330 J	730 U	710 U	740 U	
Benzo(g,h,i)perylene	ug/Kg	2000 U J	950 U J		880	730 U	710 U	740 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-15	B-15	B-15	B-16	B-16	B-16	B-17	B-17
	DEPTH	2-4	6-8	6-8	0-2	2-4	6-8	0-2	0-2
	DATE	11/08/91	11/08/91	11/08/91	11/12/91	11/12/91	11/12/91	11/13/91	11/13/91
	MAIN ID (1)	S1108-51DL(5)	S1108-52	S1108-52DL(5)	S1112-53	S1112-54	S1112-55	S1113-56	S1113-56R
	LAB ID	148716	148717	148717	148925	148926	148927	148928	148928
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
beta-BHC	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
delta-BHC	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
gamma-BHC (Lindane)	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Heptachlor	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Aldrin	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Heptachlor epoxide	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Endosulfan I	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Dieldrin	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
4,4'-DDE	ug/Kg		69 J		21 J	36 U	34 U	39	
Endrin	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
Endosulfan II	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
4,4'-DDD	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
Endosulfan sulfate	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
4,4'-DDT	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
Methoxychlor	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Endrin ketone	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
Endrin aldehyde									
alpha-Chlordane	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
gamma-Chlordane	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Toxaphene	ug/Kg		350 U J		390 U	360 U	340 U	360 U	
Aroclor-1016	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1221	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1232	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1242	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1248	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1254	ug/Kg		350 U J		390 U	360 U	340 U	360 U	
Aroclor-1260	ug/Kg		230 J		390 U	360 U	340 U	360 U	
HERBICIDES									
2,4-D	ug/Kg		54 U J		59 U J	55 U J	54 U J	56 U J	
2,4-DB	ug/Kg		54 U J		59 U J	55 U J	54 U J	56 U J	
2,4,5-T	ug/Kg		5 U J		6 U J	6 U J	5 U J	6 U J	
2,4,5-TP (Silvex)	ug/Kg		5 U J		6 U J	6 U J	5 U J	6 U J	
Dalapon	ug/Kg		130 U J		140 U J	130 U J	130 U J	130 U J	
Dicamba	ug/Kg		5 U J		6 U J	6 U J	5 U J	6 U J	
Dichloroprop	ug/Kg		54 U J		59 U J	55 U J	54 U J	56 U J	
Dinoseb	ug/Kg		27 U J		30 U J	28 U J	27 U J	28 U J	
MCPA	ug/Kg		5400 U J		5900 U J	5500 U J	5400 U J	5600 U J	
MCPP	ug/Kg		5400 U J		5900 U J	5500 U J	5400 U J	5600 U J	
METALS									
Aluminum	mg/kg		16600		12700	19600	19300	10900	
Antimony	mg/kg		9.3 U J		8.5 U J	10.9 U J	8.4 U J	12.3 J	
Arsenic	mg/kg		3.4		5.1	4.4	3.8	7	
Barium	mg/kg		49.9		91.1	101	64.8	82.5	
Beryllium	mg/kg		0.81 J		0.78 J	1	0.98	0.74 U	
Cadmium	mg/kg		3.7 J		1.8	3.2 J	2.9 J	8.2 J	
Calcium	mg/kg		12400		26100	27800	43000	74700	
Chromium	mg/kg		26.7		15.9	26.6	27.4	26.1	
Cobalt	mg/kg		12.6		5.8 J	12.8	13.3	11.2	
Copper	mg/kg		16.9		23.4	23.9	19.1	52.1	
Iron	mg/kg		31000		16500	32000	31800	86400	
Lead	mg/kg		9.8 J		39.8	9.5 J	5.3 J	40.1	
Magnesium	mg/kg		8290		10200	8730	11000	24900	
Manganese	mg/kg		467		582	634	574	602	
Mercury	mg/kg		0.04 U		0.07 J	0.05 J	0.04 U	0.08 J	
Nickel	mg/kg		41.8		17.5	35.3	38.6	39.7	
Potassium	mg/kg		1310		1960	2970	2540	1610	
Selenium	mg/kg		1.6 U J		0.39 U J	0.24 U J	0.35 U J	0.32 U J	
Silver	mg/kg		1.4 U J		1.3 U J	1.6 U J	1.3 U J	1.7 U J	
Sodium	mg/kg		71.4 U		64.9 U	63.6 U	139 J	99.3 J	
Thallium	mg/kg		0.53 U		0.64 U	0.4 U	0.56 U	0.52 U	
Vanadium	mg/kg		21		23.8	31	26.4	23.5	
Zinc	mg/kg		94.4		58.1	63.3	94.8	244	
Cyanide	mg/kg		0.59 U		0.65 U	0.6 U	0.68 U	0.65 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID E(4) / LAB ID / UNITS	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-17	B-17	B-17	B-17	B-18	B-18	B-18	B-19
	DEPTH	2-4	2-4	4-6	6-8	0-2	2-4	4-6	0-2
	DATE	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91
	MAIN ID E(4)	S1113-57	S1113-57DL(5)	S1113-58	S1113-59 (2)	S1113-60	S1113-61	S1113-62	S1113-63
	LAB ID	148929	148929	148930	148931	148932	148933	148934	148935
	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Bromomethane	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Vinyl Chloride	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Chloroethane	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Methylene Chloride	ug/Kg	6 U J	8 U R	6 U	7 U	5 U	5 U	5 U	5 U
Acetone	ug/Kg	12 U J	16 U R	15 U	16 U	12 U	11 U	11 U	12 U
Carbon Disulfide	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,1-Dichloroethene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,1-Dichloroethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,2-Dichloroethene (total)	ug/Kg	14 J	13 R	4 J	190	6 U	4 J	5 U	6 U
Chloroform	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	4 J	6	6 U
1,2-Dichloroethane	ug/Kg	6 U J	8 U R	6 U	21	6 U	5 U	5 U	6 U
2-Butanone	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
1,1,1-Trichloroethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	3 J	5 U	6 U
Carbon Tetrachloride	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Vinyl Acetate	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Bromodichloromethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,2-Dichloropropane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
cis-1,3-Dichloropropene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Trichloroethene	ug/Kg	260 R	210 J	47	540 J	6 U	5 U	5 U	6 U
Dibromochloromethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,1,2-Trichloroethene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Benzene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
trans-1,3-Dichloropropene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Bromoform	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
4-Methyl-2-Pentanone	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
2-Hexanone	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Tetrachloroethene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	6	5 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Toluene	ug/Kg	5 J	3 R	6 U	17 U	6 U	5 U	5 U	6 U
Chlorobenzene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Ethylbenzene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Styrene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Xylene (total)	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID E(4) LAB ID UNITS	SOIL B-17 2-4 11/13/91 S1113-57 148929	SOIL B-17 2-4 11/13/91 S1113-57DL(5) 148929	SOIL B-17 4-6 11/13/91 S1113-58 148930	SOIL B-17 6-8 11/13/91 S1113-59 (2) 148931	SOIL B-18 0-2 11/13/91 S1113-60 148932	SOIL B-18 2-4 11/13/91 S1113-61 148933	SOIL B-18 4-6 11/13/91 S1113-62 148934	SOIL B-19 0-2 11/13/91 S1113-63 148935
SEMIVOLATILES									
Phenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
bis(2-Chloroethyl) ether	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Chlorophenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
1,3-Dichlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
1,4-Dichlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzyl Alcohol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
1,2-Dichlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Methylphenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
bis(2-Chloroisopropyl) ether	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Methylphenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
N-Nitroso-di-n-propylamine	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Hexachloroethane	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Nitrobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Isophorone	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Nitrophenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4-Dimethylphenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzoic acid	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
bis(2-Chloroethoxy) methane	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4-Dichlorophenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
1,2,4-Trichlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Naphthalene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Chloroaniline	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Hexachlorobutadiene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Chloro-3-methylphenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Methylnaphthalene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Hexachlorocyclopentadiene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4,6-Trichlorophenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4,5-Trichlorophenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
2-Chloronaphthalene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Nitroaniline	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
Dimethylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Acenaphthylene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,6-Dinitrotoluene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
3-Nitroaniline	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
Acenaphthene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4-Dinitrophenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
4-Nitrophenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
Dibenzofuran	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4-Dinitrotoluene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Diethylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Chlorophenyl-phenylether	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Fluorene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Nitroaniline	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
4,6-Dinitro-2-methylphenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
N-Nitrosodiphenylamine (1)	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Bromophenyl-phenylether	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Hexachlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Pentachlorophenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
Phenanthrene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Anthracene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Carbazole									
Di-n-butylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Fluoranthene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Pyrene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Butylbenzylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
3,3'-Dichlorobenzidine	ug/Kg	1600 U		1500 U	1400 U	1500 U	1500 U	1400 U	1600 U
Benzo(a)anthracene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Chrysene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
bis(2-Ethylhexyl)phthalate	ug/Kg	790 U		770 U	680 U	740 U	400 J	110 J	780 U
Di-n-octylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzo(b)fluoranthene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
benzo(k)fluoranthene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzo(a)pyrene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Indeno(1,2,3-cd)pyrene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Dibenz(a,h)anthracene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzo(g,h,i)perylene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND									
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-17	B-17	B-17	B-17	B-18	B-18	B-18	B-19
	DEPTH	2-4	2-4	4-6	6-8	0-2	2-4	4-6	0-2
	DATE	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91
	MAIN ID E(4)	S1113-57	S1113-57DL(5)	S1113-58	S1113-59 (2)	S1113-60	S1113-61	S1113-62	S1113-63
	LAB ID	148929	148929	148930	148931	148932	148933	148934	148935
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
beta-BHC	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
delta-BHC	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
gamma-BHC (Lindane)	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Heptachlor	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Aldrin	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Heptachlor epoxide	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Endosulfan I	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Dieldrin	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	36 U
4,4'-DDE	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	36 U
Endrin	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	36 U
Endosulfan II	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	36 U
4,4'-DDD	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	36 U
Endosulfan sulfate	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	36 U
4,4'-DDT	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	36 U
Methoxychlor	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Endrin ketone	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	36 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
gamma-Chlordane	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Toxaphene	ug/Kg	390 U		370 U	330 U	360 U	360 U	340 U	380 U
Aroclor-1016	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1221	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1232	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1242	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1248	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1254	ug/Kg	390 U		370 U	330 U	360 U	360 U	340 U	380 U
Aroclor-1260	ug/Kg	390 U		370 U	330 U	360 U	360 U	340 U	380 U
HERBICIDES									
2,4-D	ug/Kg	60 U J		60 U J	53 U J	56 U J	57 U J	53 U J	60 U J
2,4-DB	ug/Kg	60 U J		60 U J	53 U J	56 U J	57 U J	53 U J	60 U J
2,4,5-T	ug/Kg	6 U J		6 U J	5 U J	6 U J	6 U J	5 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J		6 U J	5 U J	6 U J	6 U J	5 U J	6 U J
Dalapon	ug/Kg	150 U J		140 U J	130 U J	140 U J	140 U J	130 U J	140 U J
Dicamba	ug/Kg	6 U J		6 U J	5 U J	6 U J	6 U J	5 U J	6 U J
Dichloroprop	ug/Kg	60 U J		60 U J	53 U J	56 U J	57 U J	53 U J	60 U J
Dinoseb	ug/Kg	30 U J		30 U J	26 U J	28 U J	29 U J	26 U J	30 U J
MCPA	ug/Kg	6000 U J		6000 U J	5300 U J	5600 U J	5700 U J	5300 U J	6000 U J
MCPP	ug/Kg	6000 U J		6000 U J	5300 U J	5600 U J	5700 U J	5300 U J	6000 U J
METALS									
Aluminum	mg/kg	18700		16800	15100	22600	21100	22300	16600
Antimony	mg/kg	10.3 U J		6.6 U J	10.6 U J	8 U J	6.8 U J	6.7 J	10.6 U J
Arsenic	mg/kg	5.5		4.6	4.6	5.1	5.6	6.5	5.9
Barium	mg/kg	157		73.5	40.1	85.8	59.9	59.7	89.9
Beryllium	mg/kg	1.1		0.88	0.81 J	1.1	0.95	1	1
Cadmium	mg/kg	3.7 J		2.9 J	3	4	4.1	4.2	3.7
Calcium	mg/kg	20500		13200	56100	6160	3100	30000	3440
Chromium	mg/kg	31.6		26.5	22.4	30.4	30.5	31.9	28
Cobalt	mg/kg	13.1		10.6	11.3	16	15.7	16.3	11
Copper	mg/kg	46.7		20.2	12.9	24.6 J	15.8 J	18.4 J	22.5 J
Iron	mg/kg	34600		30200	26700	34500	36700	37800	33300
Lead	mg/kg	108		12.6	5.2 J	8.9 J	4.6 J	4.9 J	13.7 J
Magnesium	mg/kg	9340		6270	6750	6440	7790	6260	5460
Manganese	mg/kg	1090		400	677	666	522	615	517
Mercury	mg/kg	0.11		0.05 U	0.04 U	0.06 J	0.04 U	0.04 U	0.05 J
Nickel	mg/kg	37.2		39.2	33.7	41.8	46.5	46.5	37.3
Potassium	mg/kg	2750		1610	1630	2870	1850	2450	1240
Selenium	mg/kg	0.34 U J		0.26 U J	0.31 U J	0.29 U J	0.32 U J	0.27 U J	0.29 U J
Silver	mg/kg	1.5 U J		0.99 U J	1.6 U	1.2 U	1.3 U	1.2 U	1.6 U
Sodium	mg/kg	78.9 U		50.7 U	242 J	105 J	99.9 J	176 J	65.7 J
Thallium	mg/kg	0.56 U		0.43 U	0.51 U	0.48 U	0.52 U	0.44 U	0.48 U
Vanadium	mg/kg	30.8		24.3	19.6	29	24.5	27	25
Zinc	mg/kg	1710		253	67.2	113	96.6	102	90.7
Cyanide	mg/kg	0.64 U		0.59 U	0.52 U	0.66 U	0.65 U	0.64 U	0.66 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-19	B-19	B-20	B-20	B-20	B-20	B-21	B-21
	DEPTH	2-4	4-6	0-2	2-4	2-4	4-6	0-2	2-4
	DATE	11/13/91	11/13/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91
	MAIN ID	S1113-64	S1113-65	S1114-66	S1114-67	S1114-67D	S1114-68	S1114-69	S1114-70
	LAB ID	148936	148937	149176	149177	149177	149178	149179	149180
	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Bromomethane	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Vinyl Chloride	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Chloroethane	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Methylene Chloride	ug/Kg	9 U	5 U	6 U	6 U		5 U	6 U	6 U
Acetone	ug/Kg	12 U	11 U	12 U	11 U		11 U	31 U	12 U
Carbon Disulfide	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,1-Dichloroethene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,1-Dichloroethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,2-Dichloroethene (total)	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Chloroform	ug/Kg	1 J	5 U	6 U	6 U		5 U	6 U	6 U
1,2-Dichloroethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
2-Butanone	ug/Kg	10 J	11 U	12 U	11 U		11 U	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Carbon Tetrachloride	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Vinyl Acetate	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Bromodichloromethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,2-Dichloropropane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
cis-1,3-Dichloropropene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Trichloroethene	ug/Kg	1 J	5 U	6 U	2 J		5 U	6 U	6 U
Dibromochloromethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,1,2-Trichloroethene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Benzene	ug/Kg	2 J	5 U	6 U	6 U		5 U	6 U	6 U
trans-1,3-Dichloropropene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Bromoform	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
2-Hexanone	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Tetrachloroethene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Toluene	ug/Kg	15	5 U	6 U	6 U		5 U	6 U	6 U
Chlorobenzene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Ethylbenzene	ug/Kg	4 J	5 U	6 U	6 U		5 U	6 U	6 U
Styrene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Xylene (total)	ug/Kg	16	5 U	6 U	6 U		5 U	6 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-19	B-19	B-20	B-20	B-20	B-20	B-21	B-21
	DEPTH	2-4	4-6	0-2	2-4	2-4	4-6	0-2	2-4
	DATE	11/13/91	11/13/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91
	MAIN ID	S1113-64	S1113-65	S1114-66	S1114-67	S1114-67D	S1114-68	S1114-69	S1114-70
	LAB ID	148936	148937	149176	149177	149177	149178	149179	149180
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
bis(2-Chloroethyl) ether	ug/Kg	9 J	760 U	780 U	750 U		740 U	780 U	770 U
2-Chlorophenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
1,3-Dichlorobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
1,4-Dichlorobenzene	ug/Kg	730 U	760 U	780 U	780 U		740 U	780 U	770 U
Benzyl Alcohol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
1,2-Dichlorobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2-Methylphenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
bis(2-Chloroisopropyl) ether	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Methylphenol	ug/Kg	730 U	760 U	780 U	780 U		740 U	780 U	770 U
N-Nitroso-di-n-propylamine	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Hexachloroethane	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Nitrobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Isophorone	ug/Kg	730 U	780 U	780 U	750 U		740 U	780 U	770 U
2-Nitrophenol	ug/Kg	730 U	780 U	780 U	750 U		740 U	780 U	770 U
2,4-Dimethylphenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Benzoic acid	ug/Kg	3600 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
bis(2-Chloroethoxy) methane	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,4-Dichlorophenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
1,2,4-Trichlorobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Naphthalene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Chloroaniline	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Hexachlorobutadiene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Chloro-3-methylphenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2-Methylnaphthalene	ug/Kg	88 J	760 U	780 U	750 U		740 U	780 U	770 U
Hexachlorocyclopentadiene	ug/Kg	730 U	760 U	780 U	780 U		740 U	780 U	770 U
2,4,6-Trichlorophenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,4,5-Trichlorophenol	ug/Kg	3600 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
2-Chloronaphthalene	ug/Kg	730 U	780 U	780 U	750 U		740 U	780 U	770 U
2-Nitroaniline	ug/Kg	3800 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
Dimethylphthalate	ug/Kg	730 U	780 U	780 U	750 U		740 U	780 U	770 U
Acenaphthylene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,6-Dinitrotoluene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
3-Nitroaniline	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
Acenaphthene	ug/Kg	6 J	760 U	780 U	750 U		740 U	220 J	770 U
2,4-Dinitrophenol	ug/Kg	3500 U	3700 U	3600 U	3600 U		3600 U	3800 U	3700 U
4-Nitrophenol	ug/Kg	3500 U	3700 U	3600 U	3600 U		3600 U	3800 U	3700 U
Dibenzofuran	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,4-Dinitrotoluene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Diethylphthalate	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Chlorophenyl-phenylether	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Fluorene	ug/Kg	730 U	760 U	780 U	750 U		740 U	160 J	770 U
4-Nitroaniline	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
4,6-Dinitro-2-methylphenol	ug/Kg	3600 U	3700 U	3600 U	3600 U		3600 U	3800 U	3700 U
N-Nitrosodiphenylamine (1)	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Bromophenyl-phenylether	ug/Kg	730 U	780 U	780 U	750 U		740 U	780 U	770 U
Hexachlorobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Pentachlorophenol	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
Phenanthrene	ug/Kg	730 U	760 U	290 J	750 U		740 U	1700	770 U
Anthracene	ug/Kg	730 U	760 U	84 J	750 U		740 U	460 J	770 U
Carbazole									
Di-n-butylphthalate	ug/Kg	730 U	760 U	88 J	750 U		740 U	780 U	770 U
Fluoranthene	ug/Kg	730 U	760 U	270 J	750 U		740 U	2000	770 U
Pyrene	ug/Kg	730 U	760 U	300 J	750 U		740 U	2100	770 U
Butylbenzylphthalate	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
3,3'-Dichlorobenzidine	ug/Kg	1500 U	1500 U	1600 U	1500 U		1500 U	1600 U	1500 U
Benzo(a)anthracene	ug/Kg	730 U	760 U	150 J	750 U		740 U	830	770 U
Chrysene	ug/Kg	730 U	760 U	160 J	750 U		740 U	880	770 U
bis(2-Ethylhexyl)phthalate	ug/Kg	730 U	88 J	780 U	750 U		740 U	630 J	770 U
Di-n-octylphthalate	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Benzo(b)fluoranthene	ug/Kg	730 U	760 U	93 J	750 U		740 U	670 J	770 U
benzo(k)fluoranthene	ug/Kg	730 U	760 U	160 J	750 U		740 U	700 J	770 U
Benzo(a)pyrene	ug/Kg	730 U	760 U	120 J	750 U		740 U	760 J	770 U
Indeno(1,2,3-cd)pyrene	ug/Kg	730 U	760 U	780 U	750 U		740 U	350 J	770 U
Dibenz(a,h)anthracene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Benzo(g,h,i)perylene	ug/Kg	730 U	760 U	760 U	750 U		740 U	370 J	770 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-19	B-19	B-20	B-20	B-20	B-20	B-21	B-21
	DEPTH	2-4	4-6	0-2	2-4	2-4	4-6	0-2	2-4
	DATE	11/13/91	11/13/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91
	MAIN ID	S1113-64	S1113-65	S1114-66	S1114-67	S1114-67D	S1114-68	S1114-69	S1114-70
	LAB ID	148936	148937	149176	149177	149177	149178	149179	149180
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
beta-BHC	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
delta-BHC	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
gamma-BHC (Lindane)	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Heptachlor	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Aldrin	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Heptachlor epoxide	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Endosulfan I	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Dieldrin	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
4,4'-DDE	ug/Kg	35 U	37 U	26 J	190 R	140 J	18 J	38 U	37 U
Endrin	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
Endosulfan II	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
4,4'-DDD	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
Endosulfan sulfate	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
4,4'-DDT	ug/Kg	35 U	37 U	36 U	29 J	180 U R	36 U	38 U	37 U
Methoxychlor	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Endrin ketone	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
gamma-Chlordane	ug/Kg	180 U	180 U	180 U	180 U	900 U R	180 U	190 U	190 U
Toxaphene	ug/Kg	350 U	370 U	380 U	360 U	1800 U R	360 U	380 U	370 U
Aroclor-1016	ug/Kg	180 U	190 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1221	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1232	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1242	ug/Kg	180 U	180 U	190 U	180 U	800 U R	180 U	190 U	190 U
Aroclor-1248	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1254	ug/Kg	350 U	370 U	380 U	360 U	1800 U R	360 U	380 U	370 U
Aroclor-1260	ug/Kg	350 U	370 U	380 U	360 U	1800 U R	360 U	380 U	370 U
HERBICIDES									
2,4-D	ug/Kg	56 U J	59 U J	60 U J	57 U J		56 U J	58 U J	57 U J
2,4-DB	ug/Kg	56 U J	59 U J	60 U J	57 U J		56 U J	58 U J	57 U J
2,4,5-T	ug/Kg	6 U J	6 U J	6 U J	6 U J		6 U J	6 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J	6 U J	6 U J	6 U J		6 U J	6 U J	6 U J
Dalapon	ug/Kg	140 U J	140 U J	140 U J	140 U J		130 U J	140 U J	140 U J
Dicamba	ug/Kg	6 U J	6 U J	6 U J	6 U J		6 U J	6 U J	6 U J
Dichloroprop	ug/Kg	56 U J	59 U J	60 U J	57 U J		56 U J	58 U J	57 U J
Dinoseb	ug/Kg	28 U J	29 U J	30 U J	29 U J		28 U J	29 U J	29 U J
MCPA	ug/Kg	5600 U J	5900 U J	6000 U J	5700 U J		5600 U J	5800 U J	5700 U J
MCPP	ug/Kg	5600 U J	5900 U J	6000 U J	5700 U J		5600 U J	5800 U J	5700 U J
METALS									
Aluminum	mg/kg	21800	19500	13200	20300		19900	19400	21300
Antimony	mg/kg	11 U J	10.3 U J	10.6 U J	10.6 U J		7.5 U J	9.8 U J	7.6 U J
Arsenic	mg/kg	4.8	5.2	4.9	4.5		4	4.8	4.8
Barium	mg/kg	81.7	90.7	74.6	90.7		62.8	110	75.9
Beryllium	mg/kg	1.1	1	0.8 J	1.1		1	0.99	1.1
Cadmium	mg/kg	4	3.6	2.6	4		4	3.3	4.6
Calcium	mg/kg	9750	18000	123000	32500		35500	38300	7850
Chromium	mg/kg	34.8	29.8	17.5	29.6		29.8	26	33.4
Cobalt	mg/kg	16.9	16.5	6.9 J	15.5		14.3	13.9	17.6
Copper	mg/kg	18.3 J	22.8 J	26.5 J	26.1 J		19.6 J	26 J	21.8 J
Iron	mg/kg	40300	38300	19900	36800		35500	31600	41500
Lead	mg/kg	7.4 J	6.6 J	18.4	26.3		6.2 J	15.7	8.2 J
Magnesium	mg/kg	8050	6890	24100	8010		7890	9500	7720
Manganese	mg/kg	918	947	681	1080		920	1460	924
Mercury	mg/kg	0.04 U	0.07 J	0.05 J	0.04 U		0.05 U	0.31	0.04 U
Nickel	mg/kg	53.2	45.7	20.1	43.6		43.5	41.1	52.2
Potassium	mg/kg	2110	1860	2050	2310		2070	2300	1630
Selenium	mg/kg	0.36 U J	0.29 U J	0.37 U J	0.23 U J		0.26 U J	0.32 U J	0.34 U J
Silver	mg/kg	1.6 U	1.5 U	1.6 U	1.6 U		1.1 U	1.5 U	1.1 U
Sodium	mg/kg	122 J	126 J	150 J	115 J		162 J	133 J	101 J
Thallium	mg/kg	0.6 U	0.48 U	0.61 U	0.38 U		0.45 U	0.53 U	0.56 U
Vanadium	mg/kg	27.2	26.3	22.2	29.3		24.8	27.9	26.4
Zinc	mg/kg	86.1	88.9	130	273		104	335	92.2
Cyanide	mg/kg	0.64 U	0.68 U	0.67 U	0.63		0.63 U	0.56 U	0.67 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-21	B-21	B-22	B-22	B-22	B-23	B-23	B-23	B-24
	DEPTH	2-4	4-6	0-2	2-4	4-6	0-2	2-4	4-6	0-2
	DATE	11/14/91	11/14/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/03/91
	MAIN ID	S1114-71(1)	S1114-72	S1202-73 (3)	S1202-74 (4)	S1202-75(:	S1202-76	S1202-77	S1202-78	S1203-79(3)
	LAB ID	149181	149182	150016	150017	150018	150019	150020	150021	150022
COMPOUND	UNITS									
VOCs										
Chloromethane	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Bromomethane	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Vinyl Chloride	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Chloroethane	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Methylene Chloride	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Acetone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	13 U	12 U	13 U
Carbon Disulfide	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,1-Dichloroethene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,1-Dichloroethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloroethene (total)	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Chloroform	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloroethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
2-Butanone	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
1,1,1-Trichloroethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Carbon Tetrachloride	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Vinyl Acetate	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Bromodichloromethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloropropane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
cis-1,3-Dichloropropene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Trichloroethene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Dibromochloromethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,1,2-Trichloroethene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Benzene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
trans-1,3-Dichloropropene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Bromoform	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
2-Hexanone	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Tetrachloroethene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Toluene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Chlorobenzene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Ethylbenzene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Styrene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Xylene (total)	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-21	B-21	B-22	B-22	B-22	B-23	B-23	B-23	B-24
	DEPTH	2-4	4-6	0-2	2-4	4-6	0-2	2-4	4-6	0-2
	DATE	11/14/91	11/14/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/03/91
	MAIN ID	S1114-71(1)	S1114-72	S1202-73 (3)	S1202-74 (4)	S1202-75(:	S1202-76	S1202-77	S1202-76	S1203-79(3)
	LAB ID	149161	149162	150016	150017	150018	150019	150020	150021	150022
COMPOUND	UNITS									
SEMIVOLATILES										
Phenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
bis(2-Chloroethyl) ether	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Chlorophenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
1,3-Dichlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
1,4-Dichlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzyl Alcohol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
1,2-Dichlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Methylphenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
bis(2-Chloroisopropyl) ether	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Methylphenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
N-Nitroso-di-n-propylamine	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Hexachloroethane	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Nitrobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Isophorone	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Nitrophenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4-Dimethylphenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzoic acid	ug/Kg	3600 U		3600 U	3500 U		3800 U	3600 U	3600 U	4400 U
bis(2-Chloroethoxy) methane	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4-Dichlorophenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
1,2,4-Trichlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Naphthalene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Chloroaniline	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Hexachlorobutadiene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Chloro-3-methylphenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Methylnaphthalene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Hexachlorocyclopentadiene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4,6-Trichlorophenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4,5-Trichlorophenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
2-Chloronaphthalene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Nitroaniline	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
Dimethylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Acenaphthylene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,6-Dinitrotoluene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
3-Nitroaniline	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
Acenaphthene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4-Dinitrophenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
4-Nitrophenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
Dibenzofuran	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4-Dinitrotoluene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Diethylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Chlorophenyl-phenylether	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Fluorene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Nitroaniline	ug/Kg	3600 U		3600 U	3500 U		3800 U	3600 U	3600 U	4400 U
4,6-Dinitro-2-methylphenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
N-Nitrosodiphenylamine (1)	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Bromophenyl-phenylether	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Hexachlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Pentachlorophenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
Phenanthrene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Anthracene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Carbazole										
Di-n-butylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Fluoranthene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Pyrene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Butylbenzylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
3,3'-Dichlorobenzidine	ug/Kg	1500 U		1600 U	1400 U		1600 U	1500 U	1500 U	1800 U
Benzo(a)anthracene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Chrysene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
bis(2-Ethylhexyl)phthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Di-n-octylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzo(b)fluoranthene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
benzo(k)fluoranthene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzo(a)pyrene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Indeno(1,2,3-cd)pyrene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Dibenz(a,h)anthracene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzo(g,h,i)perylene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-21	B-21	B-22	B-22	B-22	B-23	B-23	B-23	B-24
	DEPTH	2-4	4-6	0-2	2-4	4-6	0-2	2-4	4-6	0-2
	DATE	11/14/91	11/14/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/03/91
	MAIN ID	S1114-71(1)	S1114-72	S1202-73 (3)	S1202-74 (4)	S1202-75(:	S1202-76	S1202-77	S1202-78	S1203-79(3)
	LAB ID	149161	149162	150016	150017	150018	150019	150020	150021	150022
COMPOUND	UNITS									
PESTICIDES/PCBs										
alpha-BHC	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
beta-BHC	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
delta-BHC	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
gamma-BHC (Lindane)	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Heptachlor	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Aldrin	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Heptachlor epoxide	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Endosulfan I	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Dieldrin	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
4,4'-DDE	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
Endrin	ug/Kg	36 U		36 U	35 U		38 U	36 U	36 U	44 U
Endosulfan II	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
4,4'-DDD	ug/Kg	36 U		38 U	35 U		36 U	36 U	36 U	44 U
Endosulfan sulfate	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
4,4'-DDT	ug/Kg	36 U		36 U	35 U		38 U	36 U	36 U	44 U
Methoxychlor	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Endrin ketone	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
Endrin aldehyde										
alpha-Chlordane	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
gamma-Chlordane	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Toxaphene	ug/Kg	360 U		380 U	380 U		380 U	360 U	360 U	440 U
Aroclor-1016	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1221	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1232	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1242	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1248	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1254	ug/Kg	360 U		380 U	350 U		380 U	360 U	360 U	440 U
Aroclor-1260	ug/Kg	360 U		380 U	350 U		380 U	360 U	360 U	440 U
HERBICIDES										
2,4-D	ug/Kg	57 U J		60 U J	54 U J		60 U J	56 U J	56 U J	68 U J
2,4-DB	ug/Kg	57 U J		60 U J	54 U J		60 U J	56 U J	56 U J	68 U J
2,4,5-T	ug/Kg	6 U J		6 U J	5 U J		6 U J	6 U J	6 U J	7 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J		6 U J	6 U J		6 U J	6 U J	6 U J	7 U J
Dalapon	ug/Kg	140 U J		150 U J	130 U J		140 U J	130 U J	130 U J	160 U J
Dicamba	ug/Kg	6 U J		6 U J	5 U J		6 U J	6 U J	6 U J	7 U J
Dichloroprop	ug/Kg	57 U J		60 U J	54 U J		60 U J	56 U J	56 U J	68 U J
Dinoseb	ug/Kg	28 U J		30 U J	27 U J		30 U J	28 U J	28 U J	34 U J
MCPA	ug/Kg	5700 U J		6000 U J	5400 U J		6000 U J	5600 U J	5600 U J	6800 U J
MCPP	ug/Kg	5700 U J		6000 U J	5400 U J		6000 U J	5600 U J	5600 U J	6800 U J
METALS										
Aluminum	mg/kg	21400		18400	16500		15700	18700	18100	21700
Antimony	mg/kg	9 U J		9.2 U J	10.5 U J		10.2 U J	9.8 U J	10.5 U J	12.3 U J
Arsenic	mg/kg	4.9		7.6 J	4.6 J		3.6 J	5.5 J	5.2 J	6.1 J
Barium	mg/kg	74.7		107	70		96.2	69	67	166
Beryllium	mg/kg	1.1		1.1	0.9 J		0.96	1.1	0.96	1.3
Cadmium	mg/kg	4.2		1.8	2.5		2.1	2.4	2.6	2.7
Calcium	mg/kg	9720		3270	10600		1960	6970	11400	5440
Chromium	mg/kg	33.9		27.4	29.4		22.6	31.1	31.7	29.6
Cobalt	mg/kg	19		11.5	16.2		11.5	16.1	16.2	13.9
Copper	mg/kg	20.3 J		21.4	22.8		18.4	22.7	21.3	32
Iron	mg/kg	38900		32000	37300		27800	36000	39400	33500
Lead	mg/kg	7.6 J		13.6 R	4.5 R		8.4 R	8 R	4.1 R	15.5 R
Magnesium	mg/kg	7540		5470	7570		4150	7830	8620	5710
Manganese	mg/kg	634		578	848		632	577	733	1420
Mercury	mg/kg	0.03 U		0.04 U	0.07 J		0.04 U	0.07 J	0.07 J	0.1 J
Nickel	mg/kg	51.3		34.5	48.8		20.9	43.8	48.1	38.5
Potassium	mg/kg	1940		1970	1470		1530	1920	1580	2790
Selenium	mg/kg	0.32 U J		0.21 U J	0.19 U J		0.19 U J	0.15 U J	0.16 U J	0.27 U J
Silver	mg/kg	1.3 U		1.5 J	1.7 U		1.7 U	1.6 U	1.7 U	2 U
Sodium	mg/kg	111 J		53 U	63.2 J		59.3 U	56.9 U	60.7 U	71.1 U
Thallium	mg/kg	0.52 U		0.59 U J	0.53 U J		0.53 U J	0.42 U J	0.46 U J	0.74 U J
Vanadium	mg/kg	26.3		26.2	21		27.4	25.4	27.2	33.6
Zinc	mg/kg	64		76.4	74.5		56	79.6	102	107
Cyanide	mg/kg	0.68 U		0.72 U	0.65 U		0.7 U	0.67 U	0.65 U	0.79 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-24	B-24	B-25	B-25	B-25	B-25	B-27	B-27
	DEPTH	2-4	4-6	0-2	2-4	4-6	4-6	0-2	2-4
	DATE	12/03/91	12/03/91	12/03/91	12/03/91	12/03/91	12/03/91	12/04/91	12/04/91
	MAIN ID	S1203-80 (3)	S1203-81 (3)	S1203-82	S1203-83	S1203-84	S1203-84RE (4)	S1204-86 (2,3)	S1204-87 (3)
	LAB ID	150023	150024	150025	150026	150027	150027	150235	150236
	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Bromomethane	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Vinyl Chloride	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Chloroethane	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Methylene Chloride	ug/Kg	5 U	5 U	6 U	6 U	5 U	6 U J	6 U	6 U
Acetone	ug/Kg	11 U	11 U	13 U	12 U	11 U	12 U J	12 U	12 U
Carbon Disulfide	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,1-Dichloroethene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,1-Dichloroethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,2-Dichloroethene (total)	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	100	250
Chloroform	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,2-Dichloroethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
2-Butanone	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Carbon Tetrachloride	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Vinyl Acetate	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Bromodichloromethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,2-Dichloropropane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
cis-1,3-Dichloropropene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Trichloroethene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	10	13
Dibromochloromethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,1,2-Trichloroethene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Benzene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
trans-1,3-Dichloropropene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Bromoform	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
2-Hexanone	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Tetrachloroethene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	4 J	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Toluene	ug/Kg	5 U	5 U	6 U	6 U	1 J	1 J	6 U	6 U
Chlorobenzene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Ethylbenzene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Styrene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Xylene (total)	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL B-24 2-4 12/03/91 S1203-80 (3) 150023	SOIL B-24 4-6 12/03/91 S1203-81 (3) 150024	SOIL B-25 0-2 12/03/91 S1203-82 150025	SOIL B-25 2-4 12/03/91 S1203-83 150026	SOIL B-25 4-6 12/03/91 S1203-84 150027	SOIL B-25 4-6 12/03/91 S1203-84RE(4) 150027	SOIL B-27 0-2 12/04/91 S1204-86(2,3) 150235	SOIL B-27 2-4 12/04/91 S1204-87 (3) 150236
SEMIVOLATILES									
Phenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
bis(2-Chloroethyl) ether	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Chlorophenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
1,3-Dichlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
1,4-Dichlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzyl Alcohol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
1,2-Dichlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Methylphenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
bis(2-Chloroisopropyl) ether	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Methylphenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
N-Nitroso-di-n-propylamine	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Hexachloroethane	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Nitrobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Isophorone	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Nitrophenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4-Dimethylphenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzoic acid	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
bis(2-Chloroethoxy) methane	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4-Dichlorophenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
1,2,4-Trichlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Naphthalene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Chloroaniline	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Hexachlorobutadiene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Chloro-3-methylphenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Methylnaphthalene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Hexachlorocyclopentadiene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4,6-Trichlorophenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4,5-Trichlorophenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
2-Chloronaphthalene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Nitroaniline	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
Dimethylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Acenaphthylene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,6-Dinitrotoluene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
3-Nitroaniline	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
Acenaphthene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4-Dinitrophenol	ug/Kg	3500 U	3400 U	4300 U	3800 U	3400 U		4100 U	3800 U
4-Nitrophenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
Dibenzofuran	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4-Dinitrotoluene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Diethylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Chlorophenyl-phenylether	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Fluorene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Nitroaniline	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
4,6-Dinitro-2-methylphenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
N-Nitrosodiphenylamine (1)	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Bromophenyl-phenylether	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Hexachlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Pentachlorophenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
Phenanthrene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Anthracene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Carbazole									
Di-n-butylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Fluoranthene	ug/Kg	720 U	700 U	880 U	730 U	710 U		110 J	780 U
Pyrene	ug/Kg	720 U	700 U	880 U	730 U	710 U		90 J	780 U
Butylbenzylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
3,3'-Dichlorobenzidine	ug/Kg	1400 U	1400 U	1800 U	1500 U	1400 U		1700 U	1600 U
Benzo(a)anthracene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Chrysene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
bis(2-Ethylhexyl)phthalate	ug/Kg	720 U	700 U	880 U	730 U	510 J		840 U	780 U
Di-n-octylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzo(b)fluoranthene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
benzo(k)fluoranthene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzo(a)pyrene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Indeno(1,2,3-cd)pyrene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Dibenz(a,h)anthracene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzo(g,h,i)perylene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-24	B-24	B-25	B-25	B-25	B-25	B-27	B-27
	DEPTH	2-4	4-6	0-2	2-4	4-6	4-6	0-2	2-4
	DATE	12/03/91	12/03/91	12/03/91	12/03/91	12/03/91	12/03/91	12/04/91	12/04/91
	MAIN ID	S1203-80 (3)	S1203-81 (3)	S1203-82	S1203-83	S1203-84	S1203-84RE(4)	S1204-86(2,3)	S1204-87 (3)
	LAB ID	150023	150024	150025	150026	150027	150027	150235	150236
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
beta-BHC	ug/Kg	17 U	17 U	21 U	16 U	17 U		20 U	19 U
delta-BHC	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
gamma-BHC (Lindane)	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Heptachlor	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Aldrin	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Heptachlor epoxide	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Endosulfan I	ug/Kg	17 U	17 U	21 U	16 U	17 U		20 U	19 U
Dieldrin	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	36 U
4,4'-DDE	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Endrin	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Endosulfan II	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	36 U
4,4'-DDD	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Endosulfan sulfate	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
4,4'-DDT	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Methoxychlor	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Endrin ketone	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
gamma-Chlordane	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Toxaphene	ug/Kg	340 U	340 U	430 U	360 U	340 U		410 U	380 U
Aroclor-1016	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1221	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1232	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1242	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1248	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1254	ug/Kg	340 U	340 U	430 U	360 U	340 U		410 U	380 U
Aroclor-1260	ug/Kg	340 U	340 U	430 U	360 U	340 U		410 U	380 U
HERBICIDES									
2,4-D	ug/Kg	55 U J	53 U J	66 U J	55 U J	53 U J		63 U J	59 U J
2,4-DB	ug/Kg	55 U J	53 U J	66 U J	55 U J	53 U J		63 U J	59 U J
2,4,5-T	ug/Kg	5 U J	5 U J	7 U J	6 U J	5 U J		6 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	5 U J	5 U J	7 U J	6 U J	5 U J		6 U J	6 U J
Dalapon	ug/Kg	130 U J	130 U J	160 U J	130 U J	130 U J		150 U J	140 U J
Dicamba	ug/Kg	5 U J	5 U J	7 U J	6 U J	5 U J		6 U J	6 U J
Dichloroprop	ug/Kg	55 U J	53 U J	66 U J	55 U J	53 U J		63 U J	59 U J
Dinoseb	ug/Kg	27 U J	27 U J	33 U J	28 U J	27 U J		32 U J	30 U J
MCPA	ug/Kg	5500 U J	5300 U J	6600 U J	5500 U J	5300 U J		6300 U J	5900 U J
MCPP	ug/Kg	5500 U J	5300 U J	6600 U J	5500 U J	5300 U J		6300 U J	5900 U J
METALS									
Aluminum	mg/kg	14200	17200	16300	18200	19800		14600	17800
Antimony	mg/kg	9.2 U J	9.8 U J	12.4 U J	7.5 U J	11.7 U J		12.4 U J	6.4 U J
Arsenic	mg/kg	5.2	3.1 J	5 J	6.2 J	3.5 J		5.5 J	4.6 J
Barium	mg/kg	59.8	67.6	104	68.6	54.9		114	98.7
Beryllium	mg/kg	0.82 J	1	0.99 J	0.86	1.2		0.89 R	1 R
Cadmium	mg/kg	2.1	2.2	2.3	2.3	2.7		1.8	2.4
Calcium	mg/kg	92200	33900	3970	18900	33200		4570	4930
Chromium	mg/kg	24.2	29.3	25.6	28.5	34.5		22.4	28
Cobalt	mg/kg	12	15.4	12.9	16	19.7		8.1 J	16
Copper	mg/kg	19.5	22.5	25.8	26.3	17.5		29.9	19.7
Iron	mg/kg	30800	36100	31200	35600	41100		23200	36100
Lead	mg/kg	6.1 R	3.7 R	14 R	7.4 R	3.5 R		33.2	12 R
Magnesium	mg/kg	6340	8170	5190	6950	9190		4000	6170
Manganese	mg/kg	622	920	653	700	1030		526	1120
Mercury	mg/kg	0.04 U	0.04 J	0.08 J	0.04 U	0.04 U		0.09 J	0.04 J
Nickel	mg/kg	38.1	43.8	31.4	45.8	54.6		25.3	39.5
Potassium	mg/kg	1580	2190	2130	1550	1860		1850	1920
Selenium	mg/kg	0.21 U J	0.18 U J	0.18 U J	0.15 U J	0.18 U J		0.22 U J	0.14 U J
Silver	mg/kg	1.5 U	1.6 U	2 U	1.2 U	1.9 U		2 U	1.4 U
Sodium	mg/kg	104 J	106 J	72 U	55.4 J	106 J		71.7 U	46.5 U
Thallium	mg/kg	0.6 U J	0.51 U J	0.5 U J	0.42 U J	0.5 U J		0.61 U J	0.39 U J
Vanadium	mg/kg	22	24.5	26.8	23.3	28.5		25.6	28
Zinc	mg/kg	69.8	88.6	93.2	99	66.9		284	84.4
Cyanide	mg/kg	0.63 U	0.59 U	0.76 U	0.6 U	0.62 U		0.6 U	0.61 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-28	B-28	B-28	B-28	B-28	B-28	B-28	B-29
	DEPTH	0-2	2-4	2-4	2-4	2-4	4-6	4-6	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-88 (3)	S1204-89	S1204-89A(1)	S1204-89ARE(4)	S1204-89DL(5)	S1204-90(3)	S1204-90RE(4)	S1204-91
	LAB ID	150237	150238	150240	150240	150238	150241	150241	150242
	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Bromomethane	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Vinyl Chloride	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Chloroethane	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Methylene Chloride	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Acetone	ug/Kg	12 U	39 U	56 J		59 U	1400 U		12 U
Carbon Disulfide	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,1-Dichloroethene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,1-Dichloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,2-Dichloroethene (total)	ug/Kg	160	2500 J	1600		440	20000		76
Chloroform	ug/Kg	6 U	20 U	28 U		32	690 U		6 U
1,2-Dichloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
2-Butanone	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
1,1,1-Trichloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Carbon Tetrachloride	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Vinyl Acetate	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Bromodichloromethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,2-Dichloropropane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
cis-1,3-Dichloropropene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Trichloroethene	ug/Kg	16	83	74		31	2600		49
Dibromochloromethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,1,2-Trichloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Benzene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
trans-1,3-Dichloropropene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Bromoform	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
4-Methyl-2-Pentanone	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
2-Hexanone	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Tetrachloroethene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Toluene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Chlorobenzene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Ethylbenzene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Styrene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Xylene (total)	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-28	B-28	B-28	B-28	B-28	B-28	B-28	B-29
	DEPTH	0-2	2-4	2-4	2-4	2-4	4-6	4-6	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-88 (3)	S1204-89	S1204-89A(1)	S1204-89ARE(4)	S1204-89DL(5)	S1204-90(3)	S1204-90RE(4)	S1204-91
	LAB ID	150237	150238	150240	150240	150238	150241	150241	150242
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
bis(2-Chloroethyl) ether	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Chlorophenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
1,3-Dichlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
1,4-Dichlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzyl Alcohol	ug/Kg	710 U	760 U	760 U			730 U		790 U
1,2-Dichlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Methylphenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
bis(2-Chloroisopropyl) ether	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Methylphenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
N-Nitroso-di-n-propylamine	ug/Kg	710 U	760 U	760 U			730 U		790 U
Hexachloroethane	ug/Kg	710 U	760 U	760 U			730 U		790 U
Nitrobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Isophorone	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Nitrophenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4-Dimethylphenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzoic acid	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
bis(2-Chloroethoxy) methane	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4-Dichlorophenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
1,2,4-Trichlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Naphthalene	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Chloroaniline	ug/Kg	710 U	760 U	760 U			730 U		790 U
Hexachlorobutadiene	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Chloro-3-methylphenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Methylnaphthalene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Hexachlorocyclopentadiene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4,6-Trichlorophenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4,5-Trichlorophenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
2-Chloronaphthalene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Nitroaniline	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
Dimethylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
Acenaphthylene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,6-Dinitrotoluene	ug/Kg	710 U	760 U	760 U			730 U		790 U
3-Nitroaniline	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
Acenaphthene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4-Dinitrophenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
4-Nitrophenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
Dibenzofuran	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4-Dinitrotoluene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Diethylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Chlorophenyl-phenylether	ug/Kg	710 U	760 U	760 U			730 U		790 U
Fluorene	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Nitroaniline	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
4,6-Dinitro-2-methylphenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
N-Nitrosodiphenylamine (1)	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Bromophenyl-phenylether	ug/Kg	710 U	760 U	760 U			730 U		790 U
Hexachlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Pentachlorophenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
Phenanthrene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Anthracene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Carbazole									
Di-n-butylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
Fluoranthene	ug/Kg	710 U	760 U	760 U			730 U		72 J
Pyrene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Butylbenzylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
3,3'-Dichlorobenzidine	ug/Kg	1400 U	1500 U	1500 U			1500 U		1600 U
Benzo(a)anthracene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Chrysene	ug/Kg	710 U	760 U	760 U			730 U		790 U
bis(2-Ethylhexyl)phthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
Di-n-octylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzo(b)fluoranthene	ug/Kg	710 U	760 U	760 U			730 U		790 U
benzo(k)fluoranthene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzo(a)pyrene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Indeno(1,2,3-cd)pyrene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Dibenz(a,h)anthracene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzo(g,h,i)perylene	ug/Kg	710 U	760 U	760 U			730 U		790 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-26	B-28	B-28	B-28	B-28	B-28	B-28	B-29
	DEPTH	0-2	2-4	2-4	2-4	2-4	4-6	4-6	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-88 (3)	S1204-89	S1204-89A(1)	S1204-89ARE(4)	S1204-89DL(5)	S1204-90(3)	S1204-90RE(4)	S1204-91
	LAB ID	150237	150238	150240	150240	150238	150241	150241	150242
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
beta-BHC	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
delta-BHC	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
gamma-BHC (Lindane)	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Heptachlor	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Aldrin	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Heptachlor epoxide	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Endosulfan I	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Dieldrin	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
4,4'-DDE	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Endrin	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Endosulfan II	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
4,4'-DDD	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Endosulfan sulfate	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
4,4'-DDT	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Methoxychlor	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Endrin ketone	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
gamma-Chlordane	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Toxaphene	ug/Kg	350 U	370 U	370 U	370 U J		350 U	350 U J	380 U
Aroclor-1016	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1221	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1232	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1242	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1248	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1254	ug/Kg	350 U	370 U	370 U	370 U J		350 U	350 U J	380 U
Aroclor-1260	ug/Kg	350 U	370 U	370 U	370 U J		390	230 J	380 U
HERBICIDES									
2,4-D	ug/Kg	54 U J	58 U J	59 U			55 U		61 U
2,4-DB	ug/Kg	54 U J	58 U J	59 U			55 U		61 U
2,4,5-T	ug/Kg	5 U J	6 U J	5.9 U			5.5 U		6.1 U
2,4,5-TP (Silvex)	ug/Kg	5 U J	6 U J	5.9 U			5.5 U		6.1 U
Dalapon	ug/Kg	130 U J	140 U J	140 U			130 U		150 U
Dicamba	ug/Kg	5 U J	6 U J	5.9 U			5.5 U		6.1 U
Dichloroprop	ug/Kg	54 U J	58 U J	59 U			55 U		61 U
Dinoseb	ug/Kg	27 U J	29 U J	29 U			28 U		30 U
MCPA	ug/Kg	5400 U J	5800 U J	5900 U			5500 U		6100 U
MCPP	ug/Kg	5400 U J	5800 U J	5900 U			5500 U		6100 U
METALS									
Aluminum	mg/kg	14500	15600	20100			19200		19100
Antimony	mg/kg	12.1 U J	7.6 U J	8.8 U J			8.9 U J		11.2 U J
Arsenic	mg/kg	3.9 J	6.3 J	6.1			4.5		5.1
Barium	mg/kg	94.7	69.5	71.5			50.4		144
Beryllium	mg/kg	0.88 R	0.94 R	1 R			0.99 R		1.2 R
Cadmium	mg/kg	2.6	2.4	4.1			3.9		3.8
Calcium	mg/kg	3540	2870	3010 J			10900 J		5110 J
Chromium	mg/kg	21.5	26.3	30.5			29		26.6
Cobalt	mg/kg	14.3	16.7	17.7			14.4		13.9
Copper	mg/kg	23.2	24.6	25.6			13.6		28.9
Iron	mg/kg	26200	35600	44000			40900		32000
Lead	mg/kg	16	6.1 R	12.4 J			5.5 J		12.6 J
Magnesium	mg/kg	4240	6370	7500			7720		5300
Manganese	mg/kg	1290	1070	938			646		1700
Mercury	mg/kg	0.05 J	0.04 U	0.04 U			0.03 U		0.07 J
Nickel	mg/kg	28.3	43.1	48.2			46.9		35.3
Potassium	mg/kg	1590	1550	1980			1700		2460
Selenium	mg/kg	0.14 U J	0.22 U J	0.19 U J			0.14 U J		0.13 U J
Silver	mg/kg	2 U	1.2 U	0.43 U			0.56 U		1.1 J
Sodium	mg/kg	69.9 U	44.2 U	63.1 J			84.3 J		66 J
Thallium	mg/kg	0.39 U J	0.61 U J	0.54 U			0.39 U		0.37 U
Vanadium	mg/kg	19.1	22.4	28			23.7		32.6
Zinc	mg/kg	131	136	168			112		101
Cyanide	mg/kg	0.65 U	0.65 U	0.62 U			0.62 U		0.71 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL / B-29 / 0-2 / 12/04/91 / S1204-91RE(4) / 150242	SOIL / B-29 / 0-2 / 12/04/91 / S1204-91A(1) / 150243	SOIL / B-29 / 0-2 / 12/04/91 / S1204-91ARE(1) / 150243	SOIL / B-29 / 0-2 / 12/04/91 / S1204-92 / 150244	SOIL / B-29 / 2-4 / 12/04/91 / S1204-92RE(4) / 150244	SOIL / B-29 / 4-6 / 12/04/91 / S1204-93 / 150245	SOIL / B-29 / 4-6 / 12/04/91 / S1204-93RE(4) / 150245	SOIL / B-29 / 4-6 / 12/04/91 / S1204-93A(1) / 150246
VOCs									
Chloromethane	ug/Kg		12 U		41 U		1400 U		1400 U
Bromomethane	ug/Kg		12 U		41 U		1400 U		1400 U
Vinyl Chloride	ug/Kg		12 U		41 U		1400 U		1400 U
Chloroethane	ug/Kg		12 U		41 U		1400 U		1400 U
Methylene Chloride	ug/Kg		6 U		21 U		680 U		700 U
Acetone	ug/Kg		12 U		42		1400 U		1400 U
Carbon Disulfide	ug/Kg		6 U		21 U		680 U		700 U
1,1-Dichloroethene	ug/Kg		6 U		21 U		680 U		700 U
1,1-Dichloroethane	ug/Kg		6 U		21 U		680 U		700 U
1,2-Dichloroethene (total)	ug/Kg		66		610		14000		11000
Chloroform	ug/Kg		6 U		21 U		680 U		700 U
1,2-Dichloroethane	ug/Kg		6 U		21 U		680 U		700 U
2-Butanone	ug/Kg		12 U		41 U		1400 U		1400 U
1,1,1-Trichloroethane	ug/Kg		6 U		21 U		680 U		700 U
Carbon Tetrachloride	ug/Kg		6 U		21 U		680 U		700 U
Vinyl Acetate	ug/Kg		12 U		41 U		1400 U		1400 U
Bromodichloromethane	ug/Kg		6 U		21 U		680 U		700 U
1,2-Dichloropropane	ug/Kg		6 U		21 U		680 U		700 U
cis-1,3-Dichloropropene	ug/Kg		6 U		21 U		880 U		700 U
Trichloroethene	ug/Kg		58		250		21000		17000
Dibromochloromethane	ug/Kg		6 U		21 U		680 U		700 U
1,1,2-Trichloroethane	ug/Kg		6 U		21 U		680 U		700 U
Benzene	ug/Kg		6 U		21 U		680 U		700 U
trans-1,3-Dichloropropene	ug/Kg		6 U		21 U		680 U		700 U
Bromoform	ug/Kg		6 U		21 U		680 U		700 U
4-Methyl-2-Pentanone	ug/Kg		12 U		41 U		1400 U		1400 U
2-Hexanone	ug/Kg		12 U		41 U		1400 U		1400 U
Tetrachloroethene	ug/Kg		6 U		21 U		680 U		700 U
1,1,2,2-Tetrachloroethane	ug/Kg		6 U		21 U		680 U		700 U
Toluene	ug/Kg		6 U		21 U		680 U		700 U
Chlorobenzene	ug/Kg		6 U		21 U		620 J		360 J
Ethylbenzene	ug/Kg		6 U		21 U		680 U		700 U
Styrene	ug/Kg		6 U		21 U		680 U		700 U
Xylene (total)	ug/Kg		6 U		21 U		880 U		700 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-29	B-29	B-29	B-29	B-29	B-29	B-29	B-29
	DEPTH	0-2	0-2	0-2	0-2	2-4	4-6	4-6	4-6
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-91RE(4)	S1204-91A(1)	S1204-91ARE(1)	S1204-92	S1204-92RE(4)	S1204-93	S1204-93RE(4)	S1204-93A(1)
	LAB ID	150242	150243	150243	150244	150244	150245	150245	150246
	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg		780 U		720 U		730 U		750 U
bis(2-Chloroethyl) ether	ug/Kg		780 U		720 U		730 U		750 U
2-Chlorophenol	ug/Kg		780 U		720 U		730 U		750 U
1,3-Dichlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
1,4-Dichlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
Benzyl Alcohol	ug/Kg		780 U		720 U		730 U		750 U
1,2-Dichlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
2-Methylphenol	ug/Kg		780 U		720 U		730 U		750 U
bis(2-Chloroisopropyl) ether	ug/Kg		780 U		720 U		730 U		750 U
4-Methylphenol	ug/Kg		780 U		720 U		730 U		750 U
N-Nitroso-di-n-propylamine	ug/Kg		780 U		720 U		730 U		750 U
Hexachloroethane	ug/Kg		780 U		720 U		730 U		750 U
Nitrobenzene	ug/Kg		780 U		720 U		730 U		750 U
Isophorone	ug/Kg		780 U		720 U		730 U		750 U
2-Nitrophenol	ug/Kg		780 U		720 U		730 U		750 U
2,4-Dimethylphenol	ug/Kg		780 U		720 U		730 U		750 U
Benzoic acid	ug/Kg		3800 U		3500 U		3500 U		3600 U
bis(2-Chloroethoxy) methane	ug/Kg		780 U		720 U		730 U		750 U
2,4-Dichlorophenol	ug/Kg		780 U		720 U		730 U		750 U
1,2,4-Trichlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
Naphthalene	ug/Kg		780 U		720 U		730 U		750 U
4-Chloroaniline	ug/Kg		780 U		720 U		730 U		750 U
Hexachlorobutadiene	ug/Kg		780 U		720 U		730 U		750 U
4-Chloro-3-methylphenol	ug/Kg		780 U		720 U		730 U		750 U
2-Methylnaphthalene	ug/Kg		780 U		720 U		730 U		750 U
Hexachlorocyclopentadiene	ug/Kg		780 U		720 U		730 U		750 U
2,4,6-Trichlorophenol	ug/Kg		780 U		720 U		730 U		750 U
2,4,5-Trichlorophenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
2-Chloronaphthalene	ug/Kg		780 U		720 U		730 U		750 U
2-Nitroaniline	ug/Kg		3800 U		3500 U		3500 U		3600 U
Dimethylphthalate	ug/Kg		780 U		720 U		730 U		750 U
Acenaphthylene	ug/Kg		780 U		720 U		730 U		750 U
2,6-Dinitrotoluene	ug/Kg		780 U		720 U		730 U		750 U
3-Nitroaniline	ug/Kg		3800 U		3500 U		3500 U		3600 U
Acenaphthene	ug/Kg		780 U		720 U		730 U		750 U
2,4-Dinitrophenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
4-Nitrophenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
Dibenzofuran	ug/Kg		780 U		720 U		730 U		750 U
2,4-Dinitrotoluene	ug/Kg		780 U		720 U		730 U		750 U
Diethylphthalate	ug/Kg		780 U		720 U		730 U		750 U
4-Chlorophenyl-phenylether	ug/Kg		780 U		720 U		730 U		750 U
Fluorene	ug/Kg		780 U		720 U		730 U		750 U
4-Nitroaniline	ug/Kg		3800 U		3500 U		3500 U		3600 U
4,6-Dinitro-2-methylphenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
N-Nitrosodiphenylamine (1)	ug/Kg		780 U		720 U		730 U		750 U
4-Bromophenyl-phenylether	ug/Kg		780 U		720 U		730 U		750 U
Hexachlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
Pentachlorophenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
Phenanthrene	ug/Kg		780 U		720 U		730 U		750 U
Anthracene	ug/Kg		780 U		720 U		730 U		750 U
Carbazole									
Di-n-butylphthalate	ug/Kg		780 U		720 U		730 U		750 U
Fluoranthene	ug/Kg		100 J		720 U		730 U		750 U
Pyrene	ug/Kg		120 J		720 U		730 U		750 U
Butylbenzylphthalate	ug/Kg		780 U		720 U		730 U		750 U
3,3'-Dichlorobenzidine	ug/Kg		780 U		1400 U		1500 U		1500 U
Benzo(a)anthracene	ug/Kg		160 J		720 U		730 U		750 U
Chrysene	ug/Kg		160 J		720 U		730 U		750 U
bis(2-Ethylhexyl)phthalate	ug/Kg		780 U		720 U		730 U		750 U
Di-n-octylphthalate	ug/Kg		780 U		720 U		730 U		750 U
Benzo(b)fluoranthene	ug/Kg		140 J		720 U		730 U		750 U
benzo(k)fluoranthene	ug/Kg		210 J		720 U		730 U		750 U
Benzo(a)pyrene	ug/Kg		190 J		720 U		730 U		750 U
Indeno(1,2,3-cd)pyrene	ug/Kg		780 U		720 U		730 U		750 U
Dibenz(a,h)anthracene	ug/Kg		780 U		720 U		730 U		750 U
Benzo(g,h,i)perylene	ug/Kg		780 U		720 U		730 U		750 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL B-29 0-2 12/04/91 S1204-91RE(4) 150242	SOIL B-29 0-2 12/04/91 S1204-91A(1) 150243	SOIL B-29 0-2 12/04/91 S1204-91ARE(1) 150243	SOIL B-29 0-2 12/04/91 S1204-92 150244	SOIL B-29 2-4 12/04/91 S1204-92RE(4) 150244	SOIL B-29 4-6 12/04/91 S1204-93 150245	SOIL B-29 4-6 12/04/91 S1204-93RE(4) 150245	SOIL B-29 4-6 12/04/91 S1204-93A(1) 150246
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
beta-BHC	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
delta-BHC	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
gamma-BHC (Lindane)	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Heptachlor	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Aldrin	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Heptachlor epoxide	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Endosulfan I	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Dieldrin	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
4,4'-DDE	ug/Kg	39 U J	38 U	36 U J	35 U	36 U J	35 U	36 U J	36 U
Endrin	ug/Kg	39 U J	38 U	36 U J	35 U	36 U J	35 U	36 U J	36 U
Endosulfan II	ug/Kg	39 U J	38 U	36 U J	35 U	36 U J	35 U	36 U J	36 U
4,4'-DDD	ug/Kg	39 U J	38 U	36 U J	35 U	36 U J	35 U	36 U J	36 U
Endosulfan sulfate	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
4,4'-DDT	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	38 U J	36 U
Methoxychlor	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Endrin ketone	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
gamma-Chlordane	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Toxaphene	ug/Kg	390 U J	380 U	380 U J	350 U	360 U J	350 U	360 U J	360 U
Aroclor-1016	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1221	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1232	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1242	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1248	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1254	ug/Kg	390 U J	380 U	380 U J	350 U	380 U J	350 U	360 U J	360 U
Aroclor-1260	ug/Kg	390 U J	380 U	380 U J	350 U	360 U J	350 U	360 U J	360 U
HERBICIDES									
2,4-D	ug/Kg		60 U		57 U		57 U		56 U
2,4-DB	ug/Kg		60 U		57 U		410 J		56 U J
2,4,5-T	ug/Kg		6 U		5.7 U		5.7 U		5.6 U
2,4,5-TP (Silvex)	ug/Kg		6 U		5.7 U		5.7 U		5.6 U
Dalapon	ug/Kg		140 U		140 U		140 U		130 U
Dicamba	ug/Kg		6 U		5.7 U		5.7 U		5.6 U
Dichloroprop	ug/Kg		60 U		57 U		57 U		56 U
Dinoseb	ug/Kg		30 U		29 U		28 U		28 U
MCPA	ug/Kg		6000 U		5700 U		5700 U		5600 U
MCPP	ug/Kg		6000 U		5700 U		5700 U		5600 U
METALS									
Aluminum	mg/kg		16300		18100		18500		14700
Antimony	mg/kg		10.4 U J		8.6 U J		10.4 U J		10.3 U J
Arsenic	mg/kg		4.7		4.2		4.4		4.2
Barium	mg/kg		84.1		71.8		49.9		34.8 J
Beryllium	mg/kg		1 R		0.9 R		0.99 R		0.81 R
Cadmium	mg/kg		3.4		3.7		4		3
Calcium	mg/kg		5040 J		60500 J		12100 J		15900 J
Chromium	mg/kg		23.2		25.7		27.5		22
Cobalt	mg/kg		10.8		15.2		15.2		10.1
Copper	mg/kg		24.5		27.3		21.5		16
Iron	mg/kg		26100		35300		36800		27500
Lead	mg/kg		9.4 J		6.8 J		4.1 J		4.3 J
Magnesium	mg/kg		5230		9690		7460		8030
Manganese	mg/kg		551		687		492 J		364 J
Mercury	mg/kg		0.05 J		0.03 U		0.05 J		0.05 U
Nickel	mg/kg		31.1		41.8		41.2		32.4
Potassium	mg/kg		2230		2180		1690		1350
Selenium	mg/kg		0.13 U J		0.75 U J		0.15 U J		0.22 U J
Silver	mg/kg		0.66 U		0.42 U		0.89 J		0.66 U
Sodium	mg/kg		84.9 J		131 J		80.8 J		78.6 J
Thallium	mg/kg		0.38 U		0.42 U		0.41 U		0.63 U
Vanadium	mg/kg		27.8		25.3		23.5		18.9 R
Zinc	mg/kg		77.2		101		100		68.5
Cyanide	mg/kg		0.71 U		0.65 U		0.59 U		0.6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL / B-29 / 4-6 / 12/04/91 / S1204-93ARE(1,4) / 150246	SOIL / B-30 / 0-2 / 12/04/91 / S1204-94 / 150247	SOIL / B-30 / 0-2 / 12/04/91 / S1204-94A(1) / 150248	SOIL / B-30 / 0-2 / 12/04/91 / S1204-94RE(4) / 150247	SOIL / B-30 / 2-4 / 12/04/91 / S1204-95RE(4) / 150249	SOIL / B-30 / 2-4 / 12/04/91 / S1204-95 / 150249	SOIL / B-30 / 2-4 / 12/04/91 / S1204-95RE(4) / 150249	SOIL / B-30 / 4-6 / 12/04/91 / S1204-96 / 150250
VOCs									
Chloromethane	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Bromomethane	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Vinyl Chloride	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Chloroethane	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Methylene Chloride	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Acetone	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Carbon Disulfide	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,1-Dichloroethene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,1-Dichloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,2-Dichloroethene (total)	ug/Kg		45	31		1400 J	1700 J		18000
Chloroform	ug/Kg		6 U	4 J		29 U J	29 U J		720 U
1,2-Dichloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
2-Butanone	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
1,1,1-Trichloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Carbon Tetrachloride	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Vinyl Acetate	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Bromodichloromethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,2-Dichloropropane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
cis-1,3-Dichloropropene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Trichloroethene	ug/Kg		5 J	5 J		110 J	91 J		450 J
Dibromochloromethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,1,2-Trichloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Benzene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
trans-1,3-Dichloropropene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Bromoform	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
4-Methyl-2-Pentanone	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
2-Hexanone	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Tetrachloroethene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,1,2,2-Tetrachloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Toluene	ug/Kg		6 U	6 U		29 U J	29 U J		410 J
Chlorobenzene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Ethylbenzene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Styrene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Xylene (total)	ug/Kg		6 U	6 U		41 J	28 J		970

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL B-29 4-6 12/04/91 S1204-93ARE(1,4) 150246	SOIL B-30 0-2 12/04/91 S1204-94 150247	SOIL B-30 0-2 12/04/91 S1204-94A(1) 150248	SOIL B-30 0-2 12/04/91 S1204-94RE(4) 150247	SOIL B-30 2-4 12/04/91 S1204-95RE(4) 150249	SOIL B-30 2-4 12/04/91 S1204-95 150249	SOIL B-30 2-4 12/04/91 S1204-95RE(4) 150249	SOIL B-30 4-6 12/04/91 S1204-96 150250
SEMIVOLATILES									
Phenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
bis(2-Chloroethyl) ether	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2-Chlorophenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
1,3-Dichlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
1,4-Dichlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Benzyl Alcohol	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
1,2-Dichlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2-Methylphenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
bis(2-Chloroisopropyl) ether	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Methylphenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
N-Nitroso-di-n-propylamine	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Hexachloroethane	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Nitrobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Isophorone	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2-Nitrophenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
2,4-Dimethylphenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
Benzoic acid	ug/Kg		3900 U R	120 J	3900 U J		3500 U J	720 U J	7100 U J
bis(2-Chloroethoxy) methane	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,4-Dichlorophenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
1,2,4-Trichlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Naphthalene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	240 J
4-Chloroaniline	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Hexachlorobutadiene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Chloro-3-methylphenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
2-Methylnaphthalene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	250 J
Hexachlorocyclopentadiene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,4,6-Trichlorophenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
2,4,5-Trichlorophenol	ug/Kg		3900 U R	3700 U	3900 U J		3500 U	3500 U	7100 U J
2-Chloronaphthalene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2-Nitroaniline	ug/Kg		3900 U R	3700 U	3900 U J		3500 U J	3500 U J	7100 U J
Dimethylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Acenaphthylene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,6-Dinitrotoluene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
3-Nitroaniline	ug/Kg		3900 U R	3700 U	3900 U J		3500 U J	3500 U J	7100 U J
Acenaphthene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,4-Dinitrophenol	ug/Kg		3900 U R	3700 U	3900 U J		3500 U	3500 U	7100 U J
4-Nitrophenol	ug/Kg		3900 U R	81 J	3900 U J		3500 U	3500 U	7100 U J
Dibenzofuran	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,4-Dinitrotoluene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Diethylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Chlorophenyl-phenylether	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Fluorene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Nitroaniline	ug/Kg		3900 U R	3700 U	3900 U J		3500 U J	3500 U J	7100 U J
4,6-Dinitro-2-methylphenol	ug/Kg		3900 U R	3700 U	3900 U J		3500 U	3500 U	7100 U J
N-Nitrosodiphenylamine (1)	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Bromophenyl-phenylether	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Hexachlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Pentachlorophenol	ug/Kg		3900 U R	3700 U	3900 U J		3500 U	3500 U	7100 U J
Phenanthrene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Anthracene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Carbazole									
Di-n-butylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Fluoranthene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Pyrene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Butylbenzylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
3,3'-Dichlorobenzidine	ug/Kg		1600 U R	760 U	1600 U J		1400 U J	1400 U J	2900 U J
Benzo(a)anthracene	ug/Kg		800 U R	65 J	800 U J		720 U J	720 U J	1500 U J
Chrysene	ug/Kg		800 U R	79 J	800 U J		720 U J	720 U J	1500 U J
bis(2-Ethylhexyl)phthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Di-n-octylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Benzo(b)fluoranthene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
benzo (k)fluoranthene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Benzo(a)pyrene	ug/Kg		800 U R	70 J	800 U J		720 U J	720 U J	1500 U J
Indeno(1,2,3-cd)pyrene	ug/Kg		800 U R	81 J	800 U J		720 U J	720 U J	1500 U J
Dibenz(a,h)anthracene	ug/Kg		800 U R	81 J	800 U J		720 U J	720 U J	1500 U J
Benzo(g,h,i)perylene	ug/Kg		800 U R	84 J	800 U J		720 U J	720 U J	1500 U J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-29	B-30	B-30	B-30	B-30	B-30	B-30	B-30
	DEPTH	4-6	0-2	0-2	0-2	2-4	2-4	2-4	4-6
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-93ARE(1,4)	S1204-94	S1204-94A(1)	S1204-94RE(4)	S1204-95RE(4)	S1204-95	S1204-95RE(4)	S1204-96
	LAB ID	150246	150247	150248	150247	150249	150249	150249	150250
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
beta-BHC	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
delta-BHC	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
gamma-BHC (Lindane)	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Heptachlor	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Aldrin	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Heptachlor epoxide	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Endosulfan I	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Dieldrin	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
4,4'-DDE	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Endrin	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Endosulfan II	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
4,4'-DDD	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Endosulfan sulfate	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
4,4'-DDT	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Methoxychlor	ug/Kg	160 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	160 U
Endrin ketone	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
gamma-Chlordane	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Toxaphene	ug/Kg	350 U J	390 U R	370 U	380 U J	380 U	350 U	350 U J	360 U
Aroclor-1016	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Aroclor-1221	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Aroclor-1232	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Aroclor-1242	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 R	180 U J	200 R
Aroclor-1248	ug/Kg	160 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	160 U
Aroclor-1254	ug/Kg	350 U J	390 U R	370 U	380 U J	380 U	350 U	350 U J	360 U
Aroclor-1260	ug/Kg	350 U J	390 U R	370 U	380 U J	380 U	580	770 J	370
HERBICIDES									
2,4-D	ug/Kg		61 U	60 U			56 U		56 U
2,4-DB	ug/Kg		61 U	60 U			56 U		56 U
2,4,5-T	ug/Kg		6.1 U	6 U			5.6 U		5.6 U
2,4,5-TP (Silvex)	ug/Kg		6.1 U	6 U			5.6 U		5.6 U
Dalapon	ug/Kg		150 U	140 U			130 U		130 U
Dicamba	ug/Kg		6.1 U	6 U			5.6 U		5.6 U
Dichloroprop	ug/Kg		61 U	60 U			56 U		56 U
Dinoseb	ug/Kg		30 U	30 U			28 U		28 U
MCPA	ug/Kg		6100 U	6000 U			5600 U		5600 U
MCPP	ug/Kg		6100 U	6000 U			5600 U		5600 U
METALS									
Aluminum	mg/kg		16200	14400			15700		13000
Antimony	mg/kg		7.3 U J	9.5 U J			7.8 U J		6.3 U J
Arsenic	mg/kg		5.1	4.8			5.5		3
Barium	mg/kg		86.4	74.6			64.9		38.5
Beryllium	mg/kg		0.79 R	0.8 R			0.82 R		0.69 R
Cadmium	mg/kg		2.9	2.2			3		2.9
Calcium	mg/kg		16900 J	20200			44800 J		2460 J
Chromium	mg/kg		20	18.5			22.5		20.7
Cobalt	mg/kg		8.9	7.8 J			12.5		10.4
Copper	mg/kg		18.9	18.1			22.9		12
Iron	mg/kg		24000	19700			27700		29800
Lead	mg/kg		11.5 J	8.8 J			7 J		7.3 J
Magnesium	mg/kg		5190	10700			7660		5160
Manganese	mg/kg		735	597			627		347
Mercury	mg/kg		0.04 U	0.05 J			0.04 J		0.04 U
Nickel	mg/kg		23.7	19.8			36.7		31
Potassium	mg/kg		2040	2120			1910		938
Selenium	mg/kg		0.17 U J	1.1 U J			0.98 U J		0.61 U J
Silver	mg/kg		0.47 U	0.61 U			0.48 U		0.45 J
Sodium	mg/kg		83.3 J	74.8 J			101 J		40 J
Thallium	mg/kg		0.47 U	0.6 U			0.55 U		0.34 U
Vanadium	mg/kg		25.2	24			21.5 R		16 R
Zinc	mg/kg		68.5	69.5			98.5		74.4
Cyanide	mg/kg		0.69 U	0.68 U			0.61 U		0.65 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-30	B-30	B-30	B-30	B-31	B-31	B-31	B-31
	DEPTH	4-6	4-6	4-6	4-6	0-2	0-2	0-2	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/05/91	12/05/91	12/05/91	12/05/91
	MAIN ID	S1204-96A(1)	S1204-96ADL(5)	S1204-96RE(4)	S1204-96ARE(1,4)	S1205-97	S1205-97A(1)	S1205-97RE(4)	S1205-97ARE(1,4)
	LAB ID	150251	150251	150250	150251	150252	150253	150252	150253
	UNITS								
VOCs									
Chloromethane	ug/Kg	1400 U	2800 U R			12 U	12 U		
Bromomethane	ug/Kg	1400 U	2800 U R			12 U	12 U		
Vinyl Chloride	ug/Kg	1400 U	2800 U R			12 U	12 U		
Chloroethane	ug/Kg	1400 U	2800 U R			12 U	12 U		
Methylene Chloride	ug/Kg	710 U	1500 R			6 U	6 U		
Acetone	ug/Kg	680 J	4100 R			12 U	12 U		
Carbon Disulfide	ug/Kg	710 U	1400 U R			6 U	6 U		
1,1-Dichloroethene	ug/Kg	710 U	1400 U R			6 U	6 U		
1,1-Dichloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
1,2-Dichloroethene (total)	ug/Kg	16000	4100 R			6 U	6 U		
Chloroform	ug/Kg	710 U	1400 U R			6 U	6 U		
1,2-Dichloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
2-Butanone	ug/Kg	1400 U	2800 U R			12 U	12 U		
1,1,1-Trichloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
Carbon Tetrachloride	ug/Kg	710 U	1400 U R			6 U	6 U		
Vinyl Acetate	ug/Kg	1400 U	2800 U R			12 U	12 U		
Bromodichloromethane	ug/Kg	710 U	1400 U R			6 U	6 U		
1,2-Dichloropropane	ug/Kg	710 U	1400 U R			6 U	6 U		
cis-1,3-Dichloropropene	ug/Kg	710 U	1400 U R			6 U	6 U		
Trichloroethene	ug/Kg	390 J	1400 U R			23 J	110 J		
Dibromochloromethane	ug/Kg	710 U	1400 U R			6 U	6 U		
1,1,2-Trichloroethene	ug/Kg	710 U	1400 U R			6 U	6 U		
Benzene	ug/Kg	710 U	1400 U R			6 U	6 U		
trans-1,3-Dichloropropene	ug/Kg	710 U	1400 U R			6 U	6 U		
Bromoform	ug/Kg	710 U	1400 U R			6 U	6 U		
4-Methyl-2-Pentanone	ug/Kg	1400 U	2800 U R			12 U	12 U		
2-Hexanone	ug/Kg	1400 U	2800 U R			12 U	12 U		
Tetrachloroethene	ug/Kg	710 U	1400 U R			6 U	6 U		
1,1,2,2-Tetrachloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
Toluene	ug/Kg	640 J	420 R			6 U	6 U		
Chlorobenzene	ug/Kg	710 U	1400 U R			6 U	6 U		
Ethylbenzene	ug/Kg	660 J	520 R			6 U	6 U		
Styrene	ug/Kg	710 U	1400 U R			6 U	6 U		
Xylene (total)	ug/Kg	2100	970 R			6 U	6 U		

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-30	B-30	B-30	B-30	B-31	B-31	B-31	B-31
	DEPTH	4-6	4-6	4-6	4-6	0-2	0-2	0-2	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/05/91	12/05/91	12/05/91	12/05/91
	MAIN ID	S1204-96A(1)	S1204-96ADL(5)	S1204-96RE(4)	S1204-96ARE(1,4)	S1205-97	S1205-97A(1)	S1205-97RE(4)	S1205-97ARE(1,4)
	LAB ID	150251	150251	150250	150251	150252	150253	150252	150253
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	1400 U J				800 U	780 U		
bis(2-Chloroethyl) ether	ug/Kg	1400 U J				800 U	780 U		
2-Chlorophenol	ug/Kg	1400 U J				800 U	780 U		
1,3-Dichlorobenzene	ug/Kg	1400 U J				800 U	780 U		
1,4-Dichlorobenzene	ug/Kg	1400 U J				800 U	780 U		
Benzyl Alcohol	ug/Kg	1400 U J				800 U	780 U		
1,2-Dichlorobenzene	ug/Kg	1400 U J				800 U	780 U		
2-Methylphenol	ug/Kg	1400 U J				800 U	780 U		
bis(2-Chloroisopropyl) ether	ug/Kg	1400 U J				800 U	780 U		
4-Methylphenol	ug/Kg	1400 U J				800 U	780 U		
N-Nitroso-di-n-propylamine	ug/Kg	1400 U J				800 U	780 U		
Hexachloroethane	ug/Kg	1400 U J				800 U	780 U		
Nitrobenzene	ug/Kg	1400 U J				800 U	780 U		
Isophorone	ug/Kg	1400 U J				800 U	780 U		
2-Nitrophenol	ug/Kg	1400 U J				800 U	780 U		
2,4-Dimethylphenol	ug/Kg	1400 U J				800 U	780 U		
Benzoic acid	ug/Kg	7000 U J				3900 U	94 J		
bis(2-Chloroethoxy) methane	ug/Kg	1400 U J				800 U	780 U		
2,4-Dichlorophenol	ug/Kg	1400 U J				800 U	780 U		
1,2,4-Trichlorobenzene	ug/Kg	1400 U J				800 U	780 U		
Naphthalene	ug/Kg	240 J				800 U	780 U		
4-Chloroaniline	ug/Kg	1400 U J				800 U	780 U		
Hexachlorobutadiene	ug/Kg	1400 U J				800 U	780 U		
4-Chloro-3-methylphenol	ug/Kg	1400 U J				800 U	780 U		
2-Methylnaphthalene	ug/Kg	220 J				78 J	780 U		
Hexachlorocyclopentadiene	ug/Kg	1400 U J				800 U	780 U		
2,4,6-Trichlorophenol	ug/Kg	1400 U J				800 U	780 U		
2,4,5-Trichlorophenol	ug/Kg	7000 U J				3900 U	3800 U		
2-Chloronaphthalene	ug/Kg	1400 U J				800 U	780 U		
2-Nitroaniline	ug/Kg	7000 U J				3900 U	3800 U		
Dimethylphthalate	ug/Kg	1400 U J				800 U	780 U		
Acenaphthylene	ug/Kg	1400 U J				800 U	780 U		
2,6-Dinitrotoluene	ug/Kg	1400 U J				800 U	780 U		
3-Nitroaniline	ug/Kg	7000 U J				3900 U	3800 U		
Acenaphthene	ug/Kg	1400 U J				800 U	780 U		
2,4-Dinitrophenol	ug/Kg	7000 U J				3900 U	3800 U		
4-Nitrophenol	ug/Kg	7000 U J				3900 U	3800 U		
Dibenzofuran	ug/Kg	1400 U J				800 U	780 U		
2,4-Dinitrotoluene	ug/Kg	1400 U J				800 U	780 U		
Diethylphthalate	ug/Kg	1400 U J				800 U	780 U		
4-Chlorophenyl-phenylether	ug/Kg	1400 U J				800 U	780 U		
Fluorene	ug/Kg	1400 U J				800 U	780 U		
4-Nitroaniline	ug/Kg	7030 U J				3900 U	3800 U		
4,6-Dinitro-2-methylphenol	ug/Kg	7000 U J				3900 U	3800 U		
N-Nitrosodiphenylamine (1)	ug/Kg	1400 U J				800 U	780 U		
4-Bromophenyl-phenylether	ug/Kg	1400 U J				800 U	780 U		
Hexachlorobenzene	ug/Kg	1400 U J				800 U	780 U		
Pentachlorophenol	ug/Kg	7000 U J				3900 U	3800 U		
Phenanthrene	ug/Kg	1400 U J				160 J	120 J		
Anthracene	ug/Kg	1400 U J				800 U	780 U		
Carbazole									
Di-n-butylphthalate	ug/Kg	1400 U J				800 U	150 J		
Fluoranthene	ug/Kg	1400 U J				250 J	250 J		
Pyrene	ug/Kg	1400 U J				190 J	250 J		
Butylbenzylphthalate	ug/Kg	1400 U J				800 U	140 J		
3,3'-Dichlorobenzidine	ug/Kg	2900 U J				1600 U	1600 U		
Benzo(a)anthracene	ug/Kg	1400 U J				140 J	260 J		
Chrysene	ug/Kg	1400 U J				150 J	210 J		
bis(2-Ethylhexyl)phthalate	ug/Kg	1400 U J				83 J	230 J		
Di-n-octylphthalate	ug/Kg	1400 U J				800 U	150 J		
Benzo(b)fluoranthene	ug/Kg	1400 U J				130 J	240 J		
benzo(k)fluoranthene	ug/Kg	1400 U J				99 J	160 J		
Benzo(a)pyrene	ug/Kg	1400 U J				110 J	200 J		
Indeno(1,2,3-cd)pyrene	ug/Kg	1400 U J				82 J	200 J		
Dibenz(a,h)anthracene	ug/Kg	1400 U J				800 U	170 J		
Benzo(g,h,i)perylene	ug/Kg	1400 U J				83 J	220 J		

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-30	B-30	B-30	B-30	B-31	B-31	B-31	B-31
	DEPTH	4-6	4-6	4-6	4-6	0-2	0-2	0-2	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/05/91	12/05/91	12/05/91	12/05/91
	MAIN ID	S1204-96A(1)	S1204-96ADL(5)	S1204-96RE(4)	S1204-96ARE(1,4)	S1205-97	S1205-97A(1)	S1205-97RE(4)	S1205-97ARE(1,4)
	LAB ID	150251	150251	150250	150251	150252	150253	150252	150253
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
beta-BHC	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
delta-BHC	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
gamma-BHC (Lindane)	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Heptachlor	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Aldrin	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Heptachlor epoxide	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Endosulfan I	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Dieldrin	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
4,4'-DDE	ug/Kg	35 U		35 U J	34 U J	39 U	41	43 J	43 J
Endrin	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
Endosulfan II	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
4,4'-DDD	ug/Kg	35 U		36 J	34 U J	39 U	38 U	39 U J	38 U J
Endosulfan sulfate	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
4,4'-DDT	ug/Kg	35 U		35 U J	34 U J	36 J	43	100 J	72 J
Methoxychlor	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Endrin ketone	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
gamma-Chlordane	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Toxaphene	ug/Kg	350 U		350 U J	340 U J	390 U	380 U	390 U J	380 U J
Aroclor-1016	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Aroclor-1221	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Aroclor-1232	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Aroclor-1242	ug/Kg	160 J		170 U J	170 U J	400 R	220 R	190 U J	190 U J
Aroclor-1248	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Aroclor-1254	ug/Kg	350 U		350 U J	340 U J	390 U	380 U	390 U J	380 U J
Aroclor-1260	ug/Kg	270 J		490 J	280 J	390 U	380 U	390 U J	380 U J
HERBICIDES									
2,4-D	ug/Kg	55 U				60 U	59 U		
2,4-DB	ug/Kg	55 U				60 U	59 U		
2,4,5-T	ug/Kg	5.5 U				6 U	5.9 U		
2,4,5-TP (Silvex)	ug/Kg	5.5 U				6 U	5.9 U		
Dalapon	ug/Kg	130 U				140 U	140 U		
Dicamba	ug/Kg	5.5 U				6 U	5.9 U		
Dichloroprop	ug/Kg	55 U				60 U	59 U		
Dinoseb	ug/Kg	27 U				30 U	30 U		
MCPA	ug/Kg	5500 U				6000 U	5900 U		
MCPP	ug/Kg	5500 U				6000 U	5900 U		
METALS									
Aluminum	mg/kg	19600				18400	14100		
Antimony	mg/kg	11.1 U J				9.9 U J	7.4 J		
Arsenic	mg/kg	4.3				10.8	8.6		
Barium	mg/kg	63.9				136	111		
Beryllium	mg/kg	1.1 R				1 R	0.87 R		
Cadmium	mg/kg	3.7				3.8	3.7		
Calcium	mg/kg	4110 J				24700 J	79200 J		
Chromium	mg/kg	29.7				28.3 J	22.4 J		
Cobalt	mg/kg	13.7				11.8	10.8		
Copper	mg/kg	15.6				64.8	146		
Iron	mg/kg	35500				34400	30700		
Lead	mg/kg	8.2 J				160	202		
Magnesium	mg/kg	7230				7810	8510		
Manganese	mg/kg	449				670	495		
Mercury	mg/kg	0.04 U				0.76	0.17		
Nickel	mg/kg	42.4				35.5 J	39.9 J		
Potassium	mg/kg	2060				2610	2110		
Selenium	mg/kg	0.19 U J				0.23 U J	0.22 U J		
Silver	mg/kg	0.76 J				0.63 U	0.56 J		
Sodium	mg/kg	62.9 J				113 J	141 J		
Thallium	mg/kg	0.52 U				0.64 U	0.61 U		
Vanadium	mg/kg	24.8				29.7	24.1		
Zinc	mg/kg	111				797	1210		
Cyanide	mg/kg	0.65 U				0.72 U	0.63 U		

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-31	B-31	B-31	B-31	B-31	B-31
	DEPTH	2-4	2-4	4-6	4-6	6-8	6-8
	DATE	12/05/91	12/05/91	12/05/91	12/05/91	12/05/91	12/05/91
	MAIN ID	S1205-98(3)	S1205-98RE(3,4)	S1205-99	S1205-99R	S1205-100(2)	S1205-100RE(4)
	LAB ID	150254	150254	150255	150255	150256	150256
	UNITS						
VOCs							
Chloromethane	ug/Kg	12 U		56 U		63 U	63 U
Bromomethane	ug/Kg	12 U		56 U		63 U	63 U
Vinyl Chloride	ug/Kg	12 U		66		370	320
Chloroethane	ug/Kg	12 U		56 U		63 U	63 U
Methylene Chloride	ug/Kg	6 U		28 U		32 U	32 U
Acetone	ug/Kg	12 U		56 U		63 U	63 U
Carbon Disulfide	ug/Kg	6 U		120		32 U	32 U
1,1-Dichloroethene	ug/Kg	6 U		28 U		32 U	32 U
1,1-Dichloroethane	ug/Kg	6 U		28 U		32 U	32 U
1,2-Dichloroethene (total)	ug/Kg	6 U		660		630	600
Chloroform	ug/Kg	5 J		28 U		32 U	32 U
1,2-Dichloroethane	ug/Kg	6 U		28 U		32 U	32 U
2-Butanone	ug/Kg	12 U		56 U		63 U	63 U
1,1,1-Trichloroethane	ug/Kg	6 U		28 U		32 U	32 U
Carbon Tetrachloride	ug/Kg	6 U		28 U		32 U	32 U
Vinyl Acetate	ug/Kg	12 U		56 U		63 U	63 U
Bromodichloromethane	ug/Kg	6 U		28 U		32 U	32 U
1,2-Dichloropropane	ug/Kg	6 U		28 U		32 U	32 U
cis-1,3-Dichloropropene	ug/Kg	6 U		28 U		32 U	32 U
Trichloroethene	ug/Kg	5 J		2400 E		640	610
Dibromochloromethane	ug/Kg	6 U		28 U		32 U	32 U
1,1,2-Trichloroethane	ug/Kg	6 U		28 U		32 U	32 U
Benzene	ug/Kg	6 U		6 J		32 U	32 U
trans-1,3-Dichloropropene	ug/Kg	6 U		28 U		32 U	32 U
Bromoform	ug/Kg	6 U		28 U		32 U	32 U
4-Methyl-2-Pentanone	ug/Kg	12 U		56 U		63 U	63 U
2-Hexanone	ug/Kg	12 U		56 U		63 U	63 U
Tetrachloroethene	ug/Kg	6 U		28 U		32 U	32 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U		28 U		32 U	32 U
Toluene	ug/Kg	6 U		85		32 U	32 U
Chlorobenzene	ug/Kg	6 U		28 U		32 U	32 U
Ethylbenzene	ug/Kg	6 U		23 J		32 U	32 U
Styrene	ug/Kg	6 U		28 U		32 U	32 U
Xylene (total)	ug/Kg	6 U		69		32 U	32 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL B-31 2-4 12/05/91 S1205-98(3) 150254	SOIL B-31 2-4 12/05/91 S1205-98RE(3,4) 150254	SOIL B-31 4-6 12/05/91 S1205-99 150255	SOIL B-31 4-6 12/05/91 S1205-99R 150255	SOIL B-31 6-8 12/05/91 S1205-100(2) 150256	SOIL B-31 6-8 12/05/91 S1205-100RE(4) 150256
SEMIVOLATILES							
Phenol	ug/Kg	780 U		720 U	720 U	14000 J	
bis(2-Chloroethyl) ether	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2-Chlorophenol	ug/Kg	780 U		720 U	720 U	4100 U J	
1,3-Dichlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
1,4-Dichlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Benzyl Alcohol	ug/Kg	780 U		720 U J	720 U J	4100 U J	
1,2-Dichlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2-Methylphenol	ug/Kg	780 U		720 U	720 U	4100 U J	
bis(2-Chloroisopropyl) ether	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Methylphenol	ug/Kg	780 U		720 U	720 U	4100 U J	
N-Nitroso-di-n-propylamine	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Hexachloroethane	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Nitrobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Isophorone	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2-Nitrophenol	ug/Kg	780 U		720 U	720 U	1300 J	
2,4-Dimethylphenol	ug/Kg	780 U		720 U	720 U	4100 U J	
Benzoic acid	ug/Kg	3800 U		3500 U J	3500 U J	1500 J	
bis(2-Chloroethoxy) methane	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2,4-Dichlorophenol	ug/Kg	780 U		720 U	720 U	4100 U J	
1,2,4-Trichlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Naphthalene	ug/Kg	780 U		160 J	200 J	4100 U J	
4-Chloroaniline	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Hexachlorobutadiene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Chloro-3-methylphenol	ug/Kg	780 U		720 U	720 U	4100 U J	
2-Methylnaphthalene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Hexachlorocyclopentadiene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2,4,6-Trichlorophenol	ug/Kg	780 U		720 U	720 U	4100 U J	
2,4,5-Trichlorophenol	ug/Kg	3800 U		3500 U	3500 U	20000 U J	
2-Chloronaphthalene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2-Nitroaniline	ug/Kg	3800 U		3500 U J	3500 U J	20000 U J	
Dimethylphthalate	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Acenaphthylene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2,6-Dinitrotoluene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
3-Nitroaniline	ug/Kg	3800 U		3500 U J	3500 U J	20000 U J	
Acenaphthene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2,4-Dinitrophenol	ug/Kg	3800 U		3500 U	3500 U	20000 U J	
4-Nitrophenol	ug/Kg	3800 U		3500 U	3500 U	1600 J	
Dibenzofuran	ug/Kg	780 U		110 U J	720 U J	4100 U J	
2,4-Dinitrotoluene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Diethylphthalate	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Chlorophenyl-phenylether	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Fluorene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Nitroaniline	ug/Kg	3800 U		3500 U J	3500 U J	20000 U J	
4,6-Dinitro-2-methylphenol	ug/Kg	3800 U		720 U	3500 U	20000 U J	
N-Nitrosodiphenylamine (1)	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Bromophenyl-phenylether	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Hexachlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Pentachlorophenol	ug/Kg	3800 U		3500 U	3500 U	20000 U J	
Phenanthrene	ug/Kg	780 U		110 U J	110 U J	4100 U J	
Anthracene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Carbazole							
Di-n-butylphthalate	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Fluoranthene	ug/Kg	150 J		120 U J	110 U J	4100 U J	
Pyrene	ug/Kg	110 J		140 U J	130 U J	4100 U J	
Butylbenzylphthalate	ug/Kg	780 U		390 U J	720 U J	4100 U J	
3,3'-Dichlorobenzidine	ug/Kg	1600 U		1400 U J	1400 U J	8100 U J	
Benzo(a)anthracene	ug/Kg	100 J		720 U J	720 U J	4100 U J	
Chrysene	ug/Kg	100 J		83 U J	110 U J	4100 U J	
bis(2-Ethylhexyl)phthalate	ug/Kg	170 J		220 U J	210 U J	4100 U J	
Di-n-octylphthalate	ug/Kg	780 U		250 U J	720 U J	4100 U J	
Benzo(b)fluoranthene	ug/Kg	100 J		720 U J	720 U J	4100 U J	
benzo(k)fluoranthene	ug/Kg	82 J		720 U J	720 U J	4100 U J	
Benzo(a)pyrene	ug/Kg	86 J		720 U J	720 U J	4100 U J	
Indeno(1,2,3-cd)pyrene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Dibenz(a,h)anthracene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Benzo(g,h,i)perylene	ug/Kg	72 J		720 U J	720 U J	4100 U J	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-31 2-4 12/05/91 S1205-98(3) 150254	SOIL B-31 2-4 12/05/91 S1205-96RE(3,4) 150254	SOIL B-31 4-6 12/05/91 S1205-99 150255	SOIL B-31 4-6 12/05/91 S1205-99R 150255	SOIL B-31 6-8 12/05/91 S1205-100(2) 150256	SOIL B-31 6-8 12/05/91 S1205-100RE(4) 150256
PESTICIDES/PCBs							
alpha-BHC	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
beta-BHC	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
delta-BHC	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
gamma-BHC (Lindane)	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Heptachlor	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Aldrin	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Heptachlor epoxide	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Endosulfan I	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Dieldrin	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
4,4'-DDE	ug/Kg	57	71 J	35 U	35 U J	40 U	40 U J
Endrin	ug/Kg	36 U	38 U J	35 U	35 U J	40 U	40 U J
Endosulfan II	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
4,4'-DDD	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
Endosulfan sulfate	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
4,4'-DDT	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
Methoxychlor	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Endrin ketone	ug/Kg	36 U	36 U J	35 U	35 U J	40 U	40 U J
Endrin aldehyde							
alpha-Chlordane	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
gamma-Chlordane	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Toxaphene	ug/Kg	380 U	380 U J	350 U	350 U J	400 U	400 U J
Aroclor-1016	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Aroclor-1221	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Aroclor-1232	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Aroclor-1242	ug/Kg	1000 R	190 U J	570 R	170 U J	450 R	200 U J
Aroclor-1248	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Aroclor-1254	ug/Kg	380 U	360 U J	350 U	350 U J	400 U	400 U J
Aroclor-1260	ug/Kg	360 U	360 U J	350 U	350 U J	400 U	400 U J
HERBICIDES							
2,4-D	ug/Kg	60 U		54 U		61 U	
2,4-DB	ug/Kg	60 U		54 U		61 U	
2,4,5-T	ug/Kg	6 U		5.4 U		6.1 U	
2,4,5-TP (Silvex)	ug/Kg	6 U		5.4 U		6.1 U	
Dalapon	ug/Kg	140 U		130 U		150 U	
Dicamba	ug/Kg	6 U		5.4 U		6.1 U	
Dichloroprop	ug/Kg	60 U		54 U		61 U	
Dinoseb	ug/Kg	30 U		27 U		31 U	
MCPA	ug/Kg	6000 U		6200 U		6100 U	
MCPP	ug/Kg	6000 U		6200 U		6100 U	
METALS							
Aluminum	mg/kg	25500		15000		21200	
Antimony	mg/kg	8.7 U J		11.4 U J		13.1 U J	
Arsenic	mg/kg	45.8		3.9		2.6	
Barium	mg/kg	121		52.2		61.1	
Beryllium	mg/kg	0.98 R		0.86 R		1.1 R	
Cadmium	mg/kg	4.3		3.5		4.4	
Calcium	mg/kg	17800 J		25500 J		3460	
Chromium	mg/kg	34.8		28.8		30.4	
Cobalt	mg/kg	15.4		14.4		18.1	
Copper	mg/kg	76.1		31.6		26.4	
Iron	mg/kg	41600		29000		44100	
Lead	mg/kg	696		66.5		15.3 J	
Magnesium	mg/kg	9290		7020		7010	
Manganese	mg/kg	724		337		541	
Mercury	mg/kg	0.17		0.05 J		0.05 U	
Nickel	mg/kg	40.9		51.1		47	
Potassium	mg/kg	2330		2170		1280	
Selenium	mg/kg	0.23 U J		0.24 J		0.23 U J	
Silver	mg/kg	0.55 U		0.9 J		0.84 U	
Sodium	mg/kg	201 J		141 J		326 J	
Thallium	mg/kg	0.64 U		0.51 U		0.66 U	
Vanadium	mg/kg	26.3		22 R		25.3	
Zinc	mg/kg	472		393		93.5	
Cyanide	mg/kg	0.63 U		0.84 U		0.73 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-32	B-32	B-32	B-32	B-33	B-33	B-34	B-34
	DEPTH (FT.)	0-2	2-4	4-6	6-7.8	0-2	2-3.5	0-2	2-2.75
	DATE	04/27/93	04/27/93	04/27/93	04/27/93	12/14/92	12/14/92	12/14/92	12/14/92
	ES ID	B32-1	B32-2	B32-3	B32-4	B33-1	B33-2	B34-1	B34-2
	LAB ID	183092	183093	183094	183095	176253	176254	176255	176256
	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Bromomethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Vinyl Chloride	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Chloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Methylene Chloride	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Acetone	ug/Kg	17 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Carbon Disulfide	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1-Dichloroethene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1-Dichloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,2-Dichloroethene (total)	ug/Kg	110	12 U	1300 U	240 J	12 U	12 U	12 U	12 U
Chloroform	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,2-Dichloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
2-Butanone	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Carbon Tetrachloride	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,2-Dichloropropane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
cis-1,3-Dichloropropene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Trichloroethene	ug/Kg	140	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Dibromochloromethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1,2-Trichloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Benzene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
trans-1,3-Dichloropropene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Bromoform	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
4-Methyl-2-Pentanone	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
2-Hexanone	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Tetrachloroethene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Toluene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Chlorobenzene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Ethylbenzene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Styrene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Xylene (total)	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-32	B-32	B-32	B-32	B-33	B-33	B-34	B-34
	DEPTH(FT.)	0-2	2-4	4-6	6-7.8	0-2	2-3.5	0-2	2-2.75
	DATE	04/27/93	04/27/93	04/27/93	04/27/93	12/14/92	12/14/92	12/14/92	12/14/92
	ES ID	B32-1	B32-2	B32-3	B32-4	B33-1	B33-2	B34-1	B34-2
	LAB ID	183092	183093	183094	183095	176253	176254	176255	176256
	UNITS								
Semivolatiles									
Phenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
bis(2-Chloroethyl) ether	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2-Chlorophenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
1,3-Dichlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
1,4-Dichlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2-Methylphenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Methylphenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
N-Nitroso-di-n-propylamine	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Hexachloroethane	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Nitrobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Isophorone	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2-Nitrophenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4-Dimethylphenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4-Dichlorophenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
1,2,4-Trichlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Naphthalene	ug/Kg	360 U	400 U	440 U	290 J	420 U	380 U	400 U	360 U
4-Chloroaniline	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Hexachlorobutadiene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Chloro-3-methylphenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	360 U	400 U
2-Methylnaphthalene	ug/Kg	360 U	400 U	440 U	320 J	420 U	380 U	400 U	360 U
Hexachlorocyclopentadiene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4,6-Trichlorophenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4,5-Trichlorophenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
2-Chloronaphthalene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2-Nitroaniline	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
Dimethylphthalate	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Acenaphthylene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,6-Dinitrotoluene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
3-Nitroaniline	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
Acenaphthene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4-Dinitrophenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
4-Nitrophenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
Dibenzofuran	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4-Dinitrotoluene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Diethylphthalate	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Chlorophenyl-phenylether	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Fluorene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Nitroaniline	ug/Kg	870 U	970 U	1100 U	880 U	1000 U	910 U	970 U	880 U
4,6-Dinitro-2-methylphenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
N-Nitrosodiphenylamine	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Bromophenyl-phenylether	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Hexachlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Pentachlorophenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
Phenanthrene	ug/Kg	360 U	400 U	440 U	140 J	20 J	380 U	51 J	360 U
Anthracene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	19 J	360 U
Carbazole	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Di-n-butylphthalate	ug/Kg	380 U	400 U	440 U	180 J	420 U	380 U	400 U	360 U
Fluoranthene	ug/Kg	80 J	400 U	440 U	350 U	28 J	380 U	62 J	360 U
Pyrene	ug/Kg	74 J	400 U	440 U	130 J	30 J	380 U	64 J	16 J
Butylbenzylphthalate	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
3,3'-Dichlorobenzidine	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzo(a)anthracene	ug/Kg	58 J	400 U	440 U	350 U	18 J	380 U	42 J	360 U
Chrysene	ug/Kg	66 J	400 U	440 U	350 U	25 J	380 U	51 J	13 J
bis(2-Ethylhexyl)phthalate	ug/Kg	53 J	110 J	200 J	440	400 J	380 U	650	780
Di-n-octylphthalate	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzo(b)fluoranthene	ug/Kg	67 J	400 U	440 U	350 U	420 U	380 U	39 J	360 U
Benzo(k)fluoranthene	ug/Kg	49 J	400 U	440 U	350 U	420 U	380 U	39 J	360 U
Benzo(a)pyrene	ug/Kg	56 J	400 U	440 U	350 U	420 U	380 U	38 J	360 U
Indeno(1,2,3-cd)pyrene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	34 J	360 U
Dibenz(a,h)anthracene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzo(g,h,i)perylene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	37 J	360 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH (FT.) DATE ES ID LAB ID UNITS	SOIL B-32 0-2 04/27/93 B32-1 183092	SOIL B-32 2-4 04/27/93 B32-2 183093	SOIL B-32 4-6 04/27/93 B32-3 183094	SOIL B-32 6-7.8 04/27/93 B32-4 183095	SOIL B-33 0-2 12/14/92 B33-1 176253	SOIL B-33 2-3.5 12/14/92 B33-2 176254	SOIL B-34 0-2 12/14/92 B34-1 176255	SOIL B-34 2-2.75 12/14/92 B34-2 176256
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
beta-BHC	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
delta-BHC	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
gamma-BHC (Lindane)	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Heptachlor	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Aldrin	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Heptachlor epoxide	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Endosulfan I	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Dieldrin	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
4,4'-DDE	ug/Kg	6.6	4 U	4.4 U	3.6 U	2.5 J	3.8 U	4.7 J	3.7 U
Endrin	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
Endosulfan II	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
4,4'-DDD	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
Endosulfan sulfate	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
4,4'-DDT	ug/Kg	1.8 J	4 U	4.4 U	3.6 U	3.6 J	3.6 U	9	2.5 J
Methoxychlor	ug/Kg	19 U	21 U	23 U	19 U	22 U	19 U	21 U	19 U
Endrin ketone	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.6 U	4 U	3.7 U
Endrin aldehyde	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.6 U	4 U	3.7 U
alpha-Chlordane	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
gamma-Chlordane	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Toxaphene	ug/Kg	190 U	210 U	230 U	190 U	220 U	190 U	210 U	190 U
Aroclor-1016	ug/Kg	36 U	40 U	44 U	36 U	42 U	38 U	40 U	37 U
Aroclor-1221	ug/Kg	74 U	81 U	90 U	74 U	86 U	77 U	81 U	74 U
Aroclor-1232	ug/Kg	36 U	40 U	44 U	36 U	42 U	38 U	40 U	37 U
Aroclor-1242	ug/Kg	36 U	40 U	44 U	36 U	42 U	38 U	40 U	37 U
Aroclor-1248	ug/Kg	36 U	40 U	29 J	140 J	42 U	38 U	40 U	37 U
Aroclor-1254	ug/Kg	36 U	40 U	44 U	36 U	42 U	38 U	40 U	37 U
Aroclor-1260	ug/Kg	36 U	40 U	170	320 J	42 U	38 U	40 U	37 U
Herbicides									
2,4-D	ug/Kg	56 U	61 U	68 U	55 U	64 U	57 U	61 U	55 U
2,4-DB	ug/Kg	56 U	61 U	68 U	55 U	64 U	57 U	61 U	55 U
2,4,5-T	ug/Kg	5.6 U	6.1 U	6.8 U	5.5 U	6.4 U	5.7 U	6.1 U	5.5 U
2,4,5-TP (Silvex)	ug/Kg	5.6 U	6.1 U	6.8 U	5.5 U	6.4 U	5.7 U	6.1 U	5.5 U
Dalapon	ug/Kg	140 U	150 U	170 U	140 U	150 U	140 U	150 U	130 U
Dicamba	ug/Kg	5.6 U	6.1 U	6.8 U	5.5 U	6.4 U	5.7 U	6.1 U	5.5 U
Dichloroprop	ug/Kg	56 U	61.0 U	68 U	55 U	64 U	57 U	61 U	55 U
Dinoseb	ug/Kg	28 U	31.0 U	34 U	28 U	32 U	29 U	30 U	27 U
MCPA	ug/Kg	5600 U	6100.0 U	6800 U	5500 U	6400 U	5700 U	6100 U	5500 U
MCPP	ug/Kg	5600 U	6100.0 U	6800 U	5500 U	6400 U	5700 U	6100 U	5500 U
Metals									
Aluminum	mg/Kg	13900	14400	16800	13900	19700	18000	21400	17200
Antimony	mg/Kg	5.7 UJ	5.7 UJ	4.9 UJ	3.7 UJ	6.9 UJ	7.7 UJ	7.5 UJ	7.7 UJ
Arsenic	mg/Kg	4.5	4.5	5	2.7	2	1.8	3.6	1.9
Barium	mg/Kg	85.1	105	81.8	48.6	106 J	58.9 J	99.1 J	65.9 J
Beryllium	mg/Kg	0.69 J	0.81 J	0.8 J	0.62 J	1	0.74	1.1	0.76
Cadmium	mg/Kg	0.41 U	0.42 U	0.36 U	0.27 U	0.4 U	0.44 U	0.43 U	0.44 U
Calcium	mg/Kg	27900	8740	4310	3910	4620	48100	4340	41300
Chromium	mg/Kg	25.5	22.9	27.4	22.7	32 J	28.6 J	35 J	28.5 J
Cobalt	mg/Kg	15.8	11.2	16.5	12	17.1	17.3	16.5	15.5
Copper	mg/Kg	38.6	32.8	29.8	17.3	24.4	18.7	26	18.4
Iron	mg/Kg	29800	26500	34900	26300	36800	35300	40200	33400
Lead	mg/Kg	44.8	36.1	15.5	5.6	19.2	6.7 R	9.1 R	9.1 R
Magnesium	mg/Kg	7520	6030	6200	5710	6550	7260	7020	7200
Manganese	mg/Kg	499	799	430	513	1070	780	857	852
Mercury	mg/Kg	0.21	0.04 U	0.05 U	0.03 U	0.06 R	0.04 R	0.09 R	0.08 R
Nickel	mg/Kg	49.7	29.1	48.2	38	45.6	43.7	49.5	42.6
Potassium	mg/Kg	1450	1550	1320	904	1580	1370	1520	1410
Selenium	mg/Kg	0.24 J	0.19 U	0.23 U	0.17 U	0.15 U	0.48 J	0.58 J	0.69
Silver	mg/Kg	0.89 U	0.9 U	0.76 U	0.58 U	0.41 U	0.45 U	0.44 U	0.46 U
Sodium	mg/Kg	118 J	107 U	91 U	68.7 U	52 J	162 J	55 J	155 J
Thallium	mg/Kg	0.6 U	0.56 U	0.69 U	0.5 U	0.35 U	0.33 U	0.37 U	0.32 U
Vanadium	mg/Kg	19.3	23.7	24.7	17	26.9	20.9	29	22.4
Zinc	mg/Kg	194	129	132	79.1	114 J	87.8 J	200 J	84.2 J
Cyanide	mg/Kg	0.66 U	0.71 U	0.81 U	0.68 U	0.78 U	0.65 U	0.7 U	0.63 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-35	B-35	B-35	B-35	B-35	B-36	B-36	B-36
	DEPTH(FT.)	0-2	0-2	2-4	2-4	4-5.1	0-2	2-4	4-6
	DATE	12/15/92	12/15/92	12/15/92	12/15/92	12/15/92	04/27/93	04/27/93	04/27/93
	ES ID	B35-1	B35-1RE	B35-2	B35-2RE	B35-3	B36-1	B36-2	B36-3
	LAB ID	176442	176442R1	176443	176443R1	176444	183096	183097	183098
	UNITS								
VOCs									
Chloromethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Bromomethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Vinyl Chloride	ug/Kg	13 U J	13 U J	13 U		8 J	12 U	12 U	53 U
Chloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Methylene Chloride	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Acetone	ug/Kg	13 U J	13 U J	23 U		20 U	12 U	130	87
Carbon Disulfide	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,1-Dichloroethene	ug/Kg	13 U J	13 U J	3 J		140	12 U	12 U	53 U
1,1-Dichloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,2-Dichloroethene (total)	ug/Kg	13 U J	13 U J	13 J		200	12 U	12 U	53 U
Chloroform	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,2-Dichloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
2-Butanone	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	17	53 U
1,1,1-Trichloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Carbon Tetrachloride	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,2-Dichloropropane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
cis-1,3-Dichloropropene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Trichloroethene	ug/Kg	44 J	45 J	5 J		110	12 U	12 U	53 U
Dibromochloromethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,1,2-Trichloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Benzene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
trans-1,3-Dichloropropene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Bromoform	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
4-Methyl-2-Pentanone	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
2-Hexanone	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Tetrachloroethene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,1,2,2-Tetrachloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Toluene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	3 J	11 J
Chlorobenzene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Ethylbenzene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	8 J
Styrene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Xylene (total)	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	91

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH(FT.) / DATE / ES ID / LAB ID / UNITS	SOIL B-35 0-2 12/15/92 B35-1 176442	SOIL B-35 0-2 12/15/92 B35-1RE 176442R1	SOIL B-35 2-4 12/15/92 B35-2 176443	SOIL B-35 2-4 12/15/92 B35-2RE 176443R1	SOIL B-35 4-5.1 12/15/92 B35-3 176444	SOIL B-36 0-2 04/27/93 B36-1 183096	SOIL B-36 2-4 04/27/93 B36-2 183097	SOIL B-36 4-6 04/27/93 B36-3 183098
Semivolatiles									
Phenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
bis(2-Chloroethyl) ether	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2-Chlorophenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
1,3-Dichlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
1,4-Dichlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2-Methylphenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
4-Methylphenol	ug/Kg	400 UJ	400 UJ	8100 UJ	29 J	410 U	370 U	410 U	770 U
N-Nitroso-di-n-propylamine	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Hexachloroethane	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Nitrobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Isophorone	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2-Nitrophenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4-Dimethylphenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4-Dichlorophenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
1,2,4-Trichlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Naphthalene	ug/Kg	52 J	23 J	8100 UJ	25 J	410 U	370 U	410 U	410 J
4-Chloroaniline	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Hexachlorobutadiene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
4-Chloro-3-methylphenol	ug/Kg	400 UJ	8100 UJ	400 UJ	410 UJ	360 U	370 U	410 U	770 U
2-Methylnaphthalene	ug/Kg	20 J	19 J	8100 UJ	20 J	410 U	370 U	410 U	3600
Hexachlorocyclopentadiene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4,6-Trichlorophenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4,5-Trichlorophenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
2-Chloronaphthalene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2-Nitroaniline	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
Dimethylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Acenaphthylene	ug/Kg	14 J	400 UJ	8100 UJ	400 UJ	410 U	54 J	39 J	770 U
2,6-Dinitrotoluene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
3-Nitroaniline	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
Acenaphthene	ug/Kg	40 J	36 J	8100 UJ	13 J	410 U	37 J	410 U	770 U
2,4-Dinitrophenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
4-Nitrophenol	ug/Kg	960 UJ	980 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
Dibenzofuran	ug/Kg	24 J	24 J	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4-Dinitrotoluene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Diethylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
4-Chlorophenyl-phenylether	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Fluorene	ug/Kg	36 J	35 J	8100 UJ	18 J	410 U	43 J	410 U	470 J
4-Nitroaniline	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
4,6-Dinitro-2-methylphenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
N-Nitrosodiphenylamine	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
4-Bromophenyl-phenylether	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Hexachlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Pentachlorophenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	410 J	1900 U
Phenanthrene	ug/Kg	460 J	430 J	330 J	280 J	410 U	300 J	230 J	1200
Anthracene	ug/Kg	75 J	69 J	8100 UJ	67 J	410 U	61 J	410 U	770 U
Carbazole	ug/Kg	180 J	180 J	8100 UJ	100 J	410 U	370 U	410 U	770 U
Di-n-butylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	23 J	260 J	370 U	220 J	330 J
Fluoranthene	ug/Kg	530 J	560 J	550 J	480 J	410 U	830	210 J	160 J
Pyrene	ug/Kg	630 J	500 J	600 J	710 J	410 U	510	190 J	230 J
Butylbenzylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	130 J	410 U	370 U	410 U	770 U
3,3'-Dichlorobenzidine	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Benzo(a)anthracene	ug/Kg	220 J	220 J	8100 UJ	430 J	410 U	460	150 J	770 U
Chrysene	ug/Kg	290 J	290 J	420 J	450 J	410 U	430	100 J	770 U
bis(2-Ethylhexyl)phthalate	ug/Kg	400 UJ	400 UJ	1400 J	340 J	1700	190 J	370 J	700 J
Di-n-octylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Benzo(b)fluoranthene	ug/Kg	160 J	220 J	420 J	380 J	410 U	640	130 J	770 U
Benzo(k)fluoranthene	ug/Kg	210 J	210 J	8100 UJ	360 J	410 U	400	130 J	770 U
Benzo(a)pyrene	ug/Kg	100 J	120 J	8100 UJ	300 J	410 U	470	120 J	770 U
Indeno(1,2,3-cd)pyrene	ug/Kg	89 J	110 J	8100 UJ	200 J	410 U	280 J	110 J	770 U
Dibenz(a,h)anthracene	ug/Kg	48 J	29 J	8100 UJ	88 J	410 U	140 J	410 U	770 U
Benzo(g,h,i)perylene	ug/Kg	31 J	42 J	8100 UJ	58 J	410 U	150 J	410 U	770 U

10-Sep-93

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH(FT.) / DATE / ES ID / LAB ID / UNITS	SOIL B-35 0-2 12/15/92 B35-1 176442	SOIL B-35 0-2 12/15/92 B35-1RE 176442R1	SOIL B-35 2-4 12/15/92 B35-2 176443	SOIL B-35 2-4 12/15/92 B35-2RE 176443R1	SOIL B-35 4-5.1 12/15/92 B35-3 176444	SOIL B-36 0-2 04/27/93 B36-1 183096	SOIL B-36 2-4 04/27/93 B36-2 183097	SOIL B-36 4-6 04/27/93 B36-3 183098
Pesticides/PCBs									
alpha-BHC	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
beta-BHC	ug/Kg	2 U		2.1 U		2.1 U	1.8 J	4.2 U	2 U
delta-BHC	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	2.3 J	2 U
gamma-BHC (Lindane)	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Heptachlor	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Aldrin	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Heptachlor epoxide	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Endosulfan I	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Dieldrin	ug/Kg	4 U		4 U		4 U	3.7 U	8.1 U	3.8 U
4,4'-DDE	ug/Kg	3.9 J		5.6 J		4 U	22	27	2.3 J
Endrin	ug/Kg	4 U		4 U		4 U	3.7 U	4.1 J	3.8 U
Endosulfan II	ug/Kg	4 U		4 U		4 U	2.7 J	8.1 U	3.8 U
4,4'-DDD	ug/Kg	4 U		7.6		4 U	18	74	36
Endosulfan sulfate	ug/Kg	2.2 J		4 U		4 U	2.5 J	8.1 U	3.8 U
4,4'-DDT	ug/Kg	3.9 J		4 U		4 U	7.1 J	13 J	3.8 U
Methoxychlor	ug/Kg	20 U		21 U		21 U	19 U	42 U	20 U
Endrin ketone	ug/Kg	4 U		4 U		4 U	5.5 J	8.1 U	3.8 U
Endrin aldehyde	ug/Kg	4 U		4 U		4 U	3.7 U	8.1 U	3.8 U
alpha-Chlordane	ug/Kg	2 U		2.1 U		2.1 U	3.1 J	4.2 U	2 U
gamma-Chlordane	ug/Kg	2 U		2.1 U		2.1 U	2.1	4.2 U	2 U
Toxaphene	ug/Kg	200 U		210 U		210 U	190 U	420 U	200 U
Aroclor-1016	ug/Kg	40 U		40 U		40 U	37 U	81 U	38 U
Aroclor-1221	ug/Kg	80 U		82 U		82 U	76 U	160 U	78 U
Aroclor-1232	ug/Kg	40 U		40 U		40 U	37 U	81 U	38 U
Aroclor-1242	ug/Kg	40 U		40 U		40 U	37 U	81 U	38 U
Aroclor-1248	ug/Kg	40 U		40 U		40 U	37 U	81 U	92 J
Aroclor-1254	ug/Kg	40 U		25 J		40 U	37 U	81 U	38 U
Aroclor-1260	ug/Kg	40 U		40 U		40 U	37 U	350 J	180 J
Herbicides									
2,4-D	ug/Kg	60 U		61 U		61 U	57 U	62 U	58 U
2,4-DB	ug/Kg	60 U		61 U		61 U	57 U	62 U	58 U
2,4,5-T	ug/Kg	6 U		6.1 U		6.1 U	5.7 U	6.2 U	5.8 U
2,4,5-TP (Silvex)	ug/Kg	6 U		6.1 U		6.1 U	5.7 U	6.2 U	5.8 U
Dalapon	ug/Kg	140 U		150 U		150 U	140 U	150 U	140 U
Dicamba	ug/Kg	6 U		6.1 U		6.1 U	5.7 U	6.2 U	5.8 U
Dichloroprop	ug/Kg	60 U		61 U		61 U	57.0 U	62 U	58 U
Dinoseb	ug/Kg	30 U		31 U		30 U	29.0 U	31 U	29 U
MCPA	ug/Kg	6000 U		6100 U		6100 U	5700.0 U	6200 U	5800 U
MCPP	ug/Kg	6000 U		6100 U		6100 U	5700.0 U	6200 U	5800 U
Metals									
Aluminum	mg/Kg	14300		15000		22000	11700	16200	15300
Antimony	mg/Kg	8 J		9.1 UJ		7.2 UJ	3.8 UJ	4.7 UJ	5.8 UJ
Arsenic	mg/Kg	1.7		3.8		2.1	9.8	8.1	4.6
Barium	mg/Kg	163 J		182 J		98.1 J	73.7	133	82.5
Beryllium	mg/Kg	0.59 J		0.7 J		1.1	0.57 J	0.85 J	0.71 J
Cadmium	mg/Kg	0.71		0.8 J		0.42 U	0.39 J	0.35 U	0.43 U
Calcium	mg/Kg	25200		30400		5010	40400	7650	14200
Chromium	mg/Kg	28.9 J		34.2 J		36.9 J	26.5	24.8	24.4
Cobalt	mg/Kg	10.6		11		17.7	11.5	12	12.6
Copper	mg/Kg	75.5		73.2		23.3	51.8	27.1	26.4
Iron	mg/Kg	26600		30200		42900	38900	28100	30200
Lead	mg/Kg	126		203		25.4	110	57.9	14.9
Magnesium	mg/Kg	7360		7410		7690	7020	5320	6000
Manganese	mg/Kg	476		443		1250	472	669	886
Mercury	mg/Kg	0.39		0.76		0.06 R	0.33	0.14	0.05 U
Nickel	mg/Kg	35.4		36.1		54.4	42.9	32.8	40.1
Potassium	mg/Kg	1130		1600		1680	1210	1420	1420
Selenium	mg/Kg	1		1.1		0.67 J	0.23 U	0.59 J	0.22 J
Silver	mg/Kg	0.4 U		0.82 J		0.43 U	0.82 J	0.75 U	0.92 U
Sodium	mg/Kg	203 J		268 J		248 J	120 J	88.9 U	109 U
Thallium	mg/Kg	0.33 U		0.39 U		0.35 U	0.68 U	0.43 U	0.63 U
Vanadium	mg/Kg	21.3		22.8		28.9	23.9	25.5	23.6
Zinc	mg/Kg	6290		4210		116 J	252	108	99.6
Cyanide	mg/Kg	0.49 U		2.2		0.67 U	0.68 U	0.74 U	0.59 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-36	B-36	B-37	B-37	B-37	B-37	B-38	B-38
	DEPTH (FT.)	6-7.9	4-6	0-2	2-4	4-5.5	4-5.5	0-2	0-2
	DATE	04/27/93	04/27/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B36-4	B36-6	B37-1	B37-2	B37-3	B37-8	B38-1	B38-1RE
	LAB ID	183099	183100	183181	183182	183183	183184	183185	183185R1
	UNITS		DUP B36-3				DUP B37-3		
VOCs									
Chloromethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Bromomethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Vinyl Chloride	ug/Kg	1300 U	56 U	13 U	11 U	11 U	11 U	11 U	
Chloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Methylene Chloride	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Acetone	ug/Kg	1300 U	100	13 U	11 U	11 U	13 U	11 U	
Carbon Disulfide	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1-Dichloroethene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1-Dichloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,2-Dichloroethene (total)	ug/Kg	1300 U	58 U	3 J	2 J	16	12	7 J	
Chloroform	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,2-Dichloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
2-Butanone	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1,1-Trichloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Carbon Tetrachloride	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,2-Dichloropropane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
cis-1,3-Dichloropropene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Trichloroethene	ug/Kg	1300 U	58 U	8 J	10 J	37	38	73	
Dibromochloromethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1,2-Trichloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Benzene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
trans-1,3-Dichloropropene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Bromoform	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
4-Methyl-2-Pentanone	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
2-Hexanone	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Tetrachloroethene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1,2,2-Tetrachloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Toluene	ug/Kg	1300 U	8 J	13 U	11 U	11 U	11 U	11 U	
Chlorobenzene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Ethylbenzene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Styrene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Xylene (total)	ug/Kg	500 J	76	13 U	11 U	11 U	11 U	11 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-36	B-36	B-37	B-37	B-37	B-37	B-38	B-38
	DEPTH(FT.)	6-7.9	4-6	0-2	2-4	4-5.5	4-5.5	0-2	0-2
	DATE	04/27/93	04/27/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B36-4	B36-6	B37-1	B37-2	B37-3	B37-6	B38-1	B38-1RE
	LAB ID	163099	183100	183181	183182	183183	183164	183185	183185R1
	UNITS		DUP B36-3				DUP B37-3		
Semivolatiles									
Phenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
bis(2-Chloroethyl) ether	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Chlorophenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
1,3-Dichlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
1,4-Dichlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Methylphenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,2'-oxybis (1-Chloropropane)	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
4-Methylphenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
N-Nitroso-di-n-propylamine	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Hexachloroethane	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Nitrobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Isophorone	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Nitrophenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4-Dimethylphenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4-Dichlorophenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
1,2,4-Trichlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Naphthalene	ug/Kg	460 J	370 J	460 U	390 U	360 U	370 U	360 U	360 U
4-Chloroaniline	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Hexachlorobutadiene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
4-Chloro-3-methylphenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Methylnaphthalene	ug/Kg	1900	3200	460 U	390 U	360 U	370 U	360 U	360 U
Hexachlorocyclopentadiene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4,6-Trichlorophenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4,5-Trichlorophenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
2-Chloronaphthalene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Nitroaniline	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
Dimethylphthalate	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Acenaphthylene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,6-Dinitrotoluene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
3-Nitroaniline	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	660 U	880 U
Acenaphthene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	64 J	67 J
2,4-Dinitrophenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
4-Nitrophenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
Dibenzofuran	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4-Dinitrotoluene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Diethylphthalate	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
4-Chlorophenyl-phenylether	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Fluorene	ug/Kg	480 J	660	460 U	390 U	360 U	370 U	65 J	72 J
4-Nitroaniline	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
4,6-Dinitro-2-methylphenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
N-Nitrosodiphenylamine	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
4-Bromophenyl-phenylether	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Hexachlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Pentachlorophenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
Phenanthrene	ug/Kg	1200	1400	460 U	390 U	360 U	370 U	870	830
Anthracene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	210 J	250 J
Carbazole	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Di-n-butylphthalate	ug/Kg	420 J	290 J	460 U	390 U	110 J	160 J	130 J	120 J
Fluoranthene	ug/Kg	610 U	94 J	460 U	390 U	360 U	370 U	1500	1300
Pyrene	ug/Kg	290 J	98 J	460 U	390 U	360 U	370 U	1400	1300
Butylbenzylphthalate	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
3,3'-Dichlorobenzidine	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Benzo(a)anthracene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	730 J	740 J
Chrysene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	490	500
bis(2-Ethylhexyl)phthalate	ug/Kg	790	300 J	83 J	99 J	170 J	290 J	260 J	250 J
Di-n-octylphthalate	ug/Kg	610 U	390 U	460 U	390 U	360 U	51 J	360 U	360 U
Benzo(b)fluoranthene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	660	740 J
Benzo(k)fluoranthene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 J	310 J
Benzo(a)pyrene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	370	380
Indeno(1,2,3-cd)pyrene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	160 J	150 J
Dibenz(a,h)anthracene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 UJ	360 U
Benzo(g,h,i)perylene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND									
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-36	B-36	B-37	B-37	B-37	B-37	B-38	B-38
	DEPTH (FT.)	6-7.9	4-6	0-2	2-4	4-5.5	4-5.5	0-2	0-2
	DATE	04/27/93	04/27/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B36-4	B36-6	B37-1	B37-2	B37-3	B37-6	B38-1	B38-1RE
	LAB ID	183099	183100	163161	163162	163163	183184	183185	183185R1
	UNITS		DUP B36-3				DUP B37-3		
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
beta-BHC	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
delta-BHC	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.6 U	1.9 U	1.6 J	
gamma-BHC (Lindane)	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Heptachlor	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.6 U	1.9 U	1.9 U	
Aldrin	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Heptachlor epoxide	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Endosulfan I	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.6 U	1.9 U	2.1 J	
Dieldrin	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.8 U	3.7 U	3.6 U	
4,4'-DDE	ug/Kg	3.6 U	2.2 J	4.6 U	3.9 U	3.6 U	3.7 U	3.4 J	
Endrin	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
Endosulfan II	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
4,4'-DDD	ug/Kg	15	35	4.6 U	3.9 U	3.6 U	3.7 U	3.8 U	
Endosulfan sulfate	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
4,4'-DDT	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
Methoxychlor	ug/Kg	13 J	20 U	24 U	20 U	16 U	19 U	19 U	
Endrin ketone	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	5.6 J	
Endrin aldehyde	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
alpha-Chlordane	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.6 U	1.9 U	1.3 J	
gamma-Chlordane	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Toxaphene	ug/Kg	190 U	200 U	240 U	200 U	180 U	190 U	190 U	
Aroclor-1016	ug/Kg	36 U	39 U	46 U	39 U	36 U	37 U	36 U	
Aroclor-1221	ug/Kg	74 U	80 U	94 U	78 U	72 U	74 U	73 U	
Aroclor-1232	ug/Kg	36 U	39 U	46 U	39 U	36 U	37 U	36 U	
Aroclor-1242	ug/Kg	36 U	39 U	46 U	39 U	36 U	37 U	36 U	
Aroclor-1248	ug/Kg	180 J	89 J	46 U	39 U	36 U	37 U	36 U	
Aroclor-1254	ug/Kg	36 U	39 U	46 U	39 U	36 U	37 U	36 U	
Aroclor-1260	ug/Kg	390 J	170 J	46 U	39 U	38 U	37 U	36 U	
Herbicides									
2,4-D	ug/Kg	56 U	59 U	71 U	59 U	54 U	56 U	55 U	
2,4-DB	ug/Kg	56 U	59 U	71 U	59 U	54 U	56 U	55 U	
2,4,5-T	ug/Kg	5.6 U	5.9 U	7.1 U	5.9 U	5.4 U	5.6 U	5.5 U	
2,4,5-TP (Silvex)	ug/Kg	5.6 U	5.9 U	7.1 U	5.9 U	5.4 U	5.6 U	5.5 U	
Dalapon	ug/Kg	140 U	150 U	170 U	150 U	130 U	140 U	140 U	
Dicamba	ug/Kg	5.6 U	5.9 U	7.1 U	5.9 U	5.4 U	5.6 U	5.5 U	
Dichloroprop	ug/Kg	56 U	59 U	71 U	59 U	54 U	56 U	55 U	
Dinoseb	ug/Kg	28 U	30 U	38 U	30 U	27 U	26 U	26 U	
MCPA	ug/Kg	5600 U	5900 U	7100 U	5900 U	5400 U	5600 U	5500 U	
MCPP	ug/Kg	5600 U	5900 U	7100 U	5900 U	5400 U	5600 U	5500 U	
Metals									
Aluminum	mg/Kg	11500	15700	15400	15400	16000	12800	9120	
Antimony	mg/Kg	3.1 UJ	4.1 UJ	7.3 UJ	5.4 UJ	3.5 UJ	4.8 UJ	4.2 J	
Arsenic	mg/Kg	4.1	5.3	2.5	4.4	5.9	2.1 J	2.8	
Barium	mg/Kg	50.6	75.2	114	75.2	66.7	36.4	211	
Beryllium	mg/Kg	0.52 J	0.77	0.92 J	0.74 J	0.74	0.55 J	0.46 J	
Cadmium	mg/Kg	0.22 U	0.3 U	0.74 J	0.4 U	0.26 U	0.35 U	0.38 J	
Calcium	mg/Kg	61500	7700	6020	26900	7240	21700	16000	
Chromium	mg/Kg	16.1	25.5	22.7	24.7	25.6	20.1	18.4	
Cobalt	mg/Kg	10.6	15.2	9.6 J	14.5	14.3	10.6	11.5	
Copper	mg/Kg	19.4	31.4	34.7	26.4	22.8	10.3	38.4	
Iron	mg/Kg	23400	34600	25200	30000	31000	25800	19000	
Lead	mg/Kg	9.5	12.4	16.3	6.2	8.7	2.9	59	
Magnesium	mg/Kg	7760	8090	4210	6080	6200	5520	4270	
Manganese	mg/Kg	495	616	337	757	676	476	400	
Mercury	mg/Kg	0.05 U	0.05 U	0.05 U	0.04 U	0.04 U	0.05 U	0.04 J	
Nickel	mg/Kg	31	44.1	26	41.3	39.9	31.1	34.3	
Potassium	mg/Kg	985	1300	1540	1680	1320	1000	1250	
Selenium	mg/Kg	0.53 J	0.19 J	0.41 J	0.21 U	0.16 U	0.22 U	0.19 J	
Silver	mg/Kg	0.46 U	0.65 U	1.1 U	0.66 U	0.55 U	0.75 U	0.61 U	
Sodium	mg/Kg	184 J	77.3 U	137 U	102 U	65.9 U	89.2 J	102 J	
Thallium	mg/Kg	0.61 U	0.43 U	0.86 U	0.82 U	0.49 U	0.65 U	0.42 U	
Vanadium	mg/Kg	15.3	23.6	24.1	22.7	21.4	14.9	15.3	
Zinc	mg/Kg	75.7	111	96.7	90	84.5	66.4	4070	
Cyanide	mg/Kg	0.56 U	0.59 U	0.65 U	0.7 U	0.65 U	0.66 U	0.66 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-38	B-38	B-38	B-38	B-39	B-39	B-39	B-39
	DEPTH (FT.)	2-4	4-6	6-8	4-6	0-2	0-2	3-4	3-4
	DATE	04/28/93	04/28/93	04/28/93	04/28/93	12/15/92	12/15/92	12/15/92	12/15/92
	ES ID	B38-2	B38-3	B38-4	B38-6	B39-1	B39-1RE	B39-2	B39-2RE
	LAB ID	183186	183187	183188	183189	176445	176445R1	176446	176446R1
	UNITS				DUP B38-3				
VOCs									
Chloromethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Bromomethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		80 U	
Vinyl Chloride	ug/Kg	2 J	11 U	9 J	9 J	1300 U		1000	
Chloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Methylene Chloride	ug/Kg	12 U	11 U	12 U	12 U	1300 U		9 J	
Acetone	ug/Kg	140	11 U	12 U	12 U	1300 U		80 J	
Carbon Disulfide	ug/Kg	12 U	11 U	12 U	12 U	1300 U		80 U	
1,1-Dichloroethene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		30 J	
1,1-Dichloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,2-Dichloroethene (total)	ug/Kg	7 J	46	190	95	38000		7300 J	
Chloroform	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,2-Dichloroethane	ug/Kg	12 U	11 U	12 U	12 U	210 J		60 U	
2-Butanone	ug/Kg	22	11 U	12 U	12 U	1300 U		60 U	
1,1,1-Trichloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Carbon Tetrachloride	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,2-Dichloropropane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
cis-1,3-Dichloropropene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Trichloroethene	ug/Kg	28	47	150	64	150000 J		700	
Dibromochloromethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,1,2-Trichloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Benzene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
trans-1,3-Dichloropropene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Bromoform	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
4-Methyl-2-Pentanone	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
2-Hexanone	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Tetrachloroethene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,1,2,2-Tetrachloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Toluene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		80 U	
Chlorobenzene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Ethylbenzene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		80 U	
Styrene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Xylene (total)	ug/Kg	12 U	11 U	12 U	12 U	1300 U		30 J	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-38	B-38	B-38	B-38	B-39	B-39	B-39	B-39
	DEPTH(FT.)	2-4	4-8	8-8	4-6	0-2	0-2	3-4	3-4
	DATE	04/28/93	04/28/93	04/28/93	04/28/93	12/15/92	12/15/92	12/15/92	12/15/92
	ES ID	B38-2	B38-3	B38-4	B36-6	B39-1	B39-1RE	B39-2	B39-2RE
	LAB ID	183186	183187	183188	183169	176445	176445R1	176448	176446R1
	UNITS				DUP B38-3				
Semivolatiles									
Phenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
bis(2-Chloroethyl) ether	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2-Chlorophenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	380 UJ	400 UJ	400 UJ
1,3-Dichlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
1,4-Dichlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	380 UJ	400 UJ	400 UJ
2-Methylphenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	380 UJ	400 UJ	400 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Methylphenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
N-Nitroso-di-n-propylamine	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Hexachloroethane	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Nitrobenzene	ug/Kg	400 U	370 U	380 U	360 U	380 UJ	360 UJ	400 UJ	400 UJ
Isophorone	ug/Kg	400 U	370 U	360 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2-Nitrophenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4-Dimethylphenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	380 UJ	400 UJ	400 UJ
2,4-Dichlorophenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
1,2,4-Trichlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Naphthalene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	380 UJ	400 UJ	400 UJ
4-Chloroaniline	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Hexachlorobutadiene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Chloro-3-methylphenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	400 UJ	400 UJ	390 UJ
2-Methylnaphthalene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	15 J
Hexachlorocyclopentadiene	ug/Kg	400 U	370 U	360 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4,6-Trichlorophenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4,5-Trichlorophenol	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
2-Chloronaphthalene	ug/Kg	400 U	370 U	360 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2-Nitroaniline	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
Dimethylphthalate	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Acenaphthylene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,6-Dinitrotoluene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
3-Nitroaniline	ug/Kg	960 U	910 U	920 U	680 U	870 UJ	870 UJ	980 UJ	980 UJ
Acenaphthene	ug/Kg	400 U	370 U	360 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4-Dinitrophenol	ug/Kg	960 U	910 U	920 U	680 U	870 UJ	670 UJ	980 UJ	980 UJ
4-Nitrophenol	ug/Kg	960 U	910 U	920 U	680 U	870 UJ	870 UJ	960 UJ	980 UJ
Dibenzofuran	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4-Dinitrotoluene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Diethylphthalate	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Chlorophenyl-phenylether	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Fluorene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Nitroaniline	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	960 U	910 U	920 U	860 U	870 UJ	870 UJ	980 UJ	980 UJ
N-Nitrosodiphenylamine	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Bromophenyl-phenylether	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Hexachlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Pentachlorophenol	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
Phenanthrene	ug/Kg	200 J	370 U	380 U	380 U	96 J	91 J	31 J	28 J
Anthracene	ug/Kg	58 J	370 U	380 U	360 U	360 UJ	13 J	400 UJ	400 UJ
Carbazole	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Di-n-butylphthalate	ug/Kg	190 J	180 J	110 J	280 J	360 UJ	60 J	400 UJ	400 UJ
Fluoranthene	ug/Kg	530	370 U	380 U	33 J	110 J	110 J	17 J	400 UJ
Pyrene	ug/Kg	460	370 U	380 U	24 J	140 J	130 J	28 J	400 UJ
Butylbenzylphthalate	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
3,3'-Dichlorobenzidine	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Benzo(a)anthracene	ug/Kg	260 J	370 U	380 U	360 U	38 J	51 J	400 UJ	400 UJ
Chrysene	ug/Kg	220 J	370 U	380 U	360 U	63 J	66 J	400 UJ	400 UJ
bis(2-Ethylhexyl)phthalate	ug/Kg	360 J	520	240 J	550	410 UJ	340 J	800 UJ	590 UJ
Di-n-octylphthalate	ug/Kg	400 U	370 U	380 U	23 J	360 UJ	360 UJ	400 UJ	400 UJ
Benzo(b)fluoranthene	ug/Kg	260 J	370 U	380 U	360 U	41 J	50 J	400 UJ	400 UJ
Benzo(k)fluoranthene	ug/Kg	200 J	370 U	380 U	360 U	40 J	47 J	400 UJ	400 UJ
Benzo(a)pyrene	ug/Kg	220 J	370 U	380 U	360 U	360 UJ	24 J	400 UJ	400 UJ
Indeno(1,2,3-cd)pyrene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Dibenz(a,h)anthracene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Benzo(g,h,i)perylene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-38	B-38	B-38	B-38	B-39	B-39	B-39	B-39
	DEPTH (FT.)	2-4	4-6	8-8	4-6	0-2	0-2	3-4	3-4
	DATE	04/28/93	04/28/93	04/28/93	04/28/93	12/15/92	12/15/92	12/15/92	12/15/92
	ES ID	B38-2	B38-3	B38-4	B38-6	B39-1	B39-1RE	B39-2	B39-2RE
	LAB ID	183186	183187	183188	183169	176445	176445R1	176446	176446R1
	UNITS				DUP B38-3				
Pesticides/PCBs									
alpha-BHC	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
beta-BHC	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
delta-BHC	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.6 U		2.1 U	
gamma-BHC (Lindane)	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.6 U		2.1 U	
Heptachlor	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Aldrin	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Heptachlor epoxide	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Endosulfan I	ug/Kg	1.9 J	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Dieldrin	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
4,4'-DDE	ug/Kg	3.2 J	3.7 U	3.8 U	3.6 U	6.9 J		4.1 U	
Endrin	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
Endosulfan II	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
4,4'-DDD	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
Endosulfan sulfate	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
4,4'-DDT	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	4.1 J		4.1 U	
Methoxychlor	ug/Kg	20 U	19 U	20 U	19 U	18 U		21 U	
Endrin ketone	ug/Kg	3.8 J	3.7 U	3.8 U	3.8 U	3.8 U		4.1 U	
Endrin aldehyde	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
alpha-Chlordane	ug/Kg	1.4 J	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
gamma-Chlordane	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.6 U		2.1 U	
Toxaphene	ug/Kg	200 U	190 U	200 U	190 U	180 U		210 U	
Aroclor-1016	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1221	ug/Kg	81 U	76 U	78 U	74 U	73 U		82 U	
Aroclor-1232	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1242	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1248	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1254	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1260	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Herbicides									
2,4-D	ug/Kg	61 U	57 U	58 U	57 U	54 U		61 U	
2,4-DB	ug/Kg	61 U	57 U	58 U	57 U	54 U		61 U	
2,4,5-T	ug/Kg	6.1 U	5.7 U	5.8 U	5.7 U	5.4 U		6.1 U	
2,4,5-TP (Silvex)	ug/Kg	6.1 U	5.7 U	5.8 U	5.7 U	5.4 U		6.1 U	
Dalapon	ug/Kg	150 U	140 U	140 U	140 U	130 U		150 U	
Dicamba	ug/Kg	6.1 U	5.7 U	5.8 U	5.7 U	5.4 U		6.1 U	
Dichloroprop	ug/Kg	61 U	57 U	58 U	57 U	54 U		61 U	
Dinoseb	ug/Kg	31 U	29 U	29 U	29 U	27 U		30 U	
MCPA	ug/Kg	6100 U	5700 U	5800 U	5700 U	5400 U		6100 U	
MCPP	ug/Kg	6100 U	5700 U	5800 U	5700 U	5400 U		6100 U	
Metals									
Aluminum	mg/Kg	13500	10600	14800	10500	7410		11100	
Antimony	mg/Kg	5.3 UJ	5.5 UJ	6.3 UJ	4.4 UJ	6.4 UJ		6.9 UJ	
Arsenic	mg/Kg	4.6	2.9	3.5	4.5	2.3		4.4	
Barium	mg/Kg	105	47.5	51.7	48.4	88.8 J		78.8 J	
Beryllium	mg/Kg	0.69 J	0.51 J	0.72 J	0.53 J	0.38 J		0.57 J	
Cadmium	mg/Kg	0.39 U	4.4	0.47 U	0.32 U	0.63		0.4 U	
Calcium	mg/Kg	53900	64500	11500	61900	139000		124000	
Chromium	mg/Kg	25	17.8	24.6	17.3	17.4 J		15.9 J	
Cobalt	mg/Kg	12.1	10.4	14.8	10.2	7		6.9	
Copper	mg/Kg	31	24.5	15.6	27.5	38.4		22.5	
Iron	mg/Kg	27600	22900	30000	21800	16900		17700	
Lead	mg/Kg	55.9	59.1 J	6.2	8.2 J	165		11	
Magnesium	mg/Kg	7270	8610	8290	9180	23400		10300	
Manganese	mg/Kg	1040	488	855	454	436		573	
Mercury	mg/Kg	0.04 U	0.02 U	0.04 U	0.03 U	0.1 R		0.08 R	
Nickel	mg/Kg	36.9	30	39.8	30.4	24.8		16.4	
Potassium	mg/Kg	1340	867 J	1130 J	1020	1400		1320	
Selenium	mg/Kg	0.54 J	0.11 U	0.14 U	0.19 U	1.8		1.6	
Silver	mg/Kg	0.83 U	0.86 U	1 U	0.7 U	0.38 U		0.41 U	
Sodium	mg/Kg	257 J	226 J	119 U	245 J	225 J		442 J	
Thallium	mg/Kg	0.49 U	0.34 U	0.42 U	0.58 U	1.6 U		1.7 U	
Vanadium	mg/Kg	23.7	15.1	18.6	16.1	12.9		18.4	
Zinc	mg/Kg	1110	88.5	64	104	3540		88.2 J	
Cyanide	mg/Kg	0.72 U	0.66 U	0.69 U	0.55 U	1.4		0.73 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-39	B-39	B-39	BK-1	BK-2	BK-2RE	B-40	B-40
	DEPTH(FT.)	4-6	4-6	6-6.5	0-2	0-2	0-2	0-2	2-3.4
	DATE	12/15/92	12/15/92	12/15/92	12/16/92	12/18/92	12/18/92	12/08/92	12/08/92
	ES ID	B39-3	B39-3RE	B39-4	BK-1	BK-2	BK-2RE	B40-1	B40-2
	LAB ID	176447	176447R1	176448	176440	176441	176441R1	175786	175787
	UNITS								
VOCs									
Chloromethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Bromomethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Vinyl Chloride	ug/Kg	160		240 E	14 U	13 U		13 U	12 U
Chloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Methylene Chloride	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Acetone	ug/Kg	57 U		21 U	14 U	13 U		13 U	12 U
Carbon Disulfide	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,1-Dichloroethene	ug/Kg	130		140	14 U	13 U		13 U	12 U
1,1-Dichloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,2-Dichloroethene (total)	ug/Kg	1600		1700	13 U	13 U		13 U	12 U
Chloroform	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,2-Dichloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
2-Butanone	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,1,1-Trichloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Carbon Tetrachloride	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,2-Dichloropropane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
cis-1,3-Dichloropropene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Trichloroethene	ug/Kg	1000		2200 J	14 U	13 U		13 U	12 U
Dibromochloromethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,1,2-Trichloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Benzene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
trans-1,3-Dichloropropene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Bromoform	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
4-Methyl-2-Pentanone	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
2-Hexanone	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Tetrachloroethene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Toluene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Chlorobenzene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Ethylbenzene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Styrene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Xylene (total)	ug/Kg	57 U		5 J	14 U	13 U		13 U	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-39	B-39	B-39	BK-1	BK-2	BK-2RE	B-40	B-40
	DEPTH (FT.)	4-6	4-6	6-6.5	0-2	0-2	0-2	0-2	2-3.4
	DATE	12/15/92	12/15/92	12/15/92	12/16/92	12/16/92	12/16/92	12/08/92	12/08/92
	ES ID	B39-3	B39-3RE	B39-4	BK-1	BK-2	BK-2RE	B40-1	B40-2
	LAB ID	176447	176447R1	176448	176440	176441	176441R1	175786	175787
	UNITS								
Semivolatiles									
Phenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
bis(2-Chloroethyl) ether	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2-Chlorophenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
1,3-Dichlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
1,4-Dichlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2-Methylphenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,2'-oxybis (1-Chloropropane)	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Methylphenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
N-Nitroso-di-n-propylamine	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Hexachloroethane	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Nitrobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Isophorone	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2-Nitrophenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4-Dimethylphenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4-Dichlorophenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
1,2,4-Trichlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Naphthalene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Chloroaniline	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Hexachlorobutadiene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Chloro-3-methylphenol	ug/Kg	390 U	370 U	420 U	430 U	430 UJ	430 UJ	390 U	400 U
2-Methylnaphthalene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Hexachlorocyclopentadiene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4,6-Trichlorophenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4,5-Trichlorophenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
2-Chloronaphthalene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2-Nitroaniline	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
Dimethylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Acenaphthylene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	13 J	400 U
2,6-Dinitrotoluene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
3-Nitroaniline	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
Acenaphthene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4-Dinitrophenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
4-Nitrophenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
Dibenzofuran	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4-Dinitrotoluene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Diethylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Chlorophenyl-phenylether	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Fluorene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Nitroaniline	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
4,6-Dinitro-2-methylphenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
N-Nitrosodiphenylamine	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Bromophenyl-phenylether	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Hexachlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Pentachlorophenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
Phenanthrene	ug/Kg	390 U	390 U	370 U	420 U	29 J	130 J	53 J	16 J
Anthracene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	31 J	15 J	400 U
Carbazole	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	37 J	390 U	400 U
Di-n-butylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	160 J	240 J
Fluoranthene	ug/Kg	390 U	390 U	370 U	23 J	47 J	190 J	92 J	26 J
Pyrene	ug/Kg	390 U	390 U	370 U	21 J	41 J	140 J	110 J	24 J
Butylbenzylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
3,3'-Dichlorobenzidine	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Benzo(a)anthracene	ug/Kg	390 U	390 U	370 U	420 U	21 J	77 J	46 J	400 U
Chrysene	ug/Kg	390 U	390 U	370 U	420 U	28 J	80 J	74 J	400 U
bis(2-Ethylhexyl)phthalate	ug/Kg	1500	1300	540 U	670 U	430 UJ	260 J	600	320 J
Di-n-octylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 J	390 U	400 U
Benzo(b)fluoranthene	ug/Kg	390 U	390 U	370 U	420 U	20 J	66 J	62 J	400 U
Benzo(k)fluoranthene	ug/Kg	390 U	390 U	370 U	420 U	20 J	70 J	65 J	400 U
Benzo(a)pyrene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	48 J	48 J	400 U
Indeno(1,2,3-cd)pyrene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	34 J	36 J	400 U
Dibenz(a,h)anthracene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Benzo(g,h,i)perylene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	37 J	400 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-39	B-39	B-39	BK-1	BK-2	BK-2RE	B-40	B-40
	DEPTH(FT.)	4-6	4-6	6-6.5	0-2	0-2	0-2	0-2	2-3.4
	DATE	12/15/92	12/15/92	12/15/92	12/16/92	12/16/92	12/16/92	12/08/92	12/08/92
	ES ID	B39-3	B39-3RE	B39-4	BK-1	BK-2	BK-2RE	B40-1	B40-2
	LAB ID	176447	176447R1	176448	176440	176441	176441R1	175786	175787
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
beta-BHC	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
delta-BHC	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
gamma-BHC (Lindane)	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Heptachlor	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Aldrin	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Heptachlor epoxide	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Endosulfan I	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Dieldrin	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
4,4'-DDE	ug/Kg	3.9 U		3.7 U	4.3 U	2.2 J		3.9 U	3.9 U
Endrin	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
Endosulfan II	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
4,4'-DDD	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
Endosulfan sulfate	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
4,4'-DDT	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
Methoxychlor	ug/Kg	20 U		19 U	22 U	22 U		20 U	20 U
Endrin ketone	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
Endrin aldehyde	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
alpha-Chlordane	ug/Kg	2 U		1.9 U	2.2 U	1.3 J		2 U	2 U
gamma-Chlordane	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Toxaphene	ug/Kg	200 U		190 U	220 U	220 U		200 U	200 U
Aroclor-1016	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1221	ug/Kg	79 U		76 U	88 U	88 U		79 U	79 U
Aroclor-1232	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1242	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1248	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1254	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1260	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Herbicides									
2,4-D	ug/Kg	58 U		57 U	64 U	65 U		59 U	60 U
2,4-DB	ug/Kg	58 U		57 U	64 U	65 U		59 U	60 U
2,4,5-T	ug/Kg	5.8 U		5.7 U	6.4 U	6.5 U		5.9 U	6 U
2,4,5-TP (Silvex)	ug/Kg	5.8 U		5.7 U	6.4 U	6.5 U		5.9 U	6 U
Dalapon	ug/Kg	140 U		140 U	150 U	160 U		140 U	144 U
Dicamba	ug/Kg	5.8 U		5.7 U	8.4 U	6.5 U		5.9 U	6 U
Dichloroprop	ug/Kg	58 U		57 U	64 U	65 U		59 U	60 U
Dinoseb	ug/Kg	29 U		28 U	32 U	33 U		30 U	30 U
MCPA	ug/Kg	5800 U		5700 U	6400 U	6500 U		5900 U	6000 U
MCPP	ug/Kg	5800 U		5700 U	6400 U	6500 U		5900 U	6000 U
Metals									
Aluminum	mg/Kg	11000		10800	19400	14400		16900	14900
Antimony	mg/Kg	6.5 UJ		7.8 UJ	7.9 U	7.2 U		9.9 UJ	10.5 UJ
Arsenic	mg/Kg	2.2		3.4	3	2.7		4.6	5
Barium	mg/Kg	54.1 J		59 J	159	106		73.1	70.3
Beryllium	mg/Kg	0.47 J		0.45 J	1.1	0.81		0.7 J	0.69 J
Cadmium	mg/Kg	0.37 U		0.45 U	0.45 U	0.41 U		0.57 U	0.6 U
Calcium	mg/Kg	102000		54700	4590	22500		3500	56900
Chromium	mg/Kg	16.6 J		17.9 J	30	22.3		27	24.2
Cobalt	mg/Kg	9.2		10.2	14.4	12.3		11.6	12.8
Copper	mg/Kg	20.9		23.2	26.9	18.8		16.9	25.4
Iron	mg/Kg	20800		21100	38600	26600		32700	29200
Lead	mg/Kg	19		17	15.8	18.9		17.3	12.1
Magnesium	mg/Kg	8430		17500	5980	7910		5570	8890
Manganese	mg/Kg	488		758	2380	800		723	623
Mercury	mg/Kg	0.08 R		0.08 R	0.13 J	0.11		0.09 J	0.03 J
Nickel	mg/Kg	27.4		27.2	47.7	31		32.9	38.8
Potassium	mg/Kg	1140		1200	1720	1210		1060	1420
Selenium	mg/Kg	0.26 J		0.5 J	0.73 J	0.94		0.45 J	0.56 J
Silver	mg/Kg	0.38 U		0.46 U	0.47 U	0.43 U		0.59 U	0.62 U
Sodium	mg/Kg	407 J		342 J	49.1 J	61.1 J		54.8 U	110 J
Thallium	mg/Kg	1.7 U		0.34 U	0.42 U	0.38 U		0.5 U	0.4 U
Vanadium	mg/Kg	15.9		17.2	28	22.4		24.3	21.4
Zinc	mg/Kg	108 J		434	98.6	63.7		83.1	99.8
Cyanide	mg/Kg	0.68 U		0.65 U	0.57 U	0.61 U		0.57 U	0.58 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-40	B-40	B-41	B-41	B-41	B-41	B-41	B-41
	DEPTH (FT.)	6-8	8-10	0-2	0-2	2-4	2-4	5.5-6.5	5.5-6.5
	DATE	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92
	ES ID	B40-4	B40-5	B41-1	B41-1RE	B41-2	B41-2RE	B41-3	B41-3RE
	LAB ID	175789	175790	176001	176001R1	176002	176002R1	176003	176003R1
	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Bromomethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Vinyl Chloride	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Chloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Methylene Chloride	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Acetone	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Carbon Disulfide	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1-Dichloroethene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1-Dichloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,2-Dichloroethene (total)	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Chloroform	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,2-Dichloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
2-Butanone	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1,1-Trichloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Carbon Tetrachloride	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,2-Dichloropropane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
cis-1,3-Dichloropropene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Trichloroethene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Dibromochloromethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1,2-Trichloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Benzene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
trans-1,3-Dichloropropene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Bromoform	ug/Kg	11 U	12 U	11 U		12 U		11 U	
4-Methyl-2-Pentanone	ug/Kg	11 U	12 U	11 U		12 U		11 U	
2-Hexanone	ug/Kg	11 U	12 U	11 J		12 U		11 U	
Tetrachloroethene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1,2,2-Tetrachloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Toluene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Chlorobenzene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Ethylbenzene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Styrene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Xylene (total)	ug/Kg	11 U	12 U	11 U		12 U		11 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH(FT.) DATE ES ID LAB ID UNITS	SOIL B-40 6-8 12/08/92 B40-4 175789	SOIL B-40 8-10 12/08/92 B40-5 175790	SOIL B-41 0-2 12/08/92 B41-1 176001	SOIL B-41 0-2 12/08/92 B41-1RE 176001R1	SOIL B-41 2-4 12/08/92 B41-2 176002	SOIL B-41 2-4 12/08/92 B41-2RE 176002R1	SOIL B-41 5.5-6.5 12/08/92 B41-3 176003	SOIL B-41 5.5-6.5 12/08/92 B41-3RE 176003R1
Semivolatiles									
Phenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
bis(2-Chloroethyl) ether	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Chlorophenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
1,3-Dichlorobenzene	ug/Kg	360 U	360 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
1,4-Dichlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Methylphenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
4-Methylphenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
N-Nitroso-di-n-propylamine	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Hexachloroethane	ug/Kg	360 U	380 U	380 UJ	360 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Nitrobenzene	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Isophorone	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Nitrophenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,4-Dimethylphenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,4-Dichlorophenol	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
1,2,4-Trichlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Naphthalene	ug/Kg	360 U	380 U	380 UJ	39 J	400 UJ	400 UJ	390 UJ	400 UJ
4-Chloroaniline	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Hexachlorobutadiene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
4-Chloro-3-methylphenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Methylnaphthalene	ug/Kg	360 U	380 U	380 UJ	21 J	400 UJ	400 UJ	390 UJ	400 UJ
Hexachlorocyclopentadiene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,4,6-Trichlorophenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,4,5-Trichlorophenol	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
2-Chloronaphthalene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Nitroaniline	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
Dimethylphthalate	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Acenaphthylene	ug/Kg	360 U	380 U	380 UJ	81 J	400 UJ	400 UJ	390 UJ	400 UJ
2,6-Dinitrotoluene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
3-Nitroaniline	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
Acenaphthene	ug/Kg	360 U	380 U	380 UJ	72 J	400 UJ	400 UJ	390 UJ	400 UJ
2,4-Dinitrophenol	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
4-Nitrophenol	ug/Kg	930 U	910 U	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ	860 UJ
Dibenzofuran	ug/Kg	360 U	380 U	380 UJ	28 J	400 UJ	400 UJ	390 UJ	400 UJ
2,4-Dinitrotoluene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Diethylphthalate	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
4-Chlorophenyl-phenylether	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Fluorene	ug/Kg	360 U	380 U	380 UJ	54 J	400 UJ	400 UJ	390 UJ	400 UJ
4-Nitroaniline	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	890 U	930 U	910 UJ	920 UJ	980 UJ	980 UJ	950 UJ	960 UJ
N-Nitrosodiphenylamine	ug/Kg	380 U	360 U	380 UJ	360 UJ	400 UJ	400 UJ	390 UJ	400 UJ
4-Bromophenyl-phenylether	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Hexachlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Pentachlorophenol	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
Phenanthrene	ug/Kg	360 U	380 U	130 J	760 J	40 J	60 J	390 UJ	16 J
Anthracene	ug/Kg	380 U	380 U	17 J	150 J	400 UJ	400 UJ	390 UJ	400 UJ
Carbazole	ug/Kg	380 U	380 U	110 J	490 J	400 UJ	400 UJ	390 UJ	400 UJ
Di-n-butylphthalate	ug/Kg	360 J	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Fluoranthene	ug/Kg	360 U	380 U	280 J	1300 J	76 J	120 J	390 UJ	30 J
Pyrene	ug/Kg	380 U	380 U	220 J	1300 J	83 J	94 J	390 UJ	400 UJ
Butylbenzylphthalate	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
3,3'-Dichlorobenzidine	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Benzo(a)anthracene	ug/Kg	360 U	380 U	93 J	590 J	27 J	45 J	390 UJ	400 UJ
Chrysene	ug/Kg	360 U	380 U	150 J	850 J	45 J	65 J	390 UJ	18 J
bis(2-Ethylhexyl)phthalate	ug/Kg	280 J	380 U	380 UJ	380 UJ	400 UJ	400 UJ	890 J	1100 J
Di-n-octylphthalate	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Benzo(b)fluoranthene	ug/Kg	360 U	380 U	180 J	1100 J	43 J	63 J	390 UJ	400 UJ
Benzo(k)fluoranthene	ug/Kg	360 U	380 U	150 J	670 J	45 J	85 J	390 UJ	400 UJ
Benzo(a)pyrene	ug/Kg	360 U	380 U	48 J	650 J	15 J	46 J	390 UJ	400 UJ
Indeno(1,2,3-cd)pyrene	ug/Kg	360 U	380 U	93 J	290 J	30 J	45 J	390 UJ	400 UJ
Dibenz(a,h)anthracene	ug/Kg	360 U	380 U	380 UJ	120 J	400 UJ	400 UJ	390 UJ	400 UJ
Benzo(g,h,i)perylene	ug/Kg	360 U	380 U	74 J	280 J	26 J	400 UJ	390 UJ	400 UJ

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-40	B-40	B-41	B-41	B-41	B-41	B-41	B-41
	DEPTH (FT.)	6-8	8-10	0-2	0-2	2-4	2-4	5.5-6.5	5.5-6.5
	DATE	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92
	ES ID	B40-4	B40-5	B41-1	B41-1RE	B41-2	B41-2RE	B41-3	B41-3RE
	LAB ID	175789	175790	176001	176001R1	176002	176002R1	176003	176003R1
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
beta-BHC	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
delta-BHC	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
gamma-BHC (Lindane)	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Heptachlor	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Aldrin	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Heptachlor epoxide	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Endosulfan I	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Dieldrin	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
4,4'-DDE	ug/Kg	3.7 U	3.8 U	91 J		66		74	
Endrin	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
Endosulfan II	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
4,4'-DDD	ug/Kg	3.7 U	3.8 U	260 J		350		170	
Endosulfan sulfate	ug/Kg	3.7 U	3.6 U	37 U		39 U		20 U	
4,4'-DDT	ug/Kg	3.7 U	3.8 U	39 J		27 J		29	
Methoxychlor	ug/Kg	19 U	20 U	190 U		200 U		100 U	
Endrin ketone	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
Endrin aldehyde	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
alpha-Chlordane	ug/Kg	1.9 U	2 U	12 J		9.7 J		14 J	
gamma-Chlordane	ug/Kg	1.9 U	2 U	11 J		11 J		15	
Toxaphene	ug/Kg	190 U	200 U	1900 U		2000 U		1000 U	
Aroclor-1016	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1221	ug/Kg	74 U	78 U	760 U		790 U		400 U	
Aroclor-1232	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1242	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1248	ug/Kg	37 U	36 U	370 U		390 U		200 U	
Aroclor-1254	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1260	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Herbicides									
2,4-D	ug/Kg	56 U	59 U	56 U		60 U		60 U	
2,4-DB	ug/Kg	56 U	59 U	56 U		60 U		60 U	
2,4,5-T	ug/Kg	5.6 U	5.9 U	5.6 U		6 U		6 U	
2,4,5-TP (Silvex)	ug/Kg	5.6 U	5.9 U	5.6 U		6 U		6 U	
Dalapon	ug/Kg	130 U	140 U	140 U		140 U		140 U	
Dicamba	ug/Kg	5.6 U	5.9 U	5.6 U		6 U		6 U	
Dichloroprop	ug/Kg	56 U	59 U	56 U		60 U		60 U	
Dinoseb	ug/Kg	28 U	29 U	28 U		30 U		30 U	
MCPA	ug/Kg	5600 U	5900 U	5600 U		6000 U		6000 U	
MCPP	ug/Kg	5600 U	5900 U	5600 U		6000 U		6000 U	
Metals									
Aluminum	mg/Kg	11600	9270	10100		12000		18700	
Antimony	mg/Kg	11.6 UJ	12.2 UJ	9.9 UJ		8.8 UJ		6.7 UJ	
Arsenic	mg/Kg	4.1	4.5	4.9		3.2		4.4	
Barium	mg/Kg	62.7	43.3 J	68.9		87.8		105	
Beryllium	mg/Kg	0.51 J	0.49 J	0.57 J		0.55 J		0.84	
Cadmium	mg/Kg	0.67 U	0.7 U	0.7 J		0.5 U		0.38 U	
Calcium	mg/Kg	50500	57300	89100		42500		7920	
Chromium	mg/Kg	19.9	18.3	19		19.4		30.3	
Cobalt	mg/Kg	10.4 J	8.5 J	9.7		8.2		17	
Copper	mg/Kg	25.4	25.1	29.2		32.2		25.1	
Iron	mg/Kg	25200	22300	20000		20000		40900	
Lead	mg/Kg	14.2	8.9	81.4		52.5		26.9	
Magnesium	mg/Kg	9810	6790	16200		8600		7250	
Manganese	mg/Kg	523	590	462		299		528	
Mercury	mg/Kg	0.03 U	0.03 J	0.04 J		0.06 J		0.06 J	
Nickel	mg/Kg	34.5	26.2	29		28.5		45.9	
Potassium	mg/Kg	1290	941 J	1200		1320		1140	
Selenium	mg/Kg	0.67 J	0.45 J	0.58 J		0.82		0.54 J	
Silver	mg/Kg	0.69 U	0.72 U	0.59 U		0.52 U		0.4 U	
Sodium	mg/Kg	78.5 J	67.2 U	108 J		91.3 J		40.3 J	
Thallium	mg/Kg	0.45 U	0.38 U	0.33 U		0.36 U		0.31 U	
Vanadium	mg/Kg	17.3	13.6	27		23.6		26.4	
Zinc	mg/Kg	76.9	96.3	139		223		123	
Cyanide	mg/Kg	0.53 U	0.47 U	0.69 U		0.7 U		0.66 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-41	B-41	B-42	B-42	B-42	B-42	B-42	B-42
	DEPTH (FT.)	6.5-6	6.5-8	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/08/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B41-4	B41-4RE	B42-1	B42-1RE	B42-2	B42-2RE	B42-3	B42-3RE
	LAB ID	176004	176004R1	176005	176005R1	176006	176006R1	176007	176007R1
	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Bromomethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Vinyl Chloride	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Chloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Methylene Chloride	ug/Kg	11 U		5 J	11 UJ	12 UJ	12 UJ	15 U	
Acetone	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Carbon Disulfide	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1-Dichloroethene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1-Dichloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,2-Dichloroethene (total)	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Chloroform	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,2-Dichloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
2-Butanone	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1,1-Trichloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Carbon Tetrachloride	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,2-Dichloropropane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
cis-1,3-Dichloropropene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Trichloroethene	ug/Kg	11 U		90 J	96 J	170 J	230 J	38	
Dibromochloromethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1,2-Trichloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Benzene	ug/Kg	11 U		11 UJ	11 UJ	2 J	3 J	15 U	
trans-1,3-Dichloropropene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Bromoform	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
4-Methyl-2-Pentanone	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
2-Hexanone	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Tetrachloroethene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1,2,2-Tetrachloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Toluene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Chlorobenzene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Ethylbenzene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Styrene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Xylene (total)	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-41	B-41	B-42	B-42	B-42	B-42	B-42	B-42
	DEPTH (FT.)	6.5-8	6.5-8	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/08/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B41-4	B41-4RE	B42-1	B42-1RE	B42-2	B42-2RE	B42-3	B42-3RE
	LAB ID	178004	176004R1	178005	176005R1	176006	176006R1	176007	176007R1
	UNITS								
Semivolatiles									
Phenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
bis(2-Chloroethyl) ether	ug/Kg	360 UJ	380 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Chlorophenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
1,3-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
1,4-Dichlorobenzene	ug/Kg	360 UJ	380 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Methylphenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	380 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
4-Methylphenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
N-Nitroso-di-n-propylamine	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Hexachloroethane	ug/Kg	360 UJ	360 UJ	360 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Nitrobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Isophorone	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Nitrophenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,4-Dimethylphenol	ug/Kg	360 UJ	380 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,4-Dichlorophenol	ug/Kg	360 UJ	360 UJ	360 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
1,2,4-Trichlorobenzene	ug/Kg	380 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Naphthalene	ug/Kg	360 UJ	360 UJ	380 UJ	44 J	120 J	150 J	410 UJ	410 UJ
4-Chloroaniline	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Hexachlorobutadiene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
4-Chloro-3-methylphenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Methylnaphthalene	ug/Kg	360 UJ	360 UJ	14 J	15 J	40 J	71 J	410 UJ	410 UJ
Hexachlorocyclopentadiene	ug/Kg	360 UJ	380 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,4,6-Trichlorophenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,4,5-Trichlorophenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
2-Chloronaphthalene	ug/Kg	360 UJ	380 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Nitroaniline	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
Dimethylphthalate	ug/Kg	360 UJ	360 UJ	360 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Acenaphthylene	ug/Kg	360 UJ	360 UJ	41 J	44 J	390 UJ	23 J	410 UJ	410 UJ
2,6-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	360 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
3-Nitroaniline	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
Acenaphthene	ug/Kg	360 UJ	360 UJ	54 J	48 J	240 J	390 J	410 UJ	410 UJ
2,4-Dinitrophenol	ug/Kg	880 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
4-Nitrophenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
Dibenzofuran	ug/Kg	360 UJ	360 UJ	32 J	25 J	110 J	180 J	410 UJ	410 UJ
2,4-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Diethylphthalate	ug/Kg	360 UJ	380 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
4-Chlorophenyl-phenylether	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Fluorene	ug/Kg	360 UJ	360 UJ	49 J	39 J	200 J	320 J	410 UJ	410 UJ
4-Nitroaniline	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
N-Nitrosodiphenylamine	ug/Kg	360 UJ	380 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
4-Bromophenyl-phenylether	ug/Kg	360 UJ	380 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Hexachlorobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Pentachlorophenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
Phenanthrene	ug/Kg	360 UJ	360 UJ	570 J	530 J	1900 J	2200 J	22 J	76 J
Anthracene	ug/Kg	360 UJ	360 UJ	120 J	130 J	310 J	560 J	410 UJ	19 J
Carbazole	ug/Kg	360 UJ	360 UJ	370 J	280 J	1000 J	910 J	410 UJ	410 UJ
Di-n-butylphthalate	ug/Kg	110 J	430 J	1100 J	820 J	390 UJ	390 UJ	410 UJ	410 UJ
Fluoranthene	ug/Kg	380 UJ	360 UJ	1100 J	920 J	2700 J	2800 J	32 J	100 J
Pyrene	ug/Kg	360 UJ	360 UJ	810 J	890 J	2100 J	2400 J	35 J	77 J
Butylbenzylphthalate	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
3,3'-Dichlorobenzidine	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Benzo(a)anthracene	ug/Kg	360 UJ	380 UJ	490 J	560 J	1100 J	1500 J	14 J	39 J
Chrysene	ug/Kg	360 UJ	360 UJ	600 J	710 J	1300 J	1600 J	22 J	49 J
bis(2-Ethylhexyl)phthalate	ug/Kg	380 J	1100 J	2200 J	1100 J	600 J	550 J	260 UJ	370 J
Di-n-octylphthalate	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Benzo(b)fluoranthene	ug/Kg	360 UJ	380 UJ	770 J	800 J	1400 J	1700 J	27 J	59 J
Benzo(k)fluoranthene	ug/Kg	380 UJ	360 UJ	670 J	730 J	1000 J	1200 J	27 J	50 J
Benzo(a)pyrene	ug/Kg	360 UJ	360 UJ	580 J	660 J	780 J	1300 J	410 UJ	38 J
Indeno(1,2,3-cd)pyrene	ug/Kg	360 UJ	360 UJ	370 J	460 J	510 J	810 J	21 J	39 J
Dibenz(a,h)anthracene	ug/Kg	360 UJ	360 UJ	130 J	170 J	200 J	360 J	410 UJ	410 UJ
Benzo(g,h,i)perylene	ug/Kg	360 UJ	360 UJ	290 J	300 J	320 J	620 J	60 J	46 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH(FT.) / DATE / ES ID / LAB ID / UNITS	SOIL B-41 6.5-8 12/09/92 B41-4 176004	SOIL B-41 6.5-8 12/08/92 B41-4RE 176004R1	SOIL B-42 0-2 12/09/92 B42-1 176005	SOIL B-42 0-2 12/09/92 B42-1RE 176005R1	SOIL B-42 2-4 12/09/92 B42-2 176006	SOIL B-42 2-4 12/09/92 B42-2RE 176006R1	SOIL B-42 4-6 12/09/92 B42-3 176007	SOIL B-42 4-6 12/09/92 B42-3RE 176007R1
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
beta-BHC	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
delta-BHC	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
gamma-BHC (Lindane)	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Heptachlor	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Aldrin	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Heptachlor epoxide	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Endosulfan I	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Dieldrin	ug/Kg	3.6 U		19 U		20 U		4.1 U	
4,4'-DDE	ug/Kg	3.6 U		90 J		290		14	
Endrin	ug/Kg	3.6 U		19 U		20 U		4.1 U	
Endosulfan II	ug/Kg	3.6 U		19 U		20 U		4.1 U	
4,4'-DDD	ug/Kg	3.6 U		6.4 J		15 J		1.3 J	
Endosulfan sulfate	ug/Kg	3.6 U		19 U		20 U		4.1 U	
4,4'-DDT	ug/Kg	3.6 U		260 J		240		30	
Methoxychlor	ug/Kg	18 U		98 U		100 U		21 U	
Endrin ketone	ug/Kg	3.6 U		19 U		20 U		4.1 U	
Endrin aldehyde	ug/Kg	3.6 U		19 U		20 U		4.1 U	
alpha-Chlordane	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
gamma-Chlordane	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Toxaphene	ug/Kg	180 U		980 U		1000 U		210 U	
Aroclor-1016	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1221	ug/Kg	72 U		390 U		400 U		84 U	
Aroclor-1232	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1242	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1248	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1254	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1260	ug/Kg	36 U		190 U		200 U		41 U	
Herbicides									
2,4-D	ug/Kg	54 U	53 U	58 U		60 U		62 U	
2,4-DB	ug/Kg	54 U	53 U	58 U		60 U		62 U	
2,4,5-T	ug/Kg	5.4 U	5.3 U	5.8 U		6 U		6.2 U	
2,4,5-TP (Silvex)	ug/Kg	5.4 U	5.3 U	5.8 U		6 U		6.2 U	
Dalapon	ug/Kg	130 U	130 U	140 U		140 U		150 U	
Dicamba	ug/Kg	5.4 U	5.3 U	5.8 U		6 U		6.2 U	
Dichloroprop	ug/Kg	54 U	53 U	58 U		60 U		62 U	
Dinoseb	ug/Kg	27 U	27 U	29 U		30 U		31 U	
MCPA	ug/Kg	5400 U	5300 U	5800 U		6000 U		6200 U	
MCPP	ug/Kg	5400 U	5300 U	5800 U		6000 U		6200 U	
Metals									
Aluminum	mg/Kg	7460		12500		12500		20600	
Antimony	mg/Kg	9.8 UJ		15.2 J		8.6 UJ		8.9 UJ	
Arsenic	mg/Kg	2.4		8.7		10.5		7.1	
Barium	mg/Kg	20.4 J		188		218		104	
Beryllium	mg/Kg	0.29 J		0.45 J		0.45 J		1.1	
Cadmium	mg/Kg	0.56 U		2.8		3.7		0.51 U	
Calcium	mg/Kg	12100		31200		32300		6320	
Chromium	mg/Kg	12.2		48.6		52.4		41.5	
Cobalt	mg/Kg	6 J		12.8		25.1		15.2	
Copper	mg/Kg	5.4 R		177		311		51.6	
Iron	mg/Kg	15300		43800		49300		40900	
Lead	mg/Kg	4.2		1170		672		158	
Magnesium	mg/Kg	3300		8470		6760		6500	
Manganese	mg/Kg	287 R		630		589		641	
Mercury	mg/Kg	0.06		1.2		0.89		0.38	
Nickel	mg/Kg	18		66		2520		76.8	
Potassium	mg/Kg	405 J		1420		1730		1950	
Selenium	mg/Kg	0.38 J		1 J		2.1		0.88	
Silver	mg/Kg	0.58 U		10.5		2		0.53 U	
Sodium	mg/Kg	54.1 U		309 J		375 J		87.6 J	
Thallium	mg/Kg	0.38 U		0.59 U		0.51 U		0.4 U	
Vanadium	mg/Kg	8.3 J		27.1		27.7		30.3	
Zinc	mg/Kg	40.5		649		907		171	
Cyanide	mg/Kg	0.62 U		0.52 U		0.51 U		0.58 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-42	B-42	B-43	B-43	B-43	B-43	B-43	B-43
	DEPTH (FT.)	6-7.2	6-7.2	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B42-4	B42-4RE	B43-1	B43-1RE	B43-2	B43-2RE	B43-3	B43-3RE
	LAB ID	176008	176008R2	176009	176009R1	176010	176010R1	176011	176011R1
	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Bromomethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Vinyl Chloride	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Chloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Methylene Chloride	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Acetone	ug/Kg	11 U		11 U		13 U		36 UJ	48 UJ
Carbon Disulfide	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,1-Dichloroethene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,1-Dichloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,2-Dichloroethene (total)	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Chloroform	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,2-Dichloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
2-Butanone	ug/Kg	11 U		11 U		13 U		7 J	7 J
1,1,1-Trichloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Carbon Tetrachloride	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,2-Dichloropropane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
cis-1,3-Dichloropropene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Trichloroethene	ug/Kg	2 J		8 J		8 J		11 J	9 J
Dibromochloromethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,1,2-Trichloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Benzene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
trans-1,3-Dichloropropene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Bromoform	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
4-Methyl-2-Pentanone	ug/Kg	11 U		5 J		13 U		12 UJ	12 UJ
2-Hexanone	ug/Kg	11 U		9 J		13 U		12 UJ	12 UJ
Tetrachloroethene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,1,2,2-Tetrachloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Toluene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Chlorobenzene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Ethylbenzene	ug/Kg	11 U		3 J		13 U		12 UJ	12 UJ
Styrene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Xylene (total)	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-42	B-42	B-43	B-43	B-43	B-43	B-43	B-43
	DEPTH (FT.)	6-7.2	6-7.2	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B42-4	B42-4RE	B43-1	B43-1RE	B43-2	B43-2RE	B43-3	B43-3RE
	LAB ID	176008	176008R2	176009	176009R1	176010	176010R1	176011	176011R1
COMPOUND	UNITS								
Semivolatiles									
Phenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 J	2800 UJ	1000 UJ	1000 UJ
bis(2-Chloroethyl) ether	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Chlorophenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
1,3-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
1,4-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Methylphenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
4-Methylphenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
N-Nitroso-di-n-propylamine	ug/Kg	380 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2600 UJ	1000 UJ	1000 UJ
Hexachloroethane	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Nitrobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Isophorone	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Nitrophenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,4-Dimethylphenol	ug/Kg	360 UJ	380 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,4-Dichlorophenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
1,2,4-Trichlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Naphthalene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	500 J	2800 UJ	1000 UJ	1000 UJ
4-Chloroaniline	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Hexachlorobutadiene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
4-Chloro-3-methylphenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Methylnaphthalene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	350 J	2800 UJ	1000 UJ	1000 UJ
Hexachlorocyclopentadiene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,4,6-Trichlorophenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,4,5-Trichlorophenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
2-Chloronaphthalene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Nitroaniline	ug/Kg	870 UJ	880 UJ	8200 UJ	82000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
Dimethylphthalate	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Acenaphthylene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,6-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
3-Nitroaniline	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
Acenaphthene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 J	250 J	66 J	1000 UJ
2,4-Dinitrophenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
4-Nitrophenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
Dibenzofuran	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	990 J	120 J	1000 UJ	1000 UJ
2,4-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Diethylphthalate	ug/Kg	360 UJ	380 UJ	2500 UJ	25000 UJ	1300 J	2800 UJ	1000 UJ	1000 UJ
4-Chlorophenyl-phenylether	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Fluorene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	1900 J	230 J	53 J	1000 UJ
4-Nitroaniline	ug/Kg	870 UJ	880 UJ	6200 UJ	82000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
N-Nitrosodiphenylamine	ug/Kg	360 UJ	380 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
4-Bromophenyl-phenylether	ug/Kg	380 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Hexachlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Pentachlorophenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
Phenanthrene	ug/Kg	360 UJ	360 UJ	160 J	820 J	15000 J	2600 J	320 J	240 J
Anthracene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2900 J	680 J	95 J	79 J
Carbazole	ug/Kg	360 UJ	380 UJ	2500 UJ	25000 UJ	18000 J	1300 J	430 J	180 J
Di-n-butylphthalate	ug/Kg	390 J	90 J	82 J	25000 UJ	200 J	320 J	1000 UJ	1000 UJ
Fluoranthene	ug/Kg	380 UJ	18 J	240 J	1300 J	15000 J	4300 J	410 J	460 J
Pyrene	ug/Kg	360 UJ	13 J	270 J	1100 J	14000 J	3600 J	500 J	340 J
Butylbenzylphthalate	ug/Kg	14 J	14 J	2500 UJ	25000 UJ	300 J	300 J	1000 UJ	1000 UJ
3,3'-Dichlorobenzidine	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Benzo(a)anthracene	ug/Kg	360 UJ	360 UJ	140 J	25000 UJ	8000 J	2200 J	250 J	200 J
Chrysene	ug/Kg	360 UJ	360 UJ	170 J	25000 UJ	8600 J	2400 J	300 J	230 J
bis(2-Ethylhexyl)phthalate	ug/Kg	1500	1200 J	33000 J	230000 J	13000 J	21000 J	3000 J	5800 J
Di-n-octylphthalate	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Benzo(b)fluoranthene	ug/Kg	360 UJ	360 UJ	170 J	25000 UJ	7200 J	1900 J	260 J	250 J
Benzo(k)fluoranthene	ug/Kg	360 UJ	380 UJ	180 J	25000 UJ	5900 J	1600 J	290 J	200 J
Benzo(a)pyrene	ug/Kg	360 UJ	360 UJ	94 J	25000 UJ	6400 J	1800 J	210 J	210 J
Indeno(1,2,3-cd)pyrene	ug/Kg	360 UJ	360 UJ	120 J	25000 UJ	4700 J	1400 J	200 J	150 J
Dibenz(a,h)anthracene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 J	480 J	1000 UJ	1000 UJ
Benzo(g,h,i)perylene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2300 J	950 J	260 J	140 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-42	B-42	B-43	B-43	B-43	B-43	B-43	B-43
	DEPTH(FT.)	6-7.2	6-7.2	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B42-4	B42-4RE	B43-1	B43-1RE	B43-2	B43-2RE	B43-3	B43-3RE
	LAB ID	176008	176008R2	176009	176009R1	176010	176010R1	176011	176011R1
	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
beta-BHC	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
delta-BHC	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
gamma-BHC (Lindane)	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Heptachlor	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Aldrin	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Heptachlor epoxide	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Endosulfan I	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Dieldrin	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
4,4'-DDE	ug/Kg	3.6 UJ		17 J		64		22	
Endrin	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
Endosulfan II	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
4,4'-DDD	ug/Kg	3.6 UJ		18 J		88		24	
Endosulfan sulfate	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
4,4'-DDT	ug/Kg	3.6 UJ		5.5 J		22 J		6.7 J	
Methoxychlor	ug/Kg	19 UJ		20 UJ		110 U		21 U	
Endrin ketone	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
Endrin aldehyde	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
alpha-Chlordane	ug/Kg	1.9 UJ		1.3 UJ		8 J		5 J	
gamma-Chlordane	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Toxaphene	ug/Kg	190 UJ		200 UJ		1100 U		210 U	
Aroclor-1016	ug/Kg	36 UJ		39 UJ		210 U		42 U	
Aroclor-1221	ug/Kg	73 UJ		79 UJ		430 U		85 U	
Aroclor-1232	ug/Kg	36 UJ		39 UJ		210 U		42 U	
Aroclor-1242	ug/Kg	36 UJ		45 J		280		96	
Aroclor-1248	ug/Kg	36 UJ		39 UJ		210 U		42 U	
Aroclor-1254	ug/Kg	36 UJ		43 J		180 J		66	
Aroclor-1260	ug/Kg	36 UJ		39 UJ		210 U		42 U	
Herbicides									
2,4-D	ug/Kg	55 U		58 U		64 U		63 U	
2,4-DB	ug/Kg	55 U		58 U		64 U		63 U	
2,4,5-T	ug/Kg	5.5 U		5.8 U		6.4 U		6.3 U	
2,4,5-TP (Silvex)	ug/Kg	5.5 U		5.8 U		6.4 U		6.3 U	
Dalapon	ug/Kg	130 U		140 U		150 U		150 U	
Dicamba	ug/Kg	5.5 U		5.8 U		6.4 U		6.3 U	
Dichloroprop	ug/Kg	55 U		58 U		64 U		63 U	
Dinoseb	ug/Kg	27 U		29 U		32 U		31 U	
MCPA	ug/Kg	5500 U		5800 U		6400 U		6300 U	
MCPP	ug/Kg	5500 U		5800 U		6400 U		6300 U	
Metals									
Aluminum	mg/Kg	12900		13600		11100		16300	
Antimony	mg/Kg	7.7 UJ		8.5 UJ		10.2 UJ		7.8 UJ	
Arsenic	mg/Kg	3.9		7.4		8.4		7.5	
Barium	mg/Kg	61		116		114		166	
Beryllium	mg/Kg	0.57 J		0.57 J		0.44 J		0.55 J	
Cadmium	mg/Kg	0.44 U		1.8		11.4		3.9	
Calcium	mg/Kg	65200		37700		21100		54400	
Chromium	mg/Kg	21.9		33.8		35.6		36.8	
Cobalt	mg/Kg	11.9		10.8		21.6		12.2	
Copper	mg/Kg	24.4		79.4		91.8		89.3	
Iron	mg/Kg	25100		35000		65100		67500	
Lead	mg/Kg	17.3		151		2610		233	
Magnesium	mg/Kg	9910		6630		4900		9960	
Manganese	mg/Kg	435		476		405		860	
Mercury	mg/Kg	0.04 J		0.42		0.38		0.38	
Nickel	mg/Kg	38.5		38.5		43.3		51	
Potassium	mg/Kg	1460		1250		1140		1420	
Selenium	mg/Kg	0.67 J		1 J		1.2		0.82 J	
Silver	mg/Kg	0.45 U		0.63 J		1.3 J		0.9 J	
Sodium	mg/Kg	119 J		98.5 J		118 J		216 J	
Thallium	mg/Kg	0.45 U		0.55 U		0.35 U		0.54 U	
Vanadium	mg/Kg	19.4		26.1		20.5		29.3	
Zinc	mg/Kg	61.5		745		1410		3100	
Cyanide	mg/Kg	0.55 U		0.59 U		0.62 U		0.95	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-43	B-43	B-44	B-44	B-44	B-44	B-44	B-44
	DEPTH(FT.)	8-10	8-10	8-8.2	8-8.2	0-2	0-2	2-4	2-4
	DATE	12/09/92	12/09/92	12/10/92	12/10/92	12/10/92	12/10/92	12/10/92	12/10/92
	ES ID	B43-4	B43-4RE	B44A-3	B44A-3RE	B44B-1	B44B-1RE	B44B-2	B44B-2RE
	LAB ID	176012	176012R1	176013	176013R1	176014	176014R1	176015	176015R1
	UNITS								
VOCs									
Chloromethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Bromomethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Vinyl Chloride	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Chloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Methylene Chloride	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Acetone	ug/Kg	24 UJ	14 UJ	93 J	19 J	12 U		12 U	12 U
Carbon Disulfide	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,1-Dichloroethene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,1-Dichloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,2-Dichloroethene (total)	ug/Kg	13 UJ	13 UJ	5 J	12 U	12 U		12 U	12 U
Chloroform	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,2-Dichloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
2-Butanone	ug/Kg	13 UJ	13 UJ	16 J	6 J	12 U		12 U	12 U
1,1,1-Trichloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Carbon Tetrachloride	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,2-Dichloropropane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
cis-1,3-Dichloropropene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Trichloroethene	ug/Kg	15 J	15 J	5 J	5 J	12 U		12 U	2 J
Dibromochloromethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,1,2-Trichloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Benzene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
trans-1,3-Dichloropropene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Bromoform	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
4-Methyl-2-Pentanone	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
2-Hexanone	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Tetrachloroethene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Toluene	ug/Kg	2 J	2 J	10 J	10 J	12 U		12 U	12 U
Chlorobenzene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Ethylbenzene	ug/Kg	13 UJ	13 UJ	48 J	44 J	12 U		12 U	12 U
Styrene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Xylene (total)	ug/Kg	13 UJ	13 UJ	250 J	240 J	12 U		12 U	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH(FT.) / DATE / ES ID / LAB ID / UNITS	SOIL B-43 8-10 12/09/92 B43-4 176012	SOIL B-43 8-10 12/09/92 B43-4RE 176012R1	SOIL B-44 8-8.2 12/10/92 B44A-3 176013	SOIL B-44 8-8.2 12/10/92 B44A-3RE 176013R1	SOIL B-44 0-2 12/10/92 B44B-1 176014	SOIL B-44 0-2 12/10/92 B44B-1RE 176014R1	SOIL B-44 2-4 12/10/92 B44B-2 176015	SOIL B-44 2-4 12/10/92 B44B-2RE 176015R1
Semivolatiles									
Phenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
bis(2-Chloroethyl) ether	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Chlorophenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
1,3-Dichlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
1,4-Dichlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Methylphenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
4-Methylphenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
N-Nitroso-di-n-propylamine	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Hexachloroethane	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Nitrobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Isophorone	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Nitrophenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,4-Dimethylphenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,4-Dichlorophenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
1,2,4-Trichlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Naphthalene	ug/Kg	1300 J	770 J	150 J	5100 UJ	410 UJ	420 UJ	400 UJ	100 J
4-Chloroaniline	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Hexachlorobutadiene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
4-Chloro-3-methylphenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Methylnaphthalene	ug/Kg	1600 J	1300 J	66 J	5100 UJ	410 UJ	420 UJ	400 UJ	100 J
Hexachlorocyclopentadiene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,4,6-Trichlorophenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,4,5-Trichlorophenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
2-Chloronaphthalene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Nitroaniline	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
Dimethylphthalate	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Acenaphthylene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	13 J	400 UJ	76 J
2,6-Dinitrotoluene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
3-Nitroaniline	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
Acenaphthene	ug/Kg	9500 J	14000 J	120 J	5100 UJ	18 J	420 UJ	400 UJ	280 J
2,4-Dinitrophenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
4-Nitrophenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
Dibenzofuran	ug/Kg	5600 J	7000 J	71 J	5100 UJ	410 UJ	420 UJ	400 UJ	120 J
2,4-Dinitrotoluene	ug/Kg	5600 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Diethylphthalate	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
4-Chlorophenyl-phenylether	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Fluorene	ug/Kg	12000 J	11000 J	130 J	5100 UJ	17 J	420 UJ	400 UJ	250 J
4-Nitroaniline	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
N-Nitrosodiphenylamine	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
4-Bromophenyl-phenylether	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Hexachlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Pentachlorophenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
Phenanthrene	ug/Kg	43000 J	35000 J	610 J	850 J	140 J	93 J	87 J	2000 J
Anthracene	ug/Kg	13000 J	15000 J	140 J	260 J	32 J	22 J	14 J	550 J
Carbazole	ug/Kg	37000 J	14000 J	660 J	350 J	200 J	38 J	110 J	1400 J
Di-n-butylphthalate	ug/Kg	5800 UJ	7000 UJ	120 J	25000 J	40 J	420 UJ	18 J	400 UJ
Fluoranthene	ug/Kg	25000 J	29000 J	440 J	1000 J	200 J	220 J	120 J	2600 J
Pyrene	ug/Kg	24000 J	16000 J	510 J	820 J	180 J	160 J	140 J	2200 J
Butylbenzylphthalate	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
3,3'-Dichlorobenzidine	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Benzo(a)anthracene	ug/Kg	5600 J	4300 J	250 J	470 J	97 J	88 J	62 J	1400 J
Chrysene	ug/Kg	5700 J	4100 J	250 J	520 J	110 J	130 J	81 J	1500 J
bis(2-Ethylhexyl)phthalate	ug/Kg	5800 J	3500 J	610 J	25000 J	410 UJ	420 UJ	400 UJ	400 UJ
Di-n-octylphthalate	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Benzo(b)fluoranthene	ug/Kg	2700 J	1400 J	210 J	5100 UJ	110 J	120 J	88 J	1500 J
Benzo(k)fluoranthene	ug/Kg	2600 J	1400 J	230 J	5100 UJ	99 J	100 J	81 J	1200 J
Benzo(a)pyrene	ug/Kg	2100 J	1200 J	170 J	350 J	97 J	82 J	51 J	1200 J
Indeno(1,2,3-cd)pyrene	ug/Kg	1000 J	450 J	150 J	250 J	79 J	70 J	62 J	610 J
Dibenz(a,h)anthracene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	23 J	420 UJ	400 UJ	270 J
Benzo(g,h,i)perylene	ug/Kg	590 J	7000 UJ	130 J	280 J	57 J	60 J	44 J	430 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH (FT.) / DATE / ES ID / LAB ID / UNITS	SOIL B-43 8-10 12/09/92 B43-4 176012	SOIL B-43 8-10 12/09/92 B43-4RE 176012R1	SOIL B-44 8-8.2 12/10/92 B44A-3 176013	SOIL B-44 8-8.2 12/10/92 B44A-3RE 176013R1	SOIL B-44 0-2 12/10/92 B44B-1 176014	SOIL B-44 0-2 12/10/92 B44B-1RE 176014R1	SOIL B-44 2-4 12/10/92 B44B-2 176015	SOIL B-44 2-4 12/10/92 B44B-2RE 176015R1
Pesticides/PCBs									
alpha-BHC	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
beta-BHC	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
delta-BHC	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
gamma-BHC (Lindane)	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Heptachlor	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Aldrin	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Heptachlor epoxide	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Endosulfan I	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Dieldrin	ug/Kg	4.1 U		8.1 U		4.1 U		4 U	
4,4'-DDE	ug/Kg	7.8 J		37		2.9 J		14	
Endrin	ug/Kg	8.2 J		8.1 U		2 J		4 U	
Endosulfan II	ug/Kg	4.1 U		8.1 U		4.1 U		4 U	
4,4'-DDD	ug/Kg	11 J		34		4.1 U		17	
Endosulfan sulfate	ug/Kg	2.8 J		8.1 U		4.1 U		4 U	
4,4'-DDT	ug/Kg	4.1 J		7.6 J		4.1 U		14	
Methoxychlor	ug/Kg	4.4 J		42 U		21 U		21 U	
Endrin ketone	ug/Kg	4.1 U		8.1 U		4.1 U		4 U	
Endrin aldehyde	ug/Kg	4.1 U		8.1 U		4.1 U		4 U	
alpha-Chlordane	ug/Kg	15 J		2 J		5 J		3.2 J	
gamma-Chlordane	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Toxaphene	ug/Kg	210 U		420 U		210 U		210 U	
Aroclor-1016	ug/Kg	41 U		81 U		41 U		40 U	
Aroclor-1221	ug/Kg	83 U		160 U		84 U		82 U	
Aroclor-1232	ug/Kg	41 U		81 U		41 U		40 U	
Aroclor-1242	ug/Kg	68 J		50 J		41 U		40 U	
Aroclor-1248	ug/Kg	41 U		81 U		41 U		40 U	
Aroclor-1254	ug/Kg	90 J		89		41 U		40 U	
Aroclor-1260	ug/Kg	41 U		81 U		41 U		40 U	
Herbicides									
2,4-D	ug/Kg	62 U				62 U		61 U	
2,4-DB	ug/Kg	62 U				62 U		61 U	
2,4,5-T	ug/Kg	6.2 U				6.2 U		6.1 U	
2,4,5-TP (Silvex)	ug/Kg	6.2 U				6.2 U		6.1 U	
Dalapon	ug/Kg	150 U				150 U		150 U	
Dicamba	ug/Kg	6.2 U				6.2 U		6.1 U	
Dichloroprop	ug/Kg	62 U				62 U		61 U	
Dinoseb	ug/Kg	31 U				31 U		30 U	
MCPA	ug/Kg	6200 U				6200 U		6100 U	
MCPP	ug/Kg	6200 U				6200 U		6100 U	
Metals									
Aluminum	mg/Kg	13500		11600		15000		13400	
Antimony	mg/Kg	13.5 UJ		8.5 UJ		10.7 UJ		10.2 UJ	
Arsenic	mg/Kg	6.5		6.1		5.3		5.4	
Barium	mg/Kg	108		113		73.3		91	
Beryllium	mg/Kg	0.58 J		0.44 J		0.63 J		0.68 J	
Cadmium	mg/Kg	7.8		1.5		0.61 U		0.58 U	
Calcium	mg/Kg	38500		37500		9720		36300	
Chromium	mg/Kg	35.1		32		35.8		25.1	
Cobalt	mg/Kg	10.9 J		9		12.3		11.8	
Copper	mg/Kg	68.1		224		24.2		27.9	
Iron	mg/Kg	60800		46700		28700		26100	
Lead	mg/Kg	150		250		21.1		31.8	
Magnesium	mg/Kg	7940		9020		6190		9120	
Manganese	mg/Kg	792		585		634		583	
Mercury	mg/Kg	0.28		0.65		0.04 J		0.07	
Nickel	mg/Kg	42.8		35.3		46.6		37.7	
Potassium	mg/Kg	1440		1340		1220		982	
Selenium	mg/Kg	0.77 J		1.1 J		0.7 J		0.58 J	
Silver	mg/Kg	1.8 J		2.4		0.63 U		0.6 U	
Sodium	mg/Kg	127 J		1010		58.9 U		136 J	
Thallium	mg/Kg	0.65 U		0.59 U		0.44 U		0.37 U	
Vanadium	mg/Kg	26.1		18.2		22.9		25.1	
Zinc	mg/Kg	1710		525		75.7		102	
Cyanide	mg/Kg	0.77 U		0.74 U		0.75 U		0.74 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-44	B-44	B-44	B-44	B-45	B-45	B-45	B-45
	DEPTH(FT.)	8-10	8-10	12-13.5	12-13.5	0-2	2-4	4-6	4-6
	DATE	12/10/92	12/10/92	12/10/92	12/10/92	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B44B-3	B44B-3RE	B44B-4	B44B-4RE	B45-1	B45-2	B45-3	B45-6
	LAB ID	176016	176016R1	176017	176017R1	183170	183171	183172	183173
	UNITS								DUP B45-3
VOCs									
Chloromethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Bromomethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Vinyl Chloride	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Chloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Methylene Chloride	ug/Kg	12 U		11 U		12 U	12 U	12 U	1 J
Acetone	ug/Kg	45		11 U		12 U	12 U	12 U	12 U
Carbon Disulfide	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,1-Dichloroethene	ug/Kg	12 U		14		12 U	12 U	12 U	12 U
1,1-Dichloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,2-Dichloroethene (total)	ug/Kg	2 J		36		3 J	3 J	210 J	4 J
Chloroform	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,2-Dichloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
2-Butanone	ug/Kg	6 J		11 U		12 U	12 U	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Carbon Tetrachloride	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,2-Dichloropropane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
cis-1,3-Dichloropropene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Trichloroethene	ug/Kg	12 U		11 U		12 U	12 U	71 J	12 U
Dibromochloromethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,1,2-Trichloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Benzene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
trans-1,3-Dichloropropene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Bromoform	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
4-Methyl-2-Pentanone	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
2-Hexanone	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Tetrachloroethene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Toluene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Chlorobenzene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Ethylbenzene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Styrene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Xylene (total)	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-44	B-44	B-44	B-44	B-45	B-45	B-45	B-45
	DEPTH(FT.)	8-10	8-10	12-13.5	12-13.5	0-2	2-4	4-6	4-6
	DATE	12/10/92	12/10/92	12/10/92	12/10/92	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B44B-3	B44B-3RE	B44B-4	B44B-4RE	B45-1	B45-2	B45-3	B45-6
	LAB ID	176016	176016R1	176017	176017R1	183170	183171	183172	183173
	UNITS								DUP B45-3
Semivolatiles									
Phenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
bis(2-Chloroethyl) ether	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Chlorophenol	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
1,3-Dichlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
1,4-Dichlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	380 UJ	430 U	410 U	380 U	400 U
2-Methylphenol	ug/Kg	360 UJ	390 UJ	360 UJ	380 UJ	430 U	410 U	380 U	400 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Methylphenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
N-Nitroso-di-n-propylamine	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Hexachloroethane	ug/Kg	380 UJ	390 UJ	360 UJ	380 UJ	430 U	410 U	380 U	400 U
Nitrobenzene	ug/Kg	380 UJ	390 UJ	380 UJ	360 UJ	430 U	410 U	380 U	400 U
Isophorone	ug/Kg	380 UJ	390 UJ	380 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Nitrophenol	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4-Dimethylphenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4-Dichlorophenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
1,2,4-Trichlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Naphthalene	ug/Kg	87 J	86 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Chloroaniline	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Hexachlorobutadiene	ug/Kg	380 UJ	390 UJ	360 UJ	380 UJ	430 U	410 U	380 U	400 U
4-Chloro-3-methylphenol	ug/Kg	380 UJ	390 UJ	380 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Methylnaphthalene	ug/Kg	33 J	48 J	380 UJ	360 UJ	430 U	410 U	380 U	400 U
Hexachlorocyclopentadiene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4,6-Trichlorophenol	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4,5-Trichlorophenol	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
2-Chloronaphthalene	ug/Kg	360 UJ	390 UJ	380 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Nitroaniline	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
Dimethylphthalate	ug/Kg	380 UJ	390 UJ	360 UJ	380 UJ	430 U	410 U	380 U	400 U
Acenaphthylene	ug/Kg	360 UJ	44 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,6-Dinitrotoluene	ug/Kg	380 UJ	390 UJ	360 UJ	380 UJ	430 U	410 U	380 U	400 U
3-Nitroaniline	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
Acenaphthene	ug/Kg	120 J	140 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4-Dinitrophenol	ug/Kg	930 UJ	950 UJ	880 UJ	870 UJ	1000 U	1000 U	930 U	970 U
4-Nitrophenol	ug/Kg	930 UJ	950 UJ	860 UJ	670 UJ	1000 U	1000 U	930 U	970 U
Dibenzofuran	ug/Kg	47 J	69 J	360 UJ	380 UJ	430 U	410 U	380 U	400 U
2,4-Dinitrotoluene	ug/Kg	380 UJ	390 UJ	380 UJ	380 UJ	430 U	410 U	380 U	400 U
Diethylphthalate	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Chlorophenyl-phenylether	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Fluorene	ug/Kg	89 J	130 J	360 UJ	380 UJ	430 U	410 U	380 U	400 U
4-Nitroaniline	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
4,6-Dinitro-2-methylphenol	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
N-Nitrosodiphenylamine	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Bromophenyl-phenylether	ug/Kg	380 UJ	390 UJ	380 UJ	360 UJ	430 U	410 U	380 U	400 U
Hexachlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	380 UJ	430 U	410 U	380 U	400 U
Pentachlorophenol	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
Phenanthrene	ug/Kg	640 J	1000 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Anthracene	ug/Kg	140 J	280 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Carbazole	ug/Kg	760 J	540 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Di-n-butylphthalate	ug/Kg	72 J	390 UJ	73 J	360 UJ	430 U	25 J	140 J	42 J
Fluoranthene	ug/Kg	700 J	1200 J	360 UJ	13 J	430 U	410 U	380 U	400 U
Pyrene	ug/Kg	560 J	1200 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Butylbenzylphthalate	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
3,3'-Dichlorobenzidine	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzo(a)anthracene	ug/Kg	340 J	550 J	360 UJ	380 UJ	430 U	410 U	380 U	400 U
Chrysene	ug/Kg	370 J	660 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
bis(2-Ethylhexyl)phthalate	ug/Kg	400 J	740 J	470 J	860 J	260 J	320 J	450	530
Di-n-octylphthalate	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	47 J	400 U
Benzo(b)fluoranthene	ug/Kg	360 J	610 J	360 UJ	380 UJ	430 U	410 U	380 U	400 U
Benzo(k)fluoranthene	ug/Kg	300 J	490 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzo(a)pyrene	ug/Kg	270 J	460 J	380 UJ	360 UJ	430 U	410 U	380 U	400 U
Indeno(1,2,3-cd)pyrene	ug/Kg	170 J	150 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Dibenz(a,h)anthracene	ug/Kg	63 J	22 J	360 UJ	380 UJ	430 U	410 U	380 U	400 U
Benzo(g,h,i)perylene	ug/Kg	90 J	120 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH(FT.) DATE ES ID LAB ID UNITS	SOIL B-44 8-10 12/10/92 B44B-3 176016	SOIL B-44 8-10 12/10/92 B44B-3RE 176016R1	SOIL B-44 12-13.5 12/10/92 B44B-4 176017	SOIL B-44 12-13.5 12/10/92 B44B-4RE 176017R1	SOIL B-45 0-2 04/28/93 B45-1 183170	SOIL B-45 2-4 04/28/93 B45-2 183171	SOIL B-45 4-6 04/28/93 B45-3 183172	SOIL B-45 4-6 04/28/93 B45-6 183173 DUP B45-3
Pesticides/PCBs									
alpha-BHC	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
beta-BHC	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
delta-BHC	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
gamma-BHC (Lindane)	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Heptachlor	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Aldrin	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Heptachlor epoxide	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Endosulfan I	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Dieldrin	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
4,4'-DDE	ug/Kg	7.3 J		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Endrin	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Endosulfan II	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
4,4'-DDD	ug/Kg	3.8 J		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Endosulfan sulfate	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
4,4'-DDT	ug/Kg	5.8		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Methoxychlor	ug/Kg	20 U		19 U		22 U	22 U	20 U	21 U
Endrin ketone	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Endrin aldehyde	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.6 U	4 U
alpha-Chlordane	ug/Kg	3 J		1.9 U		2.2 U	2.2 U	2 U	2.1 U
gamma-Chlordane	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Toxaphene	ug/Kg	200 U		190 U		220 U	220 U	200 U	210 U
Aroclor-1016	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1221	ug/Kg	80 U		73 U		68 U	85 U	78 U	82 U
Aroclor-1232	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1242	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1248	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1254	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1260	ug/Kg	39 U		36 U		43 U	42 U	36 U	40 U
Herbicides									
2,4-D	ug/Kg	59 U		55 U		68 U	64 U	59 U	62 U
2,4-DB	ug/Kg	59 U		55 U		68 U	64 U	59 U	62 U
2,4,5-T	ug/Kg	5.9 U		5.5 U		6.8 U	6.4 U	5.9 U	6.2 U
2,4,5-TP (Silvex)	ug/Kg	5.9 U		5.5 U		6.8 U	6.4 U	5.9 U	6.2 U
Dalapon	ug/Kg	140 U		130 U		170 U	160 U	150 U	150 U
Dicamba	ug/Kg	5.9 U		5.5 U		6.8 U	6.4 U	5.9 U	6.2 U
Dichloroprop	ug/Kg	59 U		55 U		68 U	64 U	59 U	62 U
Dinoseb	ug/Kg	30 U		27 U		34 U	32 U	30 U	31 U
MCPA	ug/Kg	5900 U		5500 U		6800 U	6400 U	5900 U	6200 U
MCPP	ug/Kg	5900 U		5500 U		6600 U	6400 U	5900 U	6200 U
Metals									
Aluminum	mg/Kg	9850		15400		19700	14800	15200	16900
Antimony	mg/Kg	12.1 UJ		11.9 UJ		5.3 UJ	5.4 UJ	10.1 J	5.7 UJ
Arsenic	mg/Kg	5.1		4.7		4.8	5.2	2.7	5.8
Barium	mg/Kg	58.5		59.3		114	71.4	84.8	87.1
Beryllium	mg/Kg	0.53 J		0.72 J		0.96 J	0.73 J	0.7 J	0.84 J
Cadmium	mg/Kg	0.69 U		0.68 U		0.39 U	0.39 U	0.37 U	0.41 U
Calcium	mg/Kg	44500		7260		4870	16300	2690	6710
Chromium	mg/Kg	17.6		26.9		31.2	23.3	25.5	27
Cobalt	mg/Kg	9.1 J		13.7		16.8	12.7	13.7	15.8
Copper	mg/Kg	29.6		16.2		31.6	27.7	19.5	29.4
Iron	mg/Kg	20600		32100		38300	30200	31700	34400
Lead	mg/Kg	192		8.6		11.1	10.5	5.9	8.4
Magnesium	mg/Kg	8820		6280		7320	6770	5960	6530
Manganese	mg/Kg	415		511		1020	621	601	736
Mercury	mg/Kg	0.07 J		0.03 J		0.05 U	0.04 U	0.05 U	0.03 U
Nickel	mg/Kg	30.8		39.5		50	37.9	39.5	44.9
Potassium	mg/Kg	1060 J		1110		1320	1130	925 J	1110
Selenium	mg/Kg	0.54 J		0.59 J		0.18 U	0.2 U	0.16 U	0.17 U
Silver	mg/Kg	0.71 U		0.71 U		0.83 U	0.84 U	0.8 U	0.89 U
Sodium	mg/Kg	160 J		65.9 U		98.8 U	100 U	95.1 U	106 U
Thallium	mg/Kg	0.37 U		0.48 U		0.53 U	0.59 U	0.47 U	0.51 U
Vanadium	mg/Kg	17.4		19.7		29.8	21.3	19.7	24.6
Zinc	mg/Kg	83.9		107		86.6	94.1	98.8	108
Cyanide	mg/Kg	0.67 U		0.68 U		0.81 U	0.77 U	0.69 U	0.74 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-46	B-46	B-46	B-46	B-46	B-47	B-47	B-47
	DEPTH(FT.)	0-2	0-2	2-4	4-6	6-7.1	0-2	0-2	2-4
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B46-1	B46-1RE	B46-2	B46-3	B46-4	B47-1	B47-1RE	B47-2
	LAB ID	183303	183303R1	183304	183305	183306	183307	183307R1	183308
	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Bromomethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Vinyl Chloride	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Chloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Methylene Chloride	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Acetone	ug/Kg	12 U		100	75	12 U	10 UJ	10 UJ	12 U
Carbon Disulfide	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	42
1,1-Dichloroethene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,1-Dichloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	13
1,2-Dichloroethene (total)	ug/Kg	12 U		2 J	12 U	12 U	2 J	1 J	12 U
Chloroform	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	170
1,2-Dichloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
2-Butanone	ug/Kg	12 U		22	17	12 U	10 UJ	10 UJ	12 U
1,1,1-Trichloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	7 J
Carbon Tetrachloride	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Vinyl acetate	ug/Kg								12 U
Bromodichloromethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,2-Dichloropropane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
cis-1,3-Dichloropropene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Trichloroethene	ug/Kg	12 U		3 J	1 J	12 U	110 J	39 J	2 J
Dibromochloromethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,1,2-Trichloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Benzene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
trans-1,3-Dichloropropene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Bromoform	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
4-Methyl-2-Pentanone	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
2-Hexanone	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Tetrachloroethene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Toluene	ug/Kg	12 U		12 U	12 U	12 U	4 J	2 J	12 U
Chlorobenzene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Ethylbenzene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Styrene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Xylene (total)	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-46	B-46	B-46	B-46	B-46	B-47	B-47	B-47
	DEPTH (FT.)	0-2	0-2	2-4	4-6	6-7.1	0-2	0-2	2-4
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B46-1	B46-1RE	B46-2	B46-3	B46-4	B47-1	B47-1RE	B47-2
	LAB ID	183303	183303R1	183304	183305	183306	183307	183307R1	183308
	UNITS								
Semivolatiles									
Phenol	ug/Kg	360 UJ	380 UJ	380 U	370 U	380 U	350 U		380 U
bis(2-Chloroethyl) ether	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2-Chlorophenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
1,3-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
1,4-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 UJ	380 UJ	380 U	370 U	380 U	350 U		380 U
2-Methylphenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,2'-oxybis (1-Chloropropane)	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
4-Methylphenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
N-Nitroso-di-n-propylamine	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Hexachloroethane	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Nitrobenzene	ug/Kg	360 UJ	380 UJ	380 U	370 U	380 U	350 U		380 U
Isophorone	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2-Nitrophenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,4-Dimethylphenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,4-Dichlorophenol	ug/Kg	360 UJ	360 UJ	360 U	370 U	380 U	350 U		380 U
1,2,4-Trichlorobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Naphthalene	ug/Kg	21 J	20 J	39 J	370 U	380 U	350 U		380 U
4-Chloroaniline	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Hexachlorobutadiene	ug/Kg	360 UJ	360 UJ	360 U	370 U	380 U	350 U		380 U
4-Chloro-3-methylphenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2-Methylnaphthalene	ug/Kg	360 UJ	360 UJ	70 J	370 U	380 U	350 U		380 U
Hexachlorocyclopentadiene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,4,6-Trichlorophenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,4,5-Trichlorophenol	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
2-Chloronaphthalene	ug/Kg	360 UJ	360 UJ	360 U	370 U	380 U	350 U		380 U
2-Nitroaniline	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
Dimethylphthalate	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Acenaphthylene	ug/Kg	42 J	32 J	27 J	370 U	380 U	350 U		380 U
2,6-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
3-Nitroaniline	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
Acenaphthene	ug/Kg	38 J	36 J	180 J	370 U	380 U	350 U		380 U
2,4-Dinitrophenol	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
4-Nitrophenol	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
Dibenzofuran	ug/Kg	18 J	18 J	130 J	370 U	380 U	350 U		380 U
2,4-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Diethylphthalate	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
4-Chlorophenyl-phenylether	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Fluorene	ug/Kg	39 J	41 J	280 J	22 J	380 U	350 U		380 U
4-Nitroaniline	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
4,6-Dinitro-2-methylphenol	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
N-Nitrosodiphenylamine	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
4-Bromophenyl-phenylether	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Hexachlorobenzene	ug/Kg	360 UJ	360 UJ	360 U	370 U	380 U	350 U		380 U
Pentachlorophenol	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
Phenanthrene	ug/Kg	530 J	520 J	1100	91 J	380 U	90 J		380 U
Anthracene	ug/Kg	140 J	130 J	340 J	32 J	380 U	18 J		380 U
Carbazole	ug/Kg	50 J	42 J	93 J	370 U	380 U	350 U		380 U
Di-n-butylphthalate	ug/Kg	68 J	82 J	87 J	66 J	170 J	180 J		260 J
Fluoranthene	ug/Kg	1100 J	900 J	900	160 J	18 J	170 J		28 J
Pyrene	ug/Kg	1200 J	1300 J	630	130 J	380 U	140 J		23 J
Butylbenzylphthalate	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
3,3'-Dichlorobenzidine	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Benzo(a)anthracene	ug/Kg	640 J	840 J	330 J	68 J	380 U	70 J		380 U
Chrysene	ug/Kg	670 J	680 J	300 J	64 J	380 U	91 J		22 J
bis(2-Ethylhexyl)phthalate	ug/Kg	190 J	190 J	220 J	200 J	340 J	340 J		560
Di-n-octylphthalate	ug/Kg	360 UJ	360 UJ	380 U	370 U	29 J	350 U		27 J
Benzo(b)fluoranthene	ug/Kg	560 J	560 J	210 J	55 J	380 U	67 J		380 U
Benzo(k)fluoranthene	ug/Kg	540 J	600 J	240 J	53 J	380 U	52 J		18 J
Benzo(a)pyrene	ug/Kg	660 J	670 J	270 J	68 J	380 U	52 J		380 U
Indeno(1,2,3-cd)pyrene	ug/Kg	410 J	400 J	140 J	40 J	380 U	31 J		380 U
Dibenz(a,h)anthracene	ug/Kg	120 J	75 J	30 J	370 U	380 U	350 U		380 U
Benzo(g,h,i)perylene	ug/Kg	200 J	200 J	71 J	23 J	380 U	21 J		380 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-46	B-46	B-46	B-46	B-46	B-47	B-47	B-47
	DEPTH (FT.)	0-2	0-2	2-4	4-6	6-7.1	0-2	0-2	2-4
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B46-1	B46-1RE	B46-2	B46-3	B46-4	B47-1	B47-1RE	B47-2
	LAB ID	183303	183303R1	183304	183305	183306	183307	183307R1	183308
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
beta-BHC	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
delta-BHC	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
gamma-BHC (Lindane)	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Heptachlor	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Aldrin	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Heptachlor epoxide	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Endosulfan I	ug/Kg	9.3 U		1.9 U	0.95 J	1.9 U	3.1		2 U
Dieldrin	ug/Kg	18 U		3.8 U	3.6 U	3.8 U	3.4 U		3.9 U
4,4'-DDE	ug/Kg	45		3.7 J	6.6	3.8 U	240 J		4.4
Endrin	ug/Kg	18 U		3.6 U	3.6 U	3.8 U	3.4 U		3.9 U
Endosulfan II	ug/Kg	18 U		3.8 U	3.6 U	3.8 U	3.4 U		3.9 U
4,4'-DDD	ug/Kg	42 J		3.8 U	1.8 J	3.8 U	3.4 U		3.9 U
Endosulfan sulfate	ug/Kg	18 U		3.8 U	3.6 U	3.6 U	3.4 U		3.9 U
4,4'-DDT	ug/Kg	160		2.2 J	3 J	3.8 U	23		3.9 U
Methoxychlor	ug/Kg	93 U		19 U	19 U	19 U	18 U		20 U
Endrin ketone	ug/Kg	18 U		3.8 U	3.6 U	3.8 U	3.4 U		3.9 U
Endrin aldehyde	ug/Kg	18 U		3.8 U	3.6 U	3.8 U	3.4 U		3.9 U
alpha-Chlordane	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
gamma-Chlordane	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Toxaphene	ug/Kg	930 U		190 U	190 U	190 U	180 U		200 U
Aroclor-1016	ug/Kg	180 U		36 U	36 U	38 U	34 U		39 U
Aroclor-1221	ug/Kg	370 U		76 U	74 U	76 U	70 U		78 U
Aroclor-1232	ug/Kg	180 U		38 U	36 U	38 U	34 U		39 U
Aroclor-1242	ug/Kg	180 U		36 U	36 U	38 U	34 U		39 U
Aroclor-1248	ug/Kg	180 U		38 U	36 U	38 U	34 U		39 U
Aroclor-1254	ug/Kg	180 U		38 U	36 U	36 U	34 U		39 U
Aroclor-1260	ug/Kg	180 U		36 U	36 U	38 U	34 U		39 U
Herbicides									
2,4-D	ug/Kg	55 U		58 U	56 U	58 U	53 U		59 U
2,4-DB	ug/Kg	55 U		58 U	56 U	58 U	53 U		59 U
2,4,5-T	ug/Kg	5.5 U		5.8 U	5.6 U	5.8 U	5.3 U		5.9 U
2,4,5-TP (Silvex)	ug/Kg	5.5 U		5.8 U	5.6 U	5.8 U	5.3 U		5.9 U
Dalapon	ug/Kg	140 U		140 U	140 U	140 U	130 U		150 U
Dicamba	ug/Kg	5.5 U		5.8 U	5.6 U	5.8 U	5.3 U		5.9 U
Dichloroprop	ug/Kg	55 U		56 U	56 U	58 U	53 U		59 U
Dinoseb	ug/Kg	28 U		29 U	28 U	29 U	27 U		30 U
MCPA	ug/Kg	5500 U		5800 U	5600 U	5800 U	5300 U		5900 U
MCPP	ug/Kg	5500 U		5800 U	5600 U	5800 U	5300 U		5900 U
Metals									
Aluminum	mg/Kg	12100		15300	9600	14400	10100		17500
Antimony	mg/Kg	4.5 UJ		4.1 UJ	5.9 UJ	5.1 UJ	4 UJ		3.5 UJ
Arsenic	mg/Kg	4.8		7.3	4.7	3.9	3.1		4.8
Barium	mg/Kg	109		96.4	69.9	66.4	55.8		79.3
Beryllium	mg/Kg	0.64 J		0.78	0.52 J	0.76 J	0.5 J		0.85
Cadmium	mg/Kg	0.33 U		0.3 U	0.54 J	0.37 U	0.29 U		0.26 U
Calcium	mg/Kg	39300		20200	172000	90500	69400		8640
Chromium	mg/Kg	18.7		28	15.3	24.1	19.9		26.3
Cobalt	mg/Kg	13.3		12	7.3 J	11.7	9.9		16.4
Copper	mg/Kg	19.8		34	19.2	18.7	30.3		21.6
Iron	mg/Kg	24600		27200	16200	27700	22800		32700
Lead	mg/Kg	45.4		64	19.1	8.7	40.9		12
Magnesium	mg/Kg	6520		6760	9270	10900	8850		5460
Manganese	mg/Kg	1570		526	445	898	370		942
Mercury	mg/Kg	0.05 J		0.07 J	0.05 J	0.04 U	0.06 J		0.05 U
Nickel	mg/Kg	29.9		35.9	22.9	37	35.3		36.2
Potassium	mg/Kg	1330		1570	1440	1470	1170		973
Selenium	mg/Kg	0.14 U		0.2 U	0.54 J	0.2 U	0.15 U		0.2 U
Silver	mg/Kg	0.71 U		0.65 U	0.92 U	0.8 U	0.63 U		0.56 U
Sodium	mg/Kg	230 J		249 J	232 J	141 J	137 J		68 J
Thallium	mg/Kg	0.43 U		0.61 U	2.9 U	0.59 U	0.46 U		0.6 U
Vanadium	mg/Kg	18.9		23.1	17.3	19.1	15.4		22.3
Zinc	mg/Kg	136		235	86.7	65.6	472		64.3
Cyanide	mg/Kg	0.56 U		0.56 U	0.55 U	0.57 U	0.53 U		0.71 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-47	B-48	B-48	B-48	B-48
	DEPTH(FT.)	4-5.3	0-2	2-4	4-6	4-6
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B47-3	B48-1	B48-2	B48-3	B48-6
	LAB ID	183309	183310	183311	183312	183313
COMPOUND	UNITS					DUP B48-3
VOCs						
Chloromethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Bromomethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Vinyl Chloride	ug/Kg	53 U	12 U	12 U	19 U	18 U
Chloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Methylene Chloride	ug/Kg	53 U	12 U	12 U	19 U	18 U
Acetone	ug/Kg	53 U	12 U	12 U	19 U	18 U
Carbon Disulfide	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,1-Dichloroethene	ug/Kg	28 J	12 U	12 U	5 J	5 J
1,1-Dichloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,2-Dichloroethene (total)	ug/Kg	650	12 U	12 U	110	130
Chloroform	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,2-Dichloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
2-Butanone	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,1,1-Trichloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Carbon Tetrachloride	ug/Kg	53 U	12 U	12 U	19 U	18 U
Vinyl acetate	ug/Kg					
Bromodichloromethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,2-Dichloropropane	ug/Kg	53 U	12 U	12 U	19 U	18 U
cis-1,3-Dichloropropene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Trichloroethene	ug/Kg	98	75	10 J	200	200
Dibromochloromethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,1,2-Trichloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Benzene	ug/Kg	53 U	12 U	12 U	19 U	18 U
trans-1,3-Dichloropropene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Bromoform	ug/Kg	53 U	12 U	12 U	19 U	18 U
4-Methyl-2-Pentanone	ug/Kg	53 U	12 U	12 U	19 U	18 U
2-Hexanone	ug/Kg	53 U	12 U	12 U	19 U	18 U
Tetrachloroethene	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,1,2,2-Tetrachloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Toluene	ug/Kg	53 U	2 J	12 U	19 U	18 U
Chlorobenzene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Ethylbenzene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Styrene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Xylene (total)	ug/Kg	53 U	12 U	12 U	19 U	18 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-47	B-48	B-48	B-48	B-48
	DEPTH (FT.)	4-5.3	0-2	2-4	4-6	4-6
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B47-3	B48-1	B48-2	B48-3	B48-6
	LAB ID	183309	183310	183311	183312	183313
	UNITS					DUP B48-3
Semivolatiles						
Phenol	ug/Kg	380 U	410 U	390 U	380 U	400 U
bis(2-Chloroethyl) ether	ug/Kg	360 U	410 U	390 U	380 U	400 U
2-Chlorophenol	ug/Kg	380 U	410 U	390 U	380 U	400 U
1,3-Dichlorobenzene	ug/Kg	380 U	410 U	390 U	380 U	400 U
1,4-Dichlorobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Benzyl alcohol	ug/Kg					
1,2-Dichlorobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
2-Methylphenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Methylphenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
N-Nitroso-di-n-propylamine	ug/Kg	380 U	410 U	390 U	380 U	400 U
Hexachloroethane	ug/Kg	360 U	410 U	390 U	380 U	400 U
Nitrobenzene	ug/Kg	360 U	410 U	390 U	360 U	400 U
Isophorone	ug/Kg	360 U	410 U	390 U	380 U	400 U
2-Nitrophenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4-Dimethylphenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
Benzoic acid	ug/Kg					
bis(2-Chloroethoxy) methane	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4-Dichlorophenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
1,2,4-Trichlorobenzene	ug/Kg	380 U	410 U	390 U	380 U	400 U
Naphthalene	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Chloroaniline	ug/Kg	360 U	410 U	390 U	360 U	400 U
Hexachlorobutadiene	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Chloro-3-methylphenol	ug/Kg	360 U	410 U	390 U	360 U	400 U
2-Methylnaphthalene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Hexachlorocyclopentadiene	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4,6-Trichlorophenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4,5-Trichlorophenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
2-Chloronaphthalene	ug/Kg	360 U	410 U	390 U	380 U	400 U
2-Nitroaniline	ug/Kg	880 U	1000 U	950 U	930 U	960 U
Dimethylphthalate	ug/Kg	360 U	410 U	390 U	380 U	400 U
Acenaphthylene	ug/Kg	380 U	410 U	390 U	380 U	400 U
2,6-Dinitrotoluene	ug/Kg	360 U	410 U	390 U	380 U	400 U
3-Nitroaniline	ug/Kg	860 U	1000 U	950 U	930 U	960 U
Acenaphthene	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4-Dinitrophenol	ug/Kg	860 U	1000 U	950 U	930 U	960 U
4-Nitrophenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
Dibenzofuran	ug/Kg	360 U	410 U	390 U	360 U	400 U
2,4-Dinitrotoluene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Diethylphthalate	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Chlorophenyl-phenylether	ug/Kg	360 U	410 U	390 U	380 U	400 U
Fluorene	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Nitroaniline	ug/Kg	860 U	1000 U	950 U	930 U	960 U
4,6-Dinitro-2-methylphenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
N-Nitrosodiphenylamine	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Bromophenyl-phenylether	ug/Kg	360 U	410 U	390 U	380 U	400 U
Hexachlorobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Pentachlorophenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
Phenanthrene	ug/Kg	360 U	110 J	390 U	380 U	400 U
Anthracene	ug/Kg	360 U	21 J	390 U	380 U	400 U
Carbazole	ug/Kg	380 U	20 J	390 U	380 U	400 U
Di-n-butylphthalate	ug/Kg	160 J	100 J	130 J	110 J	72 J
Fluoranthene	ug/Kg	380 U	180 J	390 U	380 U	400 U
Pyrene	ug/Kg	360 U	130 J	390 U	380 U	400 U
Butylbenzylphthalate	ug/Kg	360 U	410 U	390 U	380 U	400 U
3,3'-Dichlorobenzidine	ug/Kg	360 U	410 U	390 U	380 U	400 U
Benzo(a)anthracene	ug/Kg	360 U	78 J	390 U	380 U	400 U
Chrysene	ug/Kg	360 U	96 J	390 U	360 U	400 U
bis(2-Ethylhexyl)phthalate	ug/Kg	250 J	320 J	520	240 J	170 J
Di-n-octylphthalate	ug/Kg	360 U	410 U	390 U	360 U	400 U
Benzo(b)fluoranthene	ug/Kg	380 U	93 J	390 U	380 U	400 U
Benzo(k)fluoranthene	ug/Kg	380 U	65 J	390 U	360 U	400 U
Benzo(a)pyrene	ug/Kg	360 U	75 J	390 U	360 U	400 U
Indeno(1,2,3-cd)pyrene	ug/Kg	360 U	59 J	390 U	360 U	400 U
Dibenz(a,h)anthracene	ug/Kg	360 U	410 U	390 U	360 U	400 U
Benzo(g,h,i)perylene	ug/Kg	380 U	35 J	390 U	360 U	400 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-47	B-48	B-48	B-48	B-48
	DEPTH (FT.)	4-5.3	0-2	2-4	4-6	4-6
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B47-3	B48-1	B48-2	B48-3	B48-6
	LAB ID	183309	183310	183311	183312	183313
	UNITS					DUP B48-3
Pesticides/PCBs						
alpha-BHC	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
beta-BHC	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
delta-BHC	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
gamma-BHC (Lindane)	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Heptachlor	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Aldrin	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Heptachlor epoxide	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Endosulfan I	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Dieldrin	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
4,4'-DDE	ug/Kg	3.6 U	70	5.4	5.8	4 U
Endrin	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
Endosulfan II	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
4,4'-DDD	ug/Kg	3.6 U	15 J	2.7 J	2.5 J	4 U
Endosulfan sulfate	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
4,4'-DDT	ug/Kg	3.6 U	26	2 J	4.9	4 U
Methoxychlor	ug/Kg	19 U	42 U	20 U	20 U	20 U
Endrin ketone	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
Endrin aldehyde	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
alpha-Chlordane	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
gamma-Chlordane	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Toxaphene	ug/Kg	190 U	420 U	200 U	200 U	200 U
Aroclor-1016	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1221	ug/Kg	73 U	170 U	79 U	79 U	80 U
Aroclor-1232	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1242	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1248	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1254	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1260	ug/Kg	36 U	82 U	39 U	39 U	40 U
Herbicides						
2,4-D	ug/Kg	56 U	63 U	60 U	59 U	61 U
2,4-DB	ug/Kg	56 U	63 U	60 U	59 U	61 U
2,4,5-T	ug/Kg	5.6 U	6.3 U	6 U	5.9 U	6.1 U
2,4,5-TP (Silvex)	ug/Kg	5.6 U	6.3 U	6 U	5.9 U	6.1 U
Dalapon	ug/Kg	140 U	150 U	150 U	150 U	150 U
Dicamba	ug/Kg	5.6 U	6.3 U	6 U	5.9 U	6.1 U
Dichloroprop	ug/Kg	56 U	63 U	60 U	59 U	61 U
Dinoseb	ug/Kg	28 U	32 U	30 U	30 U	31 U
MCPA	ug/Kg	5600 U	6300 U	6000 U	5900 U	6100 U
MCPP	ug/Kg	5600 U	6300 U	6000 U	5900 U	6100 U
Metals						
Aluminum	mg/Kg	17300	10800	14000	12100	11100
Antimony	mg/Kg	6.1 UJ	5.6 J	4.8 UJ	4.4 J	4 UJ
Arsenic	mg/Kg	3.2	4.9	4.9	4.9	5.1
Barium	mg/Kg	68.8	82.2	115	50.6	41.1
Beryllium	mg/Kg	0.81 J	0.61 J	0.76 J	0.55 J	0.53 J
Cadmium	mg/Kg	0.44 U	0.34 J	0.35 U	1.3	0.29 U
Calcium	mg/Kg	37100	18200	3780	60100 J	16000 J
Chromium	mg/Kg	31	21.8	21.2	19.9	18.6
Cobalt	mg/Kg	12.6	9	13.3	11.4	11
Copper	mg/Kg	23.3	48	28.1	24.1	19.9
Iron	mg/Kg	33400	22700	26900	24800	23100
Lead	mg/Kg	6	82.5	15.5	8.4	9.2
Magnesium	mg/Kg	7330	4410	4310	8210	7090
Manganese	mg/Kg	643	520	1290	571	501
Mercury	mg/Kg	0.05 U	0.1	0.04 U	0.04 U	0.03 U
Nickel	mg/Kg	43.6	31.4	29.8	34.1	31.3
Potassium	mg/Kg	1420	1090	1540	1110	894
Selenium	mg/Kg	0.82 J	0.71 J	0.37 J	0.87 J	0.25 J
Silver	mg/Kg	0.95 U	0.61 U	0.75 U	0.53 U	0.62 U
Sodium	mg/Kg	187 J	75 J	89.8 U	176 J	121 J
Thallium	mg/Kg	0.51 U	0.54 U	0.62 U	0.62 U	0.67 U
Vanadium	mg/Kg	22.4	18.1	26.4	18.7	15.2
Zinc	mg/Kg	74.9	308	115	103	83.5
Cyanide	mg/Kg	0.67 U	0.75 U	0.71 U	0.68 U	0.69 U

TENTATIVELY IDENTIFIED COMPOUNDS

SDG FILE: FILE1E DATE: 11/01/91 MATRIX: SOIL
ES: S1031-4
LAB: 147827

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-4	1678-92-8	CYCLOHEXANE, PROPYL-	36000	J
S1031-4	493-02-7	NAPHTHALENE, DECAHYDRO-, TRA	10000	J
		TOTAL UNKNOWN TICS:	144700	
		TOTAL TICS	190700	

SDG FILE: FILE1E DATE: 11/01/91 MATRIX: SOIL
ES: S1031-4DL
LAB: 147827

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-4DL	1678-92-8	CYCLOHEXANE, PROPYL-	16000	JD
S1031-4DL	493-02-7	NAPHTHALENE, DECAHYDRO-, TRA	5500	JD
		TOTAL UNKNOWN TICS:	90200	
		TOTAL TICS	111700	

SDG FILE: FILE1E DATE: 11/01/91 MATRIX: SOIL
ES: S1031-5RE
LAB: 147828

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-5RE	1678-92-8	CYCLOHEXANE, PROPYL-	21000	J
S1031-5RE	493-02-7	NAPHTHALENE, DECAHYDRO-, TRA	11000	J
		TOTAL UNKNOWN TICS:	131500	
		TOTAL TICS	163500	

SDG FILE: FILE1E DATE: 11/01/91 MATRIX: SOIL
ES: S1031-6
LAB: 147829

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-6	1678-92-8	CYCLOHEXANE, PROPYL-	1800	J
		TOTAL UNKNOWN TICS:	1700	
		TOTAL TICS	3500	

SDG FILE: FILE1E DATE: 11/02/91 MATRIX: SOIL
ES: S1101-12
LAB: 147885

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	34	
		TOTAL TICS	34	

SDG FILE: FILE1E DATE: 11/02/91 MATRIX: SOIL

ES: S1101-14
LAB: 147887

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	16	
		TOTAL TICS	16	

SDG FILE: FILE1E DATE: 11/02/91 MATRIX: SOIL
ES: S1101-18
LAB: 147891

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-18	109-66-0	PENTANE	7	J
S1101-18	110-54-3	HEXANE	9	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	16	

SDG FILE: FILE1E DATE: 11/02/91 MATRIX: SOIL
ES: S1101-18RE
LAB: 147891

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-18RE	109-66-0	PENTANE	9	J
S1101-18RE	110-54-3	HEXANE	13	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	22	

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1030-1
LAB: 147824

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1030-1	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	610	JB
S1030-1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	15610	

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1030-2
LAB: 147825

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1030-2	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	950	JB
S1030-2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	18000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	18950	

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1030-3
LAB: 147826

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1030-3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	890	JB
S1030-3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	18000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 18890

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-10
LAB: 147833

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-10	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1400	JB
S1031-10	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	30000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 31400

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-4
LAB: 147827

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-4	124-18-5	DECANE	56000	J
S1031-4	1678-93-9	CYCLOHEXANE, BUTYL-	5800	J
S1031-4	1120-21-4	UNDECANE	42000	J
S1031-4	112-40-3	DODECANE	7200	J
S1031-4	629-99-2	PENTACOSANE	3800	J

TOTAL UNKNOWN TICS: 105100
TOTAL TICS 219900

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-5
LAB: 147828

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-5	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	4800	J
S1031-5	124-18-5	DECANE	64000	JS
S1031-5	1678-93-9	CYCLOHEXANE, BUTYL-	4700	J
S1031-5	1120-21-4	UNDECANE	67000	JS
S1031-5	112-40-3	DODECANE	10000	J

TOTAL UNKNOWN TICS: 144000
TOTAL TICS 294500

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-6
LAB: 147829

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-6	108-67-8	BENZENE, 1,3,5-TRIMETHYL-	1900	J
S1031-6	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	2900	J
S1031-6	124-18-5	DECANE	19000	J
S1031-6	108-67-8	BENZENE, 1,2,3-TRIMETHYL-	1900	J

S1031-6	1678-93-9	CYCLOHEXANE, BUTYL-	1700	J
S1031-6	1120-40-3	UNDECANE	15000	J
S1031-6	527-53-7	BENZENE, 1,2,3,5-TETRAMETHYL	1100	J
S1031-6	112-40-3	DODECANE	2700	J
		TOTAL UNKNOWN TICS:	25500	
		TOTAL TICS	71700	

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-8
LAB: 147831

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-8	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	810	JB
S1031-8	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	29000	JB
S1031-8	629-62-9	PENTADECANE	410	J
S1031-8	629-78-7	HEPTADECANE	760	J
S1031-8	638-67-5	TRICOSANE	380	J
S1031-8	646-31-1	TETRACOSANE	470	J
S1031-8	629-99-2	PENTACOSANE	540	J
S1031-8	630-01-3	HEXACOSANE	480	J
S1031-8	593-49-7	HEPTACOSANE	470	J
S1031-8	630-02-4	OCTACOSANE	440	J
S1031-8	630-03-5	NONACOSANE	690	J
S1031-8	638-68-6	TRIACONTANE	400	J
		TOTAL UNKNOWN TICS:	2970	
		TOTAL TICS	37820	

SDG FILE: FILE1F DATE: 11/02/91 MATRIX: SOIL
ES: S1101-12
LAB: 147885

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-12	86-74-8	9H-CARBAZOLE	2600	J
S1101-12	832-71-3	PHENANTHRENE, 3-METHYL-	1600	J
S1101-12	2531-84-2	PHENANTHRENE, 2-METHYL-	2000	J
S1101-12	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	2700	J
S1101-12	612-94-2	NAPHTHALENE, 2-PHENYL-	1200	J
S1101-12	243-42-5	BENZO[B]NAPHTHO[2,3-D]FURAN	1400	J
S1101-12	238-84-6	11H-BENZO[A]FLUORENE	4100	J
S1101-12	239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	1100	J
S1101-12	195-19-7	BENZO[C]PHENANTHRENE	1300	J
S1101-12	192-97-2	BENZO[E]PYRENE	6700	J
S1101-12	198-55-0	PERYLENE	2800	J
		TOTAL UNKNOWN TICS:	19600	
		TOTAL TICS	47100	

SDG FILE: FILE1F DATE: 11/02/91 MATRIX: SOIL
ES: S1101-13
LAB: 147886

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-13	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	600	JB
S1101-13	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 6600

SDG FILE: FILE1F DATE: 11/02/91 MATRIX: SOIL
ES: S1101-14
LAB: 147887

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-14	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	750	JB
S1101-14	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7300	JB

TOTAL UNKNOWN TICS: 1500
TOTAL TICS 9550

SDG FILE: FILE1F DATE: 11/02/91 MATRIX: SOIL
ES: S1101-15
LAB: 147888

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-15	832-71-3	PHENANTHRENE, 3-METHYL-	1200	J
S1101-15	2531-84-2	PHENANTHRENE, 2-METHYL-	1400	J
S1101-15	57-10-3	HEXADECANOIC ACID	5400	J
S1101-15	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	1300	J
S1101-15	610-48-0	ANTHRACENE, 1-METHYL-	1000	J
S1101-15	57-11-4	OCTADECANOIC ACID	3600	J
S1101-15	195-19-7	BENZO[C]PHENANTHRENE	890	J
S1101-15	192-97-2	BENZO[E]PYRENE	2500	J

TOTAL UNKNOWN TICS: 20670
TOTAL TICS 37960

SDG FILE: FILE1F DATE: 11/02/91 MATRIX: SOIL
ES: S1101-16
LAB: 147889

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-16	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	840	JB
S1101-16	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9000	JB

TOTAL UNKNOWN TICS: 1110
TOTAL TICS 10950

SDG FILE: FILE1F DATE: 11/02/91 MATRIX: SOIL
ES: S1101-17
LAB: 147890

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-17	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	820	JB
S1101-17	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6900	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 7720

SDG FILE: FILE1F DATE: 11/06/91 MATRIX: SOIL
ES: S1104-19

LAB: 148021

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-19	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1000	JB
S1104-19	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	13000	

SDG FILE: FILE1F DATE: 11/06/91 MATRIX: SOIL
ES: S1104-20
LAB: 148022

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-20	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	800	JB
S1104-20	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	11800	

SDG FILE: FILE1F DATE: 00/00/00 MATRIX: SOIL
ES: SBLKI1
LAB: SBLKI1

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKI1	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	820	JA
SBLKI1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	24000	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	24820	

SDG FILE: FILE1F DATE: 00/00/00 MATRIX: SOIL
ES: SBLKI3
LAB: SBLKI3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKI3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	830	JA
SBLKI3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6800	JA
		TOTAL UNKNOWN TICS:	390	
		TOTAL TICS	8020	

SDG FILE: FILE1F DATE: 00/00/00 MATRIX: SOIL
ES: SBLKJ1
LAB: SBLKJ1

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKJ1	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	690	JA
SBLKJ1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7000	JA
		TOTAL UNKNOWN TICS:	350	
		TOTAL TICS	8040	

SDG FILE: FILE1E1 DATE: 11/06/91 MATRIX: SOIL
ES: S1104-22

LAB: 148024

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	16	
		TOTAL TICS	16	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1104-21
LAB: 148023

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-21	86-74-8	9H-CARBAZOLE	1700	J
S1104-21	832-71-3	PHENANTHRENE, 3-METHYL-	1300	J
S1104-21	2531-84-2	PHENANTHRENE, 2-METHYL-	1900	J
S1104-21	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	2900	J
S1104-21	84-65-1	9,10-ANTHRACENEDIONE	1700	J
S1104-21	238-84-6	11H-BENZO[A]FLUORENE	2800	J
S1104-21	243-17-4	11H-BENZO[B]FLUORENE	1600	J
S1104-21	239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	1800	J
S1104-21	195-19-7	BENZO[C]PHENANTHRENE	1300	J
S1104-21	203-12-3	BENZO[GHI]FLUORANTHENE	1100	J
S1104-21	192-97-2	BENZO[E]PYRENE	6100	J
S1104-21	198-55-0	PERYLENE	2800	J
		TOTAL UNKNOWN TICS:	11670	
		TOTAL TICS	38670	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1104-22
LAB: 148024

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-22	86-74-8	9H-CARBAZOLE	730	J
S1104-22	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	1100	J
S1104-22	238-84-6	11H-BENZO[A]FLUORENE	1300	J
S1104-22	638-67-5	TRICOSANE	1000	J
S1104-22	243-17-4	11H-BENZO[B]FLUORENE	740	J
S1104-22	646-31-1	TETRACOSANE	1500	J
S1104-22	239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	930	J
S1104-22	629-99-2	PENTACOSANE	1700	J
S1104-22	630-01-3	HEXACOSANE	1900	J
S1104-22	593-49-7	HEPTACOSANE	2100	J
S1104-22	630-02-4	OCTACOSANE	3000	J
S1104-22	630-03-5	NONACOSANE	3200	J
S1104-22	192-97-2	BENZO[E]PYRENE	2300	J
S1104-22	638-68-6	TRIACONTANE	2100	J
S1104-22	198-55-0	PERYLENE	950	J
S1104-22	544-85-4	DOTRIACONTANE	1500	J
		TOTAL UNKNOWN TICS:	8000	
		TOTAL TICS	34050	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1104-23
LAB: 148025

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-23	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	920	JB
S1104-23	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JB
S1104-23	630-03-5	NONACOSANE	470	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 17390

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-24
LAB: 148026

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-24	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	930	JB
S1105-24	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	17000	JB
S1105-24	630-03-5	NONACOSANE	320	J

TOTAL UNKNOWN TICS: 320
TOTAL TICS 18570

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-25
LAB: 148027

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-25	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	960	JB
S1105-25	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	19000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 19960

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-26
LAB: 148028

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-26	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	860	JB
S1105-26	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 15860

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-27
LAB: 148029

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-27	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	810	JB
S1105-27	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	22000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 22810

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-28

LAB: 148030

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-28	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	740	JB
S1105-28	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	23000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	23740	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-29
LAB: 148031

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-29	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4300	JB
S1105-29	100-52-7	BENZALDEHYDE	400	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	4700	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-30
LAB: 148032

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-30	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	560	JB
S1105-30	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	17000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	17560	

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-31
LAB: 148457

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-31	629-78-7	HEPTADECANE	700	J
S1106-31	1921-70-6	PENTADECANE, 2,6,10,14-TETRA	990	J
S1106-31	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	1300	J
S1106-31	57-10-3	HEXADECANOIC ACID	770	J
S1106-31	238-84-6	11H-BENZO[A]FLUORENE	1500	J
S1106-31	243-17-4	11H-BENZO[B]FLUORENE	890	J
S1106-31	593-49-7	HEPTACOSANE	720	J
S1106-31	630-03-5	NONACOSANE	2600	J
S1106-31	192-97-2	BENZO[E]PYRENE	2100	J
S1106-31	198-55-0	PERYLENE	820	J
		TOTAL UNKNOWN TICS:	10960	
		TOTAL TICS	23350	

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-32
LAB: 148458

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-32	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	900	JB

S1106-32	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JB
S1106-32	629-99-2	PENTACOSANE	380	J
S1106-32	630-01-3	HEXACOSANE	360	J
S1106-32	593-49-7	HEPTACOSANE	470	J
S1106-32	630-02-4	OCTACOSANE	480	J
S1106-32	630-03-5	NONACOSANE	580	J
S1106-32	638-68-6	TRIACONTANE	350	J
		TOTAL UNKNOWN TICS:	560	
		TOTAL TICS	18080	

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-33
LAB: 148459

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-33	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	970	JB
S1106-33	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	10000	JB
S1106-33	629-99-2	PENTACOSANE	450	J
S1106-33	630-01-3	HEXACOSANE	510	J
S1106-33	593-49-7	HEPTACOSANE	500	J
S1106-33	630-02-4	OCTACOSANE	500	J
S1106-33	630-03-5	NONACOSANE	640	J
		TOTAL UNKNOWN TICS:	1350	
		TOTAL TICS	14920	

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-34
LAB: 148460

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-34	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	890	JB
S1106-34	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	15890	

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-36
LAB: 148462

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-36	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	800	JB
S1106-36	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1106-36	57-10-3	HEXADECANOIC ACID	580	J
		TOTAL UNKNOWN TICS:	4030	
		TOTAL TICS	17410	

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-37
LAB: 148463

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-37	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	650	JB

S1106-37	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB

TOTAL UNKNOWN TICS: 520
TOTAL TICS 13170

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-38
LAB: 148464

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-38	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	680	JB
S1106-38	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9800	JB

TOTAL UNKNOWN TICS: 1230
TOTAL TICS 11710

SDG FILE: FILE1F1 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-39
LAB: 148704

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-39	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	680	JB
S1107-39	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB

TOTAL UNKNOWN TICS: 990
TOTAL TICS 13670

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: SOIL
ES: SBLK9K
LAB: SBLKK9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK9K	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	830	JA
SBLK9K	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JA

TOTAL UNKNOWN TICS: 550
TOTAL TICS 17380

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKJ2
LAB: SBLKJ2

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKJ2	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	730	JA
SBLKJ2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 11730

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKK9
LAB: SBLKK9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKK9	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	950	JA

SBLKK9	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	8800	JA

TOTAL UNKNOWN TICS: 390
TOTAL TICS 10140

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKT3
LAB: SBLKT3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKT3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	2300	JA
SBLKT3	100-52-7	BENZALDEHYDE	240	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 2540

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-41
LAB: 148706

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-41	96-37-7	METHYLCYCLOPENTANE	14	J
S1107-41	110-54-3	HEXANE	130	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 144

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-48
LAB: 148713

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-48	110-54-3	HEXANE	7	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 7

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-49
LAB: 148714

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 24
TOTAL TICS 24

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-49DL
LAB: 148714

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-49DL	110-54-3	HEXANE	3900	JD

TOTAL UNKNOWN TICS: 0
TOTAL TICS 3900

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-50
LAB: 148715

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-50	110-54-3	HEXANE	1300	J
S1108-50	493-02-7	DECAHYDRONAPHTHALENE, TRANS	6900	J
		TOTAL UNKNOWN TICS:	65900	
		TOTAL TICS	74100	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-50DL
LAB: 148715

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-50DL	110-54-3	HEXANE	28000	JD
		TOTAL UNKNOWN TICS:	36000	
		TOTAL TICS	64000	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-51
LAB: 148716

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-51	110-54-3	HEXANE	26000	J
		TOTAL UNKNOWN TICS:	40000	
		TOTAL TICS	66000	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-51DL
LAB: 148716

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-51DL	110-54-3	HEXANE	34000	JD
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	34000	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-52
LAB: 148717

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-52	493-02-7	DECAHYDRONAPHTHALENE, TRANS	3400	J
		TOTAL UNKNOWN TICS:	28350	
		TOTAL TICS	31750	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-52DL

LAB: 148717

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-52DL	110-54-3	HEXANE	1900	JD
S1108-52DL	493-02-7	DECAHYDRONAPHTHALENE, TRANS	2000	JD
		TOTAL UNKNOWN TICS:	28400	
		TOTAL TICS	32300	

SDG FILE: FILE1E2 DATE: 11/14/91 MATRIX: SOIL
ES: S1112-55
LAB: 148927

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1112-55	281-23-2	TRICYCLO[3.3.1.13,7]DECANE,	46	J
S1112-55	1678-92-8	PROPYLCYCLOHEXANE	50	J
S1112-55	493-02-7	NAPHTHALENE, DECAHYDRO-, TRA	13	J
		TOTAL UNKNOWN TICS:	217	
		TOTAL TICS	326	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-40
LAB: 148705

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-40	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	410	JB
S1107-40	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	18000	JB
		TOTAL UNKNOWN TICS:	1040	
		TOTAL TICS	19450	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-42
LAB: 148707

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-42	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	450	JB
S1107-42	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JB
		TOTAL UNKNOWN TICS:	1250	
		TOTAL TICS	15700	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-43
LAB: 148708

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-43	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	450	JB
S1107-43	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JB
		TOTAL UNKNOWN TICS:	2900	
		TOTAL TICS	19350	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL

ES: S1107-44
LAB: 148709

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-44	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	390	JB
S1107-44	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
		TOTAL UNKNOWN TICS:	2670	
		TOTAL TICS	15060	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-45
LAB: 148710

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-45	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	380	JB
S1108-45	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	20000	JB
S1108-45	630-03-5	NONACOSANE	830	J
		TOTAL UNKNOWN TICS:	2400	
		TOTAL TICS	23610	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-46
LAB: 148711

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-46	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	420	JB
S1108-46	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	19000	JB
		TOTAL UNKNOWN TICS:	790	
		TOTAL TICS	20210	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-47
LAB: 148712

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-47	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	450	JB
S1108-47	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JB
		TOTAL UNKNOWN TICS:	870	
		TOTAL TICS	15320	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-48
LAB: 148713

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-48	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	520	JB
S1108-48	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	21000	JB
		TOTAL UNKNOWN TICS:	1330	
		TOTAL TICS	22850	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-49
LAB: 148714

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-49	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3900	JB
S1108-49	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1108-49	630-03-5	NONACOSANE	410	J
		TOTAL UNKNOWN TICS:	3870	
		TOTAL TICS	20180	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-50
LAB: 148715

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-50	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	16000	J
S1108-50	124-18-5	DECANE	52000	J
S1108-50	526-73-8	BENZENE, 1,2,3-TRIMETHYL-	11000	J
S1108-50	1678-93-9	CYCLOHEXANE, BUTYL-	7300	J
S1108-50	1120-21-4	UNDECANE	34000	J
S1108-50	112-40-3	DODECANE	11000	J
S1108-50	629-99-2	PENTACOSANE	11000	J
S1108-50	593-49-7	HEPTACOSANE	7500	J
		TOTAL UNKNOWN TICS:	110700	
		TOTAL TICS	260500	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-50RE
LAB: 148715

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-50RE	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	16000	J
S1108-50RE	124-18-5	DECANE	59000	J
S1108-50RE	526-73-8	BENZENE, 1,2,3-TRIMETHYL-	10000	J
S1108-50RE	1678-93-9	CYCLOHEXANE, BUTYL-	8000	J
S1108-50RE	1120-21-4	UNDECANE	40000	J
S1108-50RE	112-40-3	DODECANE	12000	J
S1108-50RE	629-50-5	TRIDECANE	8400	J
S1108-50RE	629-59-4	TETRADECANE	6300	J
S1108-50RE	629-99-2	PENTACOSANE	9400	J
		TOTAL UNKNOWN TICS:	103400	
		TOTAL TICS	272500	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-51
LAB: 148716

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-51	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	22000	J
S1108-51	124-18-5	DECANE	60000	J
S1108-51	526-73-8	BENZENE, 1,2,3-TRIMETHYL-	14000	J
S1108-51	1678-93-9	CYCLOHEXANE, BUTYL-	10000	J
S1108-51	1120-21-4	UNDECANE	44000	J

S1108-51	112-40-3	DODECANE	14000	J
S1108-51	629-50-5	TRIDECANE	9900	J
S1108-51	629-99-2	PENTACOSANE	15000	J
S1108-51	593-49-7	HEPTACOSANE	9600	J
		TOTAL UNKNOWN TICS:	132600	
		TOTAL TICS	331100	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-51RE
LAB: 148716

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-51RE	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	18000	J
S1108-51RE	124-18-5	DECANE	71000	J
S1108-51RE	526-73-8	BENZENE, 1,2,3-TRIMETHYL-	11000	J
S1108-51RE	1678-93-9	CYCLOHEXANE, BUTYL-	8600	J
S1108-51RE	1120-21-4	UNDECANE	49000	J
S1108-51RE	112-40-3	DODECANE	15000	J
S1108-51RE	629-50-5	TRIDECANE	9100	J
S1108-51RE	112-95-8	EICOSANE	8900	J
S1108-51RE	629-94-7	HENEICOSANE	9300	J
S1108-51RE	629-99-2	PENTACOSANE	13000	J
S1108-51RE	593-49-7	HEPTACOSANE	8600	J
		TOTAL UNKNOWN TICS:	106100	
		TOTAL TICS	327600	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-52
LAB: 148717

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-52	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	8100	J
S1108-52	124-18-5	DECANE	29000	J
S1108-52	526-73-8	BENZENE, 1,2,3-TRIMETYHYL-	5300	J
S1108-52	1678-93-9	CYCLOHEXANE, BUTYL-	3900	J
S1108-52	91-17-8	NAPHTHALENE, DECAHYDRO-	2600	J
S1108-52	1120-21-4	UNDECANE	21000	J
S1108-52	112-40-3	DODECANE	5300	J
S1108-52	112-95-8	EICOSANE	2700	J
S1108-52	629-99-2	PENTACOSANE	3700	J
		TOTAL UNKNOWN TICS:	47100	
		TOTAL TICS	128700	

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1112-53
LAB: 148925

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1112-53	238-84-6	11H-BENZO[A]FLUORENE	1100	J
S1112-53	2381-21-7	PYRENE, 1-METHYL-	1700	J
S1112-53	192-97-2	BENZO[E]PYRENE	1600	J
S1112-53	198-55-0	PERYLENE	410	J
		TOTAL UNKNOWN TICS:	12680	

TOTAL TICS 17490

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1112-54
LAB: 148926

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1112-54	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	840	JB
S1112-54	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	22000	JB

TOTAL UNKNOWN TICS: 1440
TOTAL TICS 24280

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1112-55
LAB: 148927

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1112-55	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	900	JB
S1112-55	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB

TOTAL UNKNOWN TICS: 1280
TOTAL TICS 17180

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-56
LAB: 148928

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-56	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1700	JB
S1113-56	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	23000	JB

TOTAL UNKNOWN TICS: 1140
TOTAL TICS 25840

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-57
LAB: 148929

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-57	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	500	JB
S1113-57	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JB

TOTAL UNKNOWN TICS: 690
TOTAL TICS 12190

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-58
LAB: 148930

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-58	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	800	JB
S1113-58	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	20000	JB

TOTAL UNKNOWN TICS: 1180

	TOTAL TICS	21980	

SDG FILE: FILE1F2 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKL3
LAB: SBLKL3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKL3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	350	JA
SBLKL3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JA
SBLKL3	100-52-7	BENZALDEHYDE	420	J
		TOTAL UNKNOWN TICS:	2610	
		TOTAL TICS	17380	

SDG FILE: FILE1F2 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKN7
LAB: SBLKN7

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKN7	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3300	JA
		TOTAL UNKNOWN TICS:	310	
		TOTAL TICS	3610	

SDG FILE: FILE1F2 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKQ6
LAB: SBLKQ6

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKQ6	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	580	JA
SBLKQ6	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	10000	JA
		TOTAL UNKNOWN TICS:	310	
		TOTAL TICS	10890	

SDG FILE: 1E148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-72
LAB: 149182

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-72	78-78-4	BUTANE, 2-METHYL-	8	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8	

SDG FILE: 1E148931 DATE: 00/00/00 MATRIX: SOIL
ES: VBLKG9
LAB: VBLKG9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKG9	1066-40-6	SILANOL, TRIMETHYL-	8	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-59
LAB: 148931

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-59	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	650	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	650	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-60
LAB: 148932

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-60	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	800	JA
S1113-60	544-76-3	HEXADECANE	580	J
S1113-60	629-78-7	HEPTADECANE	660	J
S1113-60	1921-70-6	PENTADECANE, 2,6,10,14-TETRA	370	J
S1113-60	593-45-3	OCTADECANE	510	J
S1113-60	629-92-5	NONADECANE	470	J
S1113-60	112-95-8	EICOSANE	350	J
S1113-60	630-03-5	NONACOSANE	500	J
		TOTAL UNKNOWN TICS:	680	
		TOTAL TICS	4920	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-61
LAB: 148933

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-61	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	740	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	740	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-62
LAB: 148934

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-62	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	620	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	620	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-63
LAB: 148935

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-63	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	720	JA
		TOTAL UNKNOWN TICS:	0	

TOTAL TICS 720

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-64
LAB: 148936

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-64	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	640	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 640

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-65
LAB: 148937

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-65	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	600	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 600

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-66
LAB: 149176

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-66	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	410	JA
S1114-66	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6100	JA
S1114-66	630-03-5	NONACOSANE	510	J

TOTAL UNKNOWN TICS: 850
TOTAL TICS 7870

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-67
LAB: 149177

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-67	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	430	JA
S1114-67	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7100	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 7530

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-68
LAB: 149178

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-68	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	390	JA
S1114-68	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5600	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5990

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-69
LAB: 149179

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-69	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	380	JA
S1114-69	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6900	JA
S1114-69	238-84-6	11H-BENZO(A)FLUORENE	390	J
S1114-69	192-97-2	BENZO(E)PYRENE	660	J
		TOTAL UNKNOWN TICS:	1390	
		TOTAL TICS	9720	

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-70
LAB: 149180

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-70	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6500	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6500	

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-71
LAB: 149181

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-71	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6100	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6100	

SDG FILE: 1F148931 DATE: 11/18/91 MATRIX: SOIL
ES: S1511-78
LAB: 149231

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-78	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6400	JA
S1511-78	57-10-3	HEXADECANOIC ACID	840	J
S1511-78	593-49-7	HEPTACOSANE	420	J
S1511-78	630-03-7	NONACOSANE	2300	J
		TOTAL UNKNOWN TICS:	7370	
		TOTAL TICS	17330	

SDG FILE: 1F148931 DATE: 11/18/91 MATRIX: SOIL
ES: S1611-83
LAB: 149232

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1611-83	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	400	JA
S1611-83	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5900	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 6300

SDG FILE: 1F148931 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKN4
LAB: SBLKN4

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKN4	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	910	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 910

SDG FILE: 1F148931 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKO6
LAB: SBLKO6

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKO6	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	360	JA
SBLKO6	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5500	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5860

SDG FILE: 1F148931 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKP3
LAB: SBLKP3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKP3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	330	JA
SBLKP3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5600	JA

TOTAL UNKNOWN TICS: 330
TOTAL TICS 6260

SDG FILE: 1E149114 DATE: 11/18/91 MATRIX: SOIL
ES: S1511-85
LAB: 149233

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 8
TOTAL TICS 8

SDG FILE: 1E149114 DATE: 11/18/91 MATRIX: SOIL
ES: S1611-86
LAB: 149234

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 7
TOTAL TICS 7

SDG FILE: 1E149114 DATE: 11/21/91 MATRIX: SOIL

ES: S2011-87
LAB: 149451

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-87	110-54-3	HEXANE	21	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	21	

SDG FILE: 1E149114 DATE: 00/00/00 MATRIX: SOIL
ES: VBLKG9
LAB: VBLKG9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKG9	1066-40-6	SILANOL, TRIMETHYL-	8	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: SOIL
ES: S1511-76
LAB: 149114

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-76	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1000	JB
S1511-76	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB
S1511-76	57-10-3	HEXADECANOIC ACID	500	J
S1511-76	593-49-7	HEPTACOSANE	570	J
S1511-76	630-03-5	NONACOSANE	1100	J
S1511-76	83-48-7	STIGMASTEROL	560	J
S1511-76	1058-61-3	STIGMAST-4-EN-3-ONE	690	J
		TOTAL UNKNOWN TICS:	6160	
		TOTAL TICS	25580	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: SOIL
ES: S1511-77
LAB: 149115

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-77	57-10-3	HEXADECANOIC ACID	1100	J
S1511-77	629-99-2	PENTACOSANE	680	J
S1511-77	593-49-7	HEPTACOSANE	2400	J
S1511-77	630-02-4	OCTACOSANE	780	J
S1511-77	630-03-5	NONACOSANE	7000	J
S1511-77	638-68-6	TRIACONTANE	650	J
S1511-77	83-48-7	STIGMASTEROL	1000	J
S1511-77	1058-61-3	STIGMAST-4-EN-3-ONE	1000	J
		TOTAL UNKNOWN TICS:	27640	
		TOTAL TICS	42250	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: SOIL
ES: S1511-79
LAB: 149116

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-79	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	830	JB
S1511-79	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JB
S1511-79	57-10-3	HEXADECANOIC ACID	760	J
S1511-79	150-86-7	PHYTOL	490	J
S1511-79	629-99-2	PENTACOSANE	520	J
S1511-79	593-49-7	HEPTACOSANE	1000	J
S1511-79	630-03-5	NONACOSANE	2200	J
S1511-79	83-48-7	STIGMASTEROL	490	J
S1511-79	1058-61-3	STIGMAST-4-EN-3-ONE	840	J
		TOTAL UNKNOWN TICS:	10090	
		TOTAL TICS	33220	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: SOIL
ES: S1511-80
LAB: 149117

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-80	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	790	JB
S1511-80	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	13000	JB
S1511-80	2091-29-4	9-HEXADECENOIC ACID	520	J
S1511-80	57-10-3	HEXADECANOIC ACID	2000	J
S1511-80	593-49-7	HEPTACOSANE	940	J
S1511-80	630-03-5	NONACOSANE	2200	J
S1511-80	192-97-2	BENZO[E]PYRENE	500	J
S1511-80	57-88-5	CHOLESTEROL	1200	J
S1511-80	1058-61-3	STIGMAST-4-EN-3-ONE	730	J
		TOTAL UNKNOWN TICS:	15750	
		TOTAL TICS	37630	

SDG FILE: 1F149114 DATE: 11/18/91 MATRIX: SOIL
ES: S1511-85
LAB: 149233

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-85	84-65-1	9,10-ANTHRACENEDIONE	500	J
S1511-85	238-84-6	11H-BENZO[A]FLUORENE	620	J
S1511-85	195-19-7	BENZO[C]PHENANTHRENE	710	J
S1511-85	203-12-3	BENZO[GHI]FLUORANTHENE	480	J
S1511-85	192-97-2	BENZO[E]PYRENE	2800	J
S1511-85	198-55-0	PERYLENE	930	J
		TOTAL UNKNOWN TICS:	10420	
		TOTAL TICS	16460	

SDG FILE: 1F149114 DATE: 11/18/91 MATRIX: SOIL
ES: S1611-86
LAB: 149234

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1611-86	84-65-1	9,10-ANTHRACENEDIONE	750	J
S1611-86	238-84-6	11H-BENZO[A]FLUORENE	970	J
S1611-86	2381-21-7	PYRENE, 1-METHYL-	720	J
S1611-86	195-19-7	BENZO[C]PHENANTHRENE	1100	J
S1611-86	203-12-3	BENZO[GHI]FLUORANTHENE	760	J

S1611-86	192-97-2	BENZO[E]PYRENE	4400	J
S1611-86	198-55-0	PERYLENE	1500	J

TOTAL UNKNOWN TICS: 15540
TOTAL TICS 25740

SDG FILE: 1F149114 DATE: 11/21/91 MATRIX: SOIL
ES: S2011-87
LAB: 149451

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-87	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3600	JB

TOTAL UNKNOWN TICS: 1100
TOTAL TICS 4700

SDG FILE: 1F149114 DATE: 11/21/91 MATRIX: SOIL
ES: S2011-87RE
LAB: 149451

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-87RE	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1900	JB
S2011-87RE	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9000	JB
S2011-87RE	2091-29-4	9-HEXADECENOIC ACID	930	J
S2011-87RE	57-10-3	HEXADECANOIC ACID	2500	J
S2011-87RE	593-49-7	HEPTACOSANE	600	J
S2011-87RE	630-03-5	NONACOSANE	3100	J

TOTAL UNKNOWN TICS: 16250
TOTAL TICS 34280

SDG FILE: 1F149114 DATE: 11/21/91 MATRIX: SOIL
ES: S2011-88
LAB: 149452

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-88	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	2400	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 2400

SDG FILE: 1F149114 DATE: 11/21/91 MATRIX: SOIL
ES: S2011-88RE
LAB: 149452

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-88RE	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	840	JB
S2011-88RE	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7300	JB
S2011-88RE	57-10-3	HEXADECANOIC ACID	460	J
S2011-88RE	630-03-5	NONACOSANE	510	J

TOTAL UNKNOWN TICS: 2030
TOTAL TICS 11140

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: SOIL

ES: SBLKF9
LAB: SBLKF9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKF9	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	730	JA
SBLKF9	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	2900	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 3630

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKO5
LAB: SBLKO5

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKO5	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	750	JA
SBLKO5	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JA

TOTAL UNKNOWN TICS: 330
TOTAL TICS 12080

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKP4
LAB: SBLKP4

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKP4	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	270	JA
SBLKP4	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5500	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5770

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKR6
LAB: SBLKR6

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKR6	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	2400	JA

TOTAL UNKNOWN TICS: 410
TOTAL TICS 2810

SDG FILE: 1E150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-79
LAB: 150022

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 38
TOTAL TICS 38

SDG FILE: 1E150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-87
LAB: 150236

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	24	
		TOTAL TICS	24	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-73
LAB: 150016

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-73	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5300	JA
S1202-73	630-03-5	NONACOSANE	420	J
		TOTAL UNKNOWN TICS:	630	
		TOTAL TICS	6350	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-74
LAB: 150017

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-74	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5900	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5900	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-76
LAB: 150019

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-76	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5400	JA
		TOTAL UNKNOWN TICS:	400	
		TOTAL TICS	5800	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-77
LAB: 150020

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-77	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6000	JA
S1202-77	630-03-5	NONACOSANE	320	J
		TOTAL UNKNOWN TICS:	300	
		TOTAL TICS	6620	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-78
LAB: 150021

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-78	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6000	JA
		TOTAL UNKNOWN TICS:	330	

TOTAL TICS	6330

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-79
LAB: 150022

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-79	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7800	JA
S1203-79	630-03-5	NONACOSANE	460	J
		TOTAL UNKNOWN TICS:	1430	
		TOTAL TICS	9690	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-80
LAB: 150023

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-80	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5700	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5700	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-81
LAB: 150024

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-81	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5800	JA
		TOTAL UNKNOWN TICS:	310	
		TOTAL TICS	6110	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-82
LAB: 150025

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-82	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6600	JA
S1203-82	630-03-5	NONACOSANE	1100	J
		TOTAL UNKNOWN TICS:	1600	
		TOTAL TICS	9300	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-83
LAB: 150026

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-83	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5600	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5600	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-84
LAB: 150027

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-84	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4800	JA
S1203-84	630-03-5	NONACOSANE	680	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5480	

SDG FILE: 1F150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-86
LAB: 150235

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-86	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	730	JA
S1204-86	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7500	JA
		TOTAL UNKNOWN TICS:	350	
		TOTAL TICS	8580	

SDG FILE: 1F150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-87
LAB: 150236

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-87	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	850	JA
S1204-87	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	8100	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8950	

SDG FILE: 1F150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-88
LAB: 150237

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-88	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	680	JA
S1204-88	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	11680	

SDG FILE: 1F150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-89
LAB: 150238

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-89	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	950	JA
S1204-89	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7400	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8350	

SDG FILE: 1F150016 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKT1
LAB: SBLKT1

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKT1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7400	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	7400	

SDG FILE: 1F150016 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKU3
LAB: SBLKU3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKU3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	770	JA
SBLKU3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	11770	

SDG FILE: 1F150726 DATE: 12/12/91 MATRIX: SOIL
ES: S1012119
LAB: 150727

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1012119	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1500	JA
S1012119	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	18000	JA
S1012119	57-10-3	HEXADECANOIC ACID	530	J
S1012119	630-03-5	NONACOSANE	1200	J
		TOTAL UNKNOWN TICS:	3890	
		TOTAL TICS	25120	

SDG FILE: 1F150726 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKX1
LAB: SBLKX1

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKX1	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	810	JA
SBLKX1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5700	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6510	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1024-95RE
LAB: 150249

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1024-95RE	91-17-8	NAPHTHALENE, DECAHYDRO-	400	J
		TOTAL UNKNOWN TICS:	3100	
		TOTAL TICS	3500	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1025-99
LAB: 150255

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1025-99	91-17-8	NAPHTHALENE, DECAHYDRO-	190	J
		TOTAL UNKNOWN TICS:	1908	
		TOTAL TICS	2098	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-90
LAB: 150241

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	1000	
		TOTAL TICS	1000	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-94
LAB: 150247

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-94	110-54-3	HEXANE	8	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-95
LAB: 150249

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-95	91-17-8	NAPHTHALENE, DECAHYDRO-	180	J
		TOTAL UNKNOWN TICS:	1577	
		TOTAL TICS	1757	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96
LAB: 150250

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-96	91-17-8	NAPHTHALENE, DECAHYDRO-	2000	J
S1204-96	111-84-2	NONANE	5000	J
		TOTAL UNKNOWN TICS:	28600	
		TOTAL TICS	35600	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96A
LAB: 150251

ESID	CAS NO	COMPOUND	RESULT	QUAL.

S1204-96A	91-17-8	NAPHTHALENE, DECAHYDRO-	4900	J
S1204-96A	111-84-2	NONANE	11000	J

TOTAL UNKNOWN TICS: 68000
TOTAL TICS 83900

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96AD
LAB: 150251

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-96AD	91-17-8	NAPHTHALENE, DECAHYDRO-	3000	JD
S1204-96AD	111-84-2	NONANE	6300	JD

TOTAL UNKNOWN TICS: 42000
TOTAL TICS 51300

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-100
LAB: 150256

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 59
TOTAL TICS 59

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-100R
LAB: 150256

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 50
TOTAL TICS 50

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-89A
LAB: 150240

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-89A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	17000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 17000

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-90
LAB: 150241

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-90	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1200	JB
S1204-90	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1204-90	1120-21-4	UNDECANE	1700	J

TOTAL UNKNOWN TICS: 8100

TOTAL TICS 23000

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-91
LAB: 150242

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-91	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1000	JB
S1204-91	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	19000	JB

TOTAL UNKNOWN TICS: 320
TOTAL TICS 20320

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-91A
LAB: 150243

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-91A	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1300	JB
S1204-91A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	22000	JB

TOTAL UNKNOWN TICS: 320
TOTAL TICS 23620

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-92
LAB: 150244

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-92	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1400	JB
S1204-92	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	19000	JB
S1204-92	124-18-5	DECANE	460	J
S1204-92	1120-21-4	UNDECANE	480	J

TOTAL UNKNOWN TICS: 830
TOTAL TICS 22170

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-93
LAB: 150245

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-93	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1200	JB
S1204-93	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	13000	JB
S1204-93	124-18-5	DECANE	1000	J
S1204-93	91-17-8	NAPHTHALENE, DECAHYDRO-	400	J
S1204-93	1120-21-4	UNDECANE	1300	J
S1204-93	112-40-3	DODECANE	430	J

TOTAL UNKNOWN TICS: 5270
TOTAL TICS 22600

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-93A
LAB: 150246

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-93A	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1300	JB
S1204-93A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	13000	JB

TOTAL UNKNOWN TICS: 330
TOTAL TICS 14630

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-94
LAB: 150247

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-94	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	690	JB
S1204-94	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 14690

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-94A
LAB: 150248

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-94A	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1500	JB
S1204-94A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	10000	JB

TOTAL UNKNOWN TICS: 850
TOTAL TICS 12350

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-94RE
LAB: 150247

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-94RE	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7400	JB

TOTAL UNKNOWN TICS: 400
TOTAL TICS 7800

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-95
LAB: 150249

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-95	91-17-8	NAPHTHALENE, DECAHYDRO-	2300	J
S1204-95	629-99-2	PENTACOSANE	1300	J
S1204-95	630-01-3	HEXACOSANE	830	J
S1204-95	601-58-1	STIGMASTANE	1200	J

TOTAL UNKNOWN TICS: 20120
TOTAL TICS 25750

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-95RE

LAB: 150249

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-95RE	91-17-8	NAPHTHALENE, DECAHYDRO-	1900	J
S1204-95RE	629-99-2	PENTACOSANE	1100	J
S1204-95RE	630-01-3	HEXACOSANE	670	J
S1204-95RE	601-58-1	STIGMASTANE	1100	J
		TOTAL UNKNOWN TICS:	18060	
		TOTAL TICS	22830	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96
LAB: 150250

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-96	124-18-5	DECANE	27000	J
S1204-96	1678-93-9	CYCLOHEXANE, BUTYL-	5300	J
S1204-96	1120-21-4	UNDECANE	26000	J
S1204-96	112-40-3	DODECANE	7000	J
S1204-96	629-50-5	TRIDECANE	3300	J
S1204-96	629-92-5	NONADECANE	3000	J
S1204-96	112-95-8	EICOSANE	3200	J
S1204-96	629-97-0	DOCOSANE	3300	J
S1204-96	593-49-7	HEPTACOSANE	3100	J
S1204-96	630-02-4	OCTACOSANE	3200	J
		TOTAL UNKNOWN TICS:	47700	
		TOTAL TICS	132100	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96A
LAB: 150251

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-96A	124-18-5	DECANE	24000	J
S1204-96A	1678-93-9	CYCLOHEXANE, BUTYL-	2900	J
S1204-96A	1120-21-4	UNDECANE	21000	J
S1204-96A	112-40-3	DODECANE	4500	J
S1204-96A	629-92-5	NONADECANE	2400	J
S1204-96A	112-95-8	EICOSANE	2600	J
S1204-96A	629-97-0	DOCOSANE	3100	J
S1204-96A	593-49-7	HEPTACOSANE	3100	J
S1204-96A	630-02-4	OCTACOSANE	2600	J
		TOTAL UNKNOWN TICS:	41200	
		TOTAL TICS	107400	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-100
LAB: 150256

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-100	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	0	JB
S1205-100	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	32000	JB
S1205-100	100-52-7	BENZALDEHYDE	1700	J
S1205-100	98-86-2	ETHANONE, 1-PHENYL-	4500	J

S1205-100	143-07-7	DODECANOIC ACID	46000	J

TOTAL UNKNOWN TICS: 6700
TOTAL TICS 90900

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-97
LAB: 150252

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-97	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	800	JB
S1205-97	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1205-97	593-49-7	HEPTACOSANE	330	J
S1205-97	630-03-5	NONACOSANE	420	J

TOTAL UNKNOWN TICS: 5480
TOTAL TICS 19030

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-97A
LAB: 150253

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-97A	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1500	JB
S1205-97A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1205-97A	2091-29-4	9-HEXADECENOIC ACID	360	J
S1205-97A	57-10-3	HEXADECANOIC ACID	630	J
S1205-97A	57-11-4	OCTADECANOIC ACID	430	J
S1205-97A	629-99-2	PENTACOSANE	400	J
S1205-97A	630-01-3	HEXACOSANE	390	J
S1205-97A	593-49-7	HEPTACOSANE	610	J
S1205-97A	630-02-4	OCTACOSANE	410	J
S1205-97A	630-03-5	NONACOSANE	700	J
S1205-97A	638-68-6	TRIACONTANE	320	J

TOTAL UNKNOWN TICS: 3640
TOTAL TICS 21390

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-98
LAB: 150254

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-98	141-79-7	3-PENTEN-2-0NE, 4-METHYL-	1400	JB
S1205-98	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	8400	JB
S1205-98	593-49-7	HEPTACOSANE	320	J
S1205-98	630-03-5	NONACOSANE	330	J

TOTAL UNKNOWN TICS: 360
TOTAL TICS 10810

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-99
LAB: 150255

ESID	CAS NO	COMPOUND	RESULT	QUAL.

S1205-99	91-17-8	NAPHTHALENE, DECAHYDRO-	3400	J
		TOTAL UNKNOWN TICS:	84600	
		TOTAL TICS	88000	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-99RE
LAB: 150255

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-99RE	91-17-8	NAPHTHALENE, DECAHYDRO-	3400	J
		TOTAL UNKNOWN TICS:	82800	
		TOTAL TICS	86200	

SDG FILE: 1F150240 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKL2
LAB: SBLKL2

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKL2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4400	JA
		TOTAL UNKNOWN TICS:	230	
		TOTAL TICS	4630	

SDG FILE: 1F150240 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKU2
LAB: SBLKU2

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKU2	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1900	JA
SBLKU2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JA
		TOTAL UNKNOWN TICS:	390	
		TOTAL TICS	18290	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B40-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-1	76-13-1	Ethane, 1,1,2-trichloro-1,2,	7	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	7	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B40-2MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	47	
		TOTAL TICS	47	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B40-2MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	35	
		TOTAL TICS	35	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B40-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-4	141-78-6	Acetic acid, ethyl ester	6	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B41-4MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	27	
		TOTAL TICS	27	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B41-4MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 24
TOTAL TICS 24

SDG FILE: 1E34765 DATE: MATRIX:
ES: B42-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 36
TOTAL TICS 36

SDG FILE: 1E34765 DATE: MATRIX:
ES: B42-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 28
TOTAL TICS 28

SDG FILE: 1E34765 DATE: MATRIX:
ES: B43-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 185
TOTAL TICS 185

SDG FILE: 1E34765 DATE: MATRIX:
ES: B43-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 421
TOTAL TICS 421

SDG FILE: 1E34765 DATE: MATRIX:
ES: B44A-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44A-3	111-84-2	Nonane	390	NJ
B44A-3	124-18-5	Decane	1100	NJ
B44A-3	1120-21-4	Undecane	160	NJ

TOTAL UNKNOWN TICS: 1690
TOTAL TICS 3340

SDG FILE: 1E34765 DATE: MATRIX:
ES: B44A-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44A-3RE	111-84-2	Nonane	300	NJ
B44A-3RE	124-18-5	Decane	840	NJ
B44A-3RE	1120-21-4	Undecane	200	NJ

TOTAL UNKNOWN TICS: 1300
TOTAL TICS 2640

SDG FILE: 1E34765 DATE: MATRIX:
ES: B44B-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 6
TOTAL TICS 6

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	270	NJ
B40-1	593-49-7	Heptacosane	140	NJ
B40-1	630-02-4	Octacosane	150	NJ
B40-1	630-03-5	Nonacosane	23	NJ
B40-1	630-04-6	Hentriacontane	600	NJ

TOTAL UNKNOWN TICS: 3492
TOTAL TICS 4675

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	6000	JB

TOTAL UNKNOWN TICS: 3720
TOTAL TICS 9720

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-2MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-2MS	141-79-7	3-Penten-2-one, 4-methyl-	140	NJ
B40-2MS	3031-75-2	Hydroperoxide, 1-methylethyl	540	NJ
B40-2MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	6800	NJ
B40-2MS	692-72-8	2-Propen-1-ol, 2-chloro-, ac	96	NJ
B40-2MS	79-34-5	Ethane, 1,1,2,2-tetrachloro-	110	NJ
B40-2MS	627-08-7	Propane, 1-(1-methylethoxy)-	550	NJ
B40-2MS	1441-02-7	CPA	120	NJ
B40-2MS	103-23-1	Hexanedioic acid, bis(2-ethy	1800	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 10156

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-2MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-2MSD	107-86-8	2-Butenal, 3-methyl-	120	NJ
B40-2MSD	141-79-7	3-Penten-2-one, 4-methyl-	140	NJ
B40-2MSD	3031-75-2	Hydroperoxide, 1-methylethyl	640	NJ
B40-2MSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	7600	NJ
B40-2MSD	625-60-5	S-Ethyl ethanethioate	86	NJ
B40-2MSD	79-34-5	Ethane, 1,1,2,2-tetrachloro-	95	NJ
B40-2MSD	627-08-7	Propane, 1-(1-methylethoxy)-	590	NJ
B40-2MSD	53291-95-5	Benzene, 2-(2-methoxy-1-prop	140	NJ
B40-2MSD	3964-56-5	Phenol, 4-bromo-2-chloro-	210	NJ
B40-2MSD	60-01-5	Tributyrin	110	NJ
B40-2MSD	294-62-2	Cyclododecane	150	NJ
B40-2MSD	1441-02-7	CPA	120	NJ
B40-2MSD	103-23-1	Hexanedioic acid, bis(2-ethy	3600	NJ
B40-2MSD	7225-64-1	Heptadecane, 9-octyl-	95	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 13696

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	5300	NJ

TOTAL UNKNOWN TICS: 1479
TOTAL TICS 6779

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-5	123-42-2	2-Pentanone, 4-hydroxy-4-met	5700	NJ

TOTAL UNKNOWN TICS: 1325
TOTAL TICS 7025

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	8100	NJ
B41-1	110-13-4	2,5-Hexanedione	280	NJ
B41-1	57-10-3	Hexadecanoic acid	200	NJ
B41-1	630-03-5	Nonacosane	150	NJ
B41-1	630-04-6	Hentriacontane	180	NJ

TOTAL UNKNOWN TICS: 6220
TOTAL TICS 15130

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2000	NJ
B41-1RE	110-13-4	2,5-Hexanedione	660	NJ
B41-1RE	203-64-5	4H-Cyclopenta[def]phenanthre	270	NJ
B41-1RE	57-10-3	Hexadecanoic acid	420	NJ
B41-1RE	57-11-4	Octadecanoic acid	410	NJ
B41-1RE	243-17-4	11H-Benzo[b]fluorene	290	NJ
B41-1RE	593-49-7	Heptacosane	300	NJ
B41-1RE	630-03-5	Nonacosane	700	NJ
B41-1RE	192-97-2	Benzo[e]pyrene	780	NJ
B41-1RE	630-04-6	Hentriacontane	680	NJ

TOTAL UNKNOWN TICS: 4790
TOTAL TICS 11300

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-2	123-42-2	2-Pentanone, 4-hydroxy-4meth	7800	NJ
B41-2	110-13-4	2,5-Hexanedione	240	NJ
B41-2	72-54-8	1,1-Dichloro-2,2-bis(p-chlor	120	NJ

TOTAL UNKNOWN TICS: 5760
TOTAL TICS 13920

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3400	NJ
B41-2RE	110-13-4	2,5-Hexanedione	290	NJ
B41-2RE	100-52-7	Benzaldehyde	170	NJ
B41-2RE	1002-84-2	Pentadecanoic acid	110	NJ
B41-2RE	57-10-3	Hexadecanoic acid	420	NJ
B41-2RE	57-11-4	Octadecanoic acid	140	NJ
B41-2RE	630-03-5	Nonacosane	250	NJ

TOTAL UNKNOWN TICS: 2440
TOTAL TICS 7220

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B41-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	8300	NJ
B41-3	057-10-3	Hexadecanoic acid	130	NJ

TOTAL UNKNOWN TICS: 4293
TOTAL TICS 12723

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3200	NJ
B41-3RE	110-13-4	2,5-Hexanedione	87	NJ
B41-3RE	143-07-7	Dodecanoic acid	150	NJ
B41-3RE	57-10-3	Hexadecanoic acid	210	NJ

TOTAL UNKNOWN TICS: 1716
TOTAL TICS 5363

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4	123-42-3	2-Pentanone, 4-hydroxy-4-met	7200	JB
B41-4	57-10-3	Hexadecanoic acid	100	NJ

TOTAL UNKNOWN TICS: 1208
TOTAL TICS 8508

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4MS	79-00-5	Ethane, 1,1,2-trichloro-	75	NJ
B41-4MS	25414-22-6	Furan, 2-methoxy-	96	NJ
B41-4MS	19549-77-0	4-Heptanol, 2,4-dimethyl-	82	NJ
B41-4MS	3031-75-2	Hydroperoxide, 1-methylethyl	340	NJ
B41-4MS	113-00-8	Guanidine	7500	NJ
B41-4MS	79-34-5	Ethane, 1,1,2,2-tetrachloro-	150	NJ
B41-4MS	871-71-6	Formamide, N-butyl-	270	NJ
B41-4MS	74381-40-1	Propanoic acid, 2-methyl-, 1	250	NJ
B41-4MS	120-40-1	Dodecanamide, N,N-bis(2-hydr	87	NJ
B41-4MS	103-23-1	Hexanedioic acid, bis(2-ethy	93	NJ
B41-4MS	122-62-3	Decanedioic acid, bis(2-ethy	110	NJ

TOTAL UNKNOWN TICS: 210
TOTAL TICS 9263

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4MSD	5076-19-7	Oxirane, trimethyl-	110	NJ

B41-4MSD	113-00-8	Guanidine	2300	NJ
B41-4MSD	1441-02-7	CPA	83	NJ
B41-4MSD	57-10-3	Hexadecanoic acid	83	NJ
B41-4MSD	301-02-0	9-Octadecenamide, (Z)-	74	NJ
B41-4MSD	4337-65-9	Hexanedioic acid, mono(2-eth	120	NJ
B41-4MSD	122-62-3	Decanedioic acid, bis(2-ethy	520	NJ

TOTAL UNKNOWN TICS: 95
TOTAL TICS 3385

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4MSDRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4MSDRE	141-79-7	3-Penten-2-one, 4-methyl-	150	NJ
B41-4MSDRE	72218-58-7	3-Methylheptyl acetate	92	NJ
B41-4MSDRE	4016-14-2	Oxirane, [(1-methylethoxy)me	3500	NJ
B41-4MSDRE	1573-17-7	2-Butyne-1,4-diol, diacetate	79	NJ
B41-4MSDRE	79-34-5	Ethane, 1,1,2,2-tetrachloro-	91	NJ
B41-4MSDRE	120-40-1	Dodecanamide, N,N-bis(2-hydr	390	NJ
B41-4MSDRE	60-01-5	Tributyrin	380	NJ
B41-4MSDRE	1441-02-7	CPA	74	NJ
B41-4MSDRE	17851-53-5	1,2-Benzenedicarboxylic acid	84	NJ
B41-4MSDRE	57-10-3	Hexadecanoic acid	200	NJ
B41-4MSDRE	1120-16-7	Dodecanamide	90	NJ
B41-4MSDRE	103-23-1	Hexanedioic acid, bis(2-ethy	140	NJ
B41-4MSDRE	61142-74-3	Cyclohexane, 3,4-bis(1-methy	83	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5353

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4MSRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4MSRE	141-79-7	3-Penten-2-one, 4-methyl-	140	NJ
B41-4MSRE	624-41-9	1-Butanol, 2-methyl-, acetat	89	NJ
B41-4MSRE	4016-14-2	Oxirane, [(1-methylethoxy)me	2600	NJ
B41-4MSRE	79-34-5	Ethane, 1,1,2,2-tetrachloro-	77	NJ
B41-4MSRE	120-40-1	Dodecanamide, N,N-bis(2-hydr	450	NJ
B41-4MSRE	60-01-5	Tributyrin	260	NJ
B41-4MSRE	1441-02-7	CPA	80	NJ
B41-4MSRE	57-10-3	Hexadecanoic acid	170	NJ
B41-4MSRE	57-11-4	Octadecanoic acid	190	NJ
B41-4MSRE	103-23-1	Hexanedioic acid, bis(2-ethy	78	NJ
B41-4MSRE	122-62-3	Decanedioic acid, bis(2-ethy	130	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 4264

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B41-4RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2800	NJ
B41-4RE	143-07-7	Dodecanoic acid	880	NJ
B41-4RE	57-10-3	Hexadecanoic acid	230	NJ
B41-4RE	57-11-4	Octadecanoic acid	200	NJ

TOTAL UNKNOWN TICS: 1223
TOTAL TICS 5333

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	6700	JB
B42-1	110-13-4	2,5-Hexanedione	460	NJ
B42-1	2531-84-2	Phenanthrene, 2-methyl-	250	NJ
B42-1	57-11-4	Octadecanoic acid	190	NJ
B42-1	593-39-7	Heptacosane	230	NJ
B42-1	630-02-4	Octacosane	380	NJ
B42-1	630-03-5	Nonacosane	700	NJ
B42-1	192-97-2	Benzo[e]pyrene	690	NJ
B42-1	630-04-6	Hentriacontane	520	NJ

TOTAL UNKNOWN TICS: 7480
TOTAL TICS 17600

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2800	NJ
B42-1RE	110-13-4	2,5-Hexanedione	200	NJ
B42-1RE	91-64-5	2H-1-Benzopyran-2-one	380	NJ
B42-1RE	629-78-7	Heptadecane	130	NJ
B42-1RE	57-10-3	Hexadecanoic acid	550	NJ
B42-1RE	57-11-4	Octadecanoic acid	720	NJ
B42-1RE	243-42-5	Benzo[b]naphtho[2,3-d]furan	150	NJ
B42-1RE	238-84-6	11H-Benzo[a]fluorene	230	NJ
B42-1RE	629-99-2	Pentacosane	190	NJ
B42-1RE	593-4-7	Heptacosane	220	NJ
B42-1RE	630-02-4	Octacosane	360	NJ
B42-1RE	630-03-4	Nonacosane	500	NJ
B42-1RE	192-97-2	Benzo[e]pyrene	680	NJ

TOTAL UNKNOWN TICS: 2610
TOTAL TICS 9720

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	8000	NJ
B42-2	100-52-7	Benzaldehyde	2400	NJ
B42-2	143-07-7	Dodecanoic acid	1200	NJ
B42-2	2531-84-2	Phenanthrene, 2-methyl-	340	NJ

B42-2	203-64-5	4H-Cyclopenta[def]phenathren	460	NJ
B42-2	238-84-6	11H-Benzo[a]fluorene	390	NJ
B42-2	593-49-7	Heptacosane	400	NJ
B42-2	630-02-4	Octacosane	610	NJ
B42-2	630-03-5	Nonacosane	780	NJ
B42-2	192-97-2	Benzo[e]pyrene	1000	NJ
B42-2	630-04-6	Hentriacontane	750	NJ

TOTAL UNKNOWN TICS: 8580
TOTAL TICS 24910

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3700	NJ
B42-2RE	91-64-5	2H-1-Benzopyran-2-one	890	NJ
B42-2RE	2531-84-2	2-Methlyphenanthrene	310	NJ
B42-2RE	203-64-5	4H-Cyclopenta[def]phenanthre	560	NJ
B42-2RE	57-10-3	Hexadecanoic acid	700	NJ
B42-2RE	35465-71-5	2-Phenylnaphthalene	13	NJ
B42-2RE	238-84-6	11H-Benzo[a]fluorene	420	NJ
B42-2RE	629-99-2	Pentacosane	280	NJ
B42-2RE	630-01-3	Hexacosane	280	NJ
B42-2RE	593-49-7	Heptacosane	330	NJ
B42-2RE	630-02-4	Octacosane	570	NJ
B42-2RE	630-03-5	Nonacosane	670	NJ
B42-2RE	192-97-2	Benzo[e]pyrene	1100	NJ
B42-2RE	198-55-0	Perylene	520	NJ
B42-2RE	638-68-6	Triacontane	480	NJ
B42-2RE	630-04-6	Hentriacontane	580	NJ

TOTAL UNKNOWN TICS: 1403
TOTAL TICS 12806

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	15000	NJ
B42-3	110-13-4	2,5-Hexanedione	200	NJ
B42-3	100-52-7	Benzaldehyde	580	NJ
B42-3	143-07-7	Dodecanoic acid	810	NJ
B42-3	57-10-3	Hexadecanoic acid	120	NJ

TOTAL UNKNOWN TICS: 3262
TOTAL TICS 19972

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3000	NJ
B42-3RE	100-52-7	Benzaldehyde	87	NJ

B42-3RE	57-10-3	Hexadecanoic acid	350	NJ
B42-3RE	57-11-4	Octadecanoic acid	160	NJ
B42-3RE	630-03-5	Nonacosane	140	NJ

TOTAL UNKNOWN TICS: 791
TOTAL TICS 4528

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	16000	NJ
B42-4	100-52-7	Benzaldehyde	510	NJ
B42-4	143-07-7	Dodecanoic acid	570	NJ

TOTAL UNKNOWN TICS: 3036
TOTAL TICS 20116

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-4RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3300	JB
B42-4RE	143-07-7	Dodecanoic acid	1400	NJ

TOTAL UNKNOWN TICS: 265
TOTAL TICS 4965

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	42000	NJ

TOTAL UNKNOWN TICS: 630
TOTAL TICS 42630

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	22000	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 22000

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B43-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	41000	NJ
B43-2	617-94-7	Benzenemethanol, .alpha.,.al	3400	NJ
B43-2	118-55-8	Benzoic acid, 2-hydroxy-, ph	1800	NJ
B43-2	835-11-0	Methanone, bis(2-hydroxyphen	980	NJ
B43-2	832-71-3	3-methylphenanthrene	1100	NJ
B43-2	2531-84-2	2-methylphenanthrene	1500	NJ
B43-2	57-10-3	Hexadecanoic acid	980	NJ
B43-2	203-64-5	4H-Cyclopenta[def]phenanthre	2600	NJ
B43-2	35465-71-5	2-Phenylnaphthalene	920	NJ
B43-2	238-84-6	11H-Benzo[a]fluorene	2500	NJ
B43-2	243-17-4	11H-Benzo[b]fluorene	1400	NJ
B43-2	239-35-0	Benzo[b]naphtho[2,1-d]thioph	950	NJ
B43-2	195-19-7	Benzo[c]phenanthrene	940	NJ
B43-2	630-03-5	Nonacosane	1600	NJ
B43-2	192-97-2	Benzo[e]pyrene	5600	NJ
B43-2	198-55-0	Perylene	2000	NJ
		TOTAL UNKNOWN TICS:	19200	
		TOTAL TICS	88470	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	13000	NJ
B43-2RE	57-10-3	Hexadecanoic acid	1400	NJ
B43-2RE	57-11-4	Octadecanoic acid	1300	NJ
B43-2RE	238-84-6	11H-Benzo[a]fluorene	1200	NJ
B43-2RE	646-31-1	Tetracosane	660	NJ
B43-2RE	629-99-2	Pentacosane	940	NJ
B43-2RE	630-01-3	Hexacosane	1300	NJ
B43-2RE	593-49-7	Heptacosane	1600	NJ
B43-2RE	630-02-4	Octacosane	2100	NJ
B43-2RE	630-03-5	Nonacosane	2000	NJ
B43-2RE	192-97-2	Benzo[e]pyrene	1600	NJ
B43-2RE	638-68-6	Triacontane	1700	NJ
B43-2RE	630-04-6	Hentriacontane	1700	NJ
		TOTAL UNKNOWN TICS:	6320	
		TOTAL TICS	36820	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	36000	NJ
B43-3	719-22-2	2,5-Cyclohexadiene-1,4-dione	340	NJ
B43-3	57-10-3	Hexadecanoic acid	700	NJ
B43-3	57-11-4	Octadecanoic acid	760	NJ
B43-3	629-99-2	Pentacosane	510	NJ
B43-3	593-49-7	Heptacosane	720	NJ
B43-3	630-02-4	Octacosane	1200	NJ
B43-3	630-03-5	Nonacosane	1200	NJ
B43-3	638-68-6	Triacontane	750	NJ
B43-3	630-04-6	Hentriacontane	800	NJ

TOTAL UNKNOWN TICS:	22950
TOTAL TICS	65930

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	6000	NJ
B43-3RE	57-10-3	Hexadecanoic acid	470	NJ
B43-3RE	629-99-2	Pentacosane	310	NJ
B43-3RE	593-49-7	Heptacosane	440	NJ
B43-3RE	630-02-4	Octacosane	380	NJ
B43-3RE	630-03-5	Nonacosane	800	NJ
B43-3RE	638-68-6	Triacontane	340	NJ
B43-3RE	630-04-6	Hentriacontane	850	NJ
		TOTAL UNKNOWN TICS:	8900	
		TOTAL TICS	18490	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	42000	NJ
B43-4	90-12-0	Naphthalene, 1-methyl-	1700	NJ
B43-4	132-65-0	Dibenzothiophene	2700	NJ
B43-4	33675-75-1	Phenol, 3-(2-phenylethyl)-	1700	NJ
B43-4	832-71-3	3-Methylphenanthrene	4300	NJ
B43-4	2531-84-2	2-Methylphenanthrene	5700	NJ
B43-4	613-12-7	Anthracene, 2-methyl-	1600	NJ
B43-4	203-64-5	4H-Cyclopenta[def]phenanthre	8900	NJ
B43-4	610-48-0	1-Methylanthracene	2800	NJ
B43-4	35465-71-5	2-Phenylnaphthalene	3100	NJ
B43-4	84-65-1	9,10-Anthracenedione	2500	NJ
B43-4	243-42-5	Benzo[b]naphtho[2,3-d]furan	2000	NJ
B43-4	238-84-6	11H-Benzo[a]fluorene	5400	NJ
B43-4	243-17-4	11H-Benzo[b]fluorene	3400	NJ
		TOTAL UNKNOWN TICS:	16500	
		TOTAL TICS	104300	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-4RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	15000	JB
B43-4RE	132-65-0	Dibenzothiophene	2500	NJ
B43-4RE	832-71-3	Phenanthrene, 3-methyl-	3600	NJ
B43-4RE	2531-84-2	Phenanthrene, 2-methyl-	4600	NJ
B43-4RE	613-12-7	Anthracene, 2-methyl-	2100	NJ
B43-4RE	203-64-5	4H-Cyclopenta[def]phenanthre	7500	NJ
B43-4RE	610-48-0	Anthracene, 1-methyl-	2500	NJ
B43-4RE	35465-71-5	2-Phenylnaphthalene	2500	NJ
B43-4RE	243-42-5	Benzo[b]naphtho[2,3-d]furan	2000	NJ

B43-4RE	238-84-6	11H-Benzo[a]fluorene	4100	NJ
B43-4RE	243-17-4	11H-Benzo[b]fluorene	2300	NJ

TOTAL UNKNOWN TICS: 56900
TOTAL TICS 105600

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44A-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44A-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	40000	NJ
B44A-3	124-18-5	Decane	13000	NJ
B44A-3	1120-21-4	Undecane	28000	NJ
B44A-3	112-40-3	Dodecane	2600	NJ
B44A-3	57-10-3	Hexadecanoic acid	1100	NJ
B44A-3	57-11-4	Octadecanoic acid	760	NJ

TOTAL UNKNOWN TICS: 27390
TOTAL TICS 112850

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44A-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44A-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	11000	NJ

TOTAL UNKNOWN TICS: 264700
TOTAL TICS 275700

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	11000	NJ
B44B-1	110-13-4	2,5-Hexanedione	520	NJ
B44B-1	143-07-7	Dodecanoic acid	100	NJ
B44B-1	57-10-3	Hexadecanoic acid	160	NJ
B44B-1	630-03-5	Nonacosane	210	NJ
B44B-1	192-97-2	Benzo(e)pyrene	100	NJ
B44B-1	630-04-6	Hentriacontane	190	NJ

TOTAL UNKNOWN TICS: 3680
TOTAL TICS 15960

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3500	NJ
B44B-1RE	110-13-4	2,5-Hexanedione	140	NJ
B44B-1RE	143-07-7	Dodecanoic acid	170	NJ
B44B-1RE	100-28-42	Pentadecanoic acid	110	NJ

B44B-1RE	57-10-3	Hexadecanoic acid	630	NJ
B44B-1RE	57-11-4	Octadecanoic acid	170	NJ
B44B-1RE	593-49-7	Heptacosane	210	NJ
B44B-1RE	630-03-5	Nonacosane	600	NJ
B44B-1RE	630-04-6	Hentriacontane	640	NJ
B44B-1RE	1058-61-3	Stigmast-4-en-3-one	190	NJ

TOTAL UNKNOWN TICS: 2820
TOTAL TICS 9180

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	18000	NJ
B44B-2	110-13-4	2,5-Hexanedione	95	NJ
B44B-2	57-10-3	Hexadecanoic acid	85	NJ
B44B-2	630-03-5	Nonacosane	160	NJ
B44B-2	630-04-6	Hentriacontane	130	NJ

TOTAL UNKNOWN TICS: 3308
TOTAL TICS 21778

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3500	JB
B44B-2RE	110-13-4	2,5-Hexanedione	400	NJ
B44B-2RE	832-71-3	Phenanthrene, 3-methyl-	220	NJ
B44B-2RE	2531-84-2	Phenanthrene, 2-methyl-	290	NJ
B44B-2RE	203-64-5	4H-Cyclopenta[def]phenanthre	490	NJ
B44B-2RE	57-10-3	Hexadecanoic acid	390	NJ
B44B-2RE	35465-71-5	2-Phenylnaphthalene	220	NJ
B44B-2RE	84-65-1	9,10-Anthracenedione	190	NJ
B44B-2RE	238-84-6	11H-Benzo[a]fluorene	440	NJ
B44B-2RE	243-17-4	11H-Benzo[b]fluorene	210	NJ
B44B-2RE	3353-12-6	Pyrene, 4-methyl-	190	NJ
B44B-2RE	192-97-2	Benzo[e]Pyrene	1100	NJ
B44B-2RE	198-55-0	Perylene	490	NJ

TOTAL UNKNOWN TICS: 2897
TOTAL TICS 11027

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	8100	NJ
B44B-3	57-10-3	Hexadecanoic acid	170	NJ
B44B-3	630-01-3	Hexacosane	240	NJ
B44B-3	593-49-7	Heptacosane	320	NJ
B44B-3	630-02-4	Octacosane	520	NJ
B44B-3	630-03-5	Nonacosane	570	NJ

B44B-3	192-97-2	Benzo[e]pyrene	270	NJ
B44B-3	638-68-6	Triacontane	410	NJ
B44B-3	630-04-6	Hentriacontane	380	NJ

TOTAL UNKNOWN TICS: 5870
TOTAL TICS 16850

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2600	NJ
B44B-3RE	110-13-4	2,5-Hexanedione	490	NJ
B44B-3RE	629-62-9	Pentadecane	140	NJ
B44B-3RE	629-78-7	Heptadecane	150	NJ
B44B-3RE	1921-70-6	Pentadecane, 2,6,10,14-tetra	210	NJ
B44B-3RE	57-10-3	Hexadecanoic acid	420	NJ
B44B-3RE	57-11-4	Octadecanoic acid	440	NJ
B44B-3RE	629-97-0	Docosane	170	NJ
B44B-3RE	243-17-4	11H-Benzo[b]fluorene	290	NJ
B44B-3RE	629-99-2	Pentacosane	290	NJ
B44B-3RE	630-01-3	Hexacosane	290	NJ
B44B-3RE	593-49-7	Heptacosane	500	NJ
B44B-3RE	630-02-4	Octacosane	500	NJ
B44B-3RE	630-03-5	Nonacosane	1000	NJ
B44B-3RE	192-97-2	Benzo[e]pyrene	440	NJ
B44B-3RE	638-68-6	Triacontane	550	NJ
B44B-3RE	630-04-6	Hentriacontane	680	NJ

TOTAL UNKNOWN TICS: 1420
TOTAL TICS 10580

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	11000	NJ
B44B-4	57-10-3	Hexadecanoic acid	93	NJ

TOTAL UNKNOWN TICS: 2781
TOTAL TICS 13874

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-4RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2700	JB
B44B-4RE	143-07-7	Dodecanoic acid	88	NJ
B44B-4RE	57-10-3	Hexadecanoic acid	220	NJ
B44B-4RE	57-11-4	Octadecanoic acid	140	NJ
B44B-4RE	7683-64-9	Squalene	190	NJ

TOTAL UNKNOWN TICS: 1055
TOTAL TICS 4393

SDG FILE: 1F34765 DATE: MATRIX:
ES: BRB
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	10	
		TOTAL TICS	10	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B33-2MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	28	
		TOTAL TICS	28	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B33-2MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	28	
		TOTAL TICS	28	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B35-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	16	
		TOTAL TICS	16	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B39-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-2	124-18-5	Decane	1800	NJ
B39-2	1120-21-4	Undecane	420	NJ
		TOTAL UNKNOWN TICS:	3110	
		TOTAL TICS	5330	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B39-2DL
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-2DL	124-18-5	Decane	20000	NJ

B39-2DL	1120-21-4	Undecane	5600	NJ

TOTAL UNKNOWN TICS: 32900
TOTAL TICS 58500

SDG FILE: 1E34848 DATE: MATRIX:
ES: B39-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-4	1678-92-8	Cyclohexane, propyl-	12	NJ
B39-4	124-18-5	Decane	70	NJ

TOTAL UNKNOWN TICS: 185
TOTAL TICS 267

SDG FILE: 1E34848 DATE: MATRIX:
ES: B39-4DL
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-4DL	128-18-5	Decane	90	NJ

TOTAL UNKNOWN TICS: 512
TOTAL TICS 602

SDG FILE: 1E34848 DATE: MATRIX:
ES: BK-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 12
TOTAL TICS 12

SDG FILE: 1F34848 DATE: MATRIX:
ES: B33-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B33-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	5300	NJ
B33-1	1002-84-2	Pentadecanoic acid	110	NJ
B33-1	57-10-3	Hexadecanoic acid	580	NJ
B33-1	593-49-7	Heptacosane	99	NJ
B33-1	630-03-5	Nonacosane	300	NJ
B33-1	630-04-6	Hentriacontane	260	NJ

TOTAL UNKNOWN TICS: 2665
TOTAL TICS 9314

SDG FILE: 1F34848 DATE: MATRIX:
ES: B33-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B33-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	4500	NJ

TOTAL UNKNOWN TICS: 862
TOTAL TICS 5362

SDG FILE: 1F34848 DATE: MATRIX:
ES: B33-2MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B33-2MS	1003-17-4	Tetrahydrofuran, 2,2-dimethy	80	NJ
B33-2MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	2000	NJ
B33-2MS	627-08-7	Propane, 1-(1-methylethoxy)-	83	NJ
B33-2MS	1002-69-3	Decane, 1-chloro-	260	NJ
B33-2MS	100-02-7	Phenol, 4-nitro-	680	NJ
B33-2MS	693-67-4	Undecane, 1-bromo-	160	NJ
B33-2MS	5441-52-1	Cyclohexanol, 3,5-dimethyl-	85	NJ
B33-2MS	112-52-7	Dodecane, 1-chloro-	140	NJ
B33-2MS	593-45-3	Octadecane	87	NJ
B33-2MS	1441-02-7	CPA	100	NJ
B33-2MS	112-95-8	Eicosane	120	NJ
B33-2MS	57-10-3	Hexadecanoic acid	110	NJ
B33-2MS	112-95-8	Eicosane	140	NJ
B33-2MS	629-94-7	Heneicosane	120	NJ
B33-2MS	630-06-8	Hexatriacontane	120	NJ
B33-2MS	629-99-2	Pentacosane	91	NJ
B33-2MS	593-45-3	Octadecane	84	NJ
B33-2MS	7683-64-9	Squalene	330	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 4790

SDG FILE: 1F34848 DATE: MATRIX:
ES: B33-2MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B33-2MSD	3031-75-2	Hydroperoxide, 1-methylethyl	78	NJ
B33-2MSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	2100	NJ
B33-2MSD	627-08-7	Propane, 1-(1-methylethoxy)-	100	NJ
B33-2MSD	1611-83-2	2-Propenamide, 2-methyl-N-ph	140	NJ
B33-2MSD	100-02-7	Phenol, 4-nitro-	560	NJ
B33-2MSD	693-67-4	Undecane, 1-bromo-	77	NJ
B33-2MSD	5441-52-1	Cyclohexanol, 3,5-dimethyl-	77	NJ
B33-2MSD	2425-54-9	Tetradecane, 1-chloro-	83	NJ
B33-2MSD	103-23-1	Hexanedioic acid, bis(2-ethy	87	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 3302

SDG FILE: 1F34848 DATE: MATRIX:
ES: B34-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B34-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	3900	NJ
B34-1	57-10-3	Hexadecanoic acid	220	NJ

B34-1	630-03-5	Nonacosane	150	NJ
B34-1	192-97-2	Benzo[e]pyrene	110	NJ
B34-1	630-04-6	Hentriacontane	120	NJ

TOTAL UNKNOWN TICS: 1444
TOTAL TICS 5944

SDG FILE: 1F34848 DATE: MATRIX:
ES: B34-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B34-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3400	NJ
B34-2	57-10-3	Hexadecanoic acid	79	NJ

TOTAL UNKNOWN TICS: 1238
TOTAL TICS 4717

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	5200	NJ
B35-1	629-78-7	Heptadecane	140	NJ
B35-1	593-45-3	Octadecane	100	NJ
B35-1	629-92-5	Nonadecane	110	NJ
B35-1	57-10-3	Hexadecanoic acid	370	NJ
B35-1	638-67-5	Tricosane	100	NJ
B35-1	646-31-1	Tetracosane	99	NJ
B35-1	57-11-4	Octadecanoic acid	270	NJ
B35-1	629-99-2	Pentacosane	170	NJ
B35-1	630-01-3	Hexacosane	180	NJ
B35-1	593-49-7	Heptacosane	240	NJ
B35-1	630-02-4	Octacosane	170	NJ
B35-1	630-03-5	Nonacosane	360	NJ
B35-1	638-68-6	Triacontane	280	NJ

TOTAL UNKNOWN TICS: 1980
TOTAL TICS 9769

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
B35-1RE	629-78-7	Heptadecane	120	NJ
B35-1RE	593-45-3	Octadecane	90	NJ
B35-1RE	629-92-5	Nonadecane	120	NJ
B35-1RE	57-10-3	Hexadecanoic acid	380	NJ
B35-1RE	112-95-8	Eicosane	110	NJ
B35-1RE	629-97-0	Docosane	100	NJ
B35-1RE	638-67-5	Tricosane	140	NJ
B35-1RE	646-31-1	Tetracosane	120	NJ
B35-1RE	630-01-3	Hexacosane	140	NJ
B35-1RE	593-49-7	Heptacosane	370	NJ

B35-1RE	630-03-5	Nonacosane	580	NJ
B35-1RE	638-68-6	Triacontane	200	NJ
B35-1RE	630-04-6	Hentriacontane	460	NJ
		TOTAL UNKNOWN TICS:	1394	
		TOTAL TICS	9824	

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	34000	NJ
B35-2	57-10-3	Hexadecanoic acid	2200	NJ
B35-2	629-94-7	Heneicosane	4100	NJ
B35-2	629-97-0	Docosane	28000	NJ
B35-2	638-67-5	Tricosane	44000	NJ
B35-2	646-31-1	Tetracosane	50000	NJ
B35-2	629-99-2	Pentacosane	53000	NJ
B35-2	630-01-3	Hexacosane	53000	NJ
B35-2	593-49-7	Heptacosane	45000	NJ
B35-2	630-06-8	Octacosane	39000	NJ
B35-2	630-06-8	Nonacosane	29000	NJ
B35-2	638-68-6	Triacontane	13000	NJ
B35-2	630-03-5	Hentriacontane	6800	NJ
B35-2	630-06-8	Dotriacontane	3100	NJ
		TOTAL UNKNOWN TICS:	27200	
		TOTAL TICS	431400	

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	7958	NJ
B35-2RE	629-94-7	Heneicosane	1381	NJ
B35-2RE	57-11-4	Octadecanoic acid	963	NJ
B35-2RE	629-97-0	Docosane	5788	NJ
B35-2RE	638-67-5	Tricosane	8489	NJ
B35-2RE	646-31-1	Tetracosane	12860	NJ
B35-2RE	629-99-2	Pentacosane	14120	NJ
B35-2RE	630-01-3	Hexacosane	14360	NJ
B35-2RE	593-03-5	Heptacosane	13840	NJ
B35-2RE	630-02-4	Octacosane	3646	NJ
B35-2RE	630-03-5	Nonacosane	2912	NJ
B35-2RE	638-68-6	Triacontane	1778	NJ
B35-2RE	630-04-6	Hentriacontane	1535	NJ
B35-2RE	544-85-4	Dotriacontane	1063	NJ
B35-2RE	630-05-7	Tritriacontane	614	NJ
		TOTAL UNKNOWN TICS:	7115	
		TOTAL TICS	98422	

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
B35-3	544-63-8	Tetradecanoic acid	140	NJ
B35-3	57-10-3	Hexadecanoic acid	230	NJ
B35-3	57-11-4	Octadecanoic acid	260	NJ
B35-3	629-97-0	Docosane	290	NJ
B35-3	638-67-5	Tricosane	660	NJ
B35-3	646-31-1	Tetracosane	1000	NJ
B35-3	629-99-2	Pentacosane	1200	NJ
B35-3	630-01-3	Hexacosane	1300	NJ
B35-3	593-49-7	Heptacosane	1300	NJ
B35-3	630-02-4	Octacosane	1400	NJ
B35-3	630-03-5	Nonacosane	1200	NJ
B35-3	638-68-6	Triacontane	820	NJ
B35-3	630-04-6	Hentriacontane	620	NJ
B35-3	544-85-4	Dotriacontane	400	NJ
B35-3	630-05-7	Tritriacontane	290	NJ
		TOTAL UNKNOWN TICS:	1610	
		TOTAL TICS	18220	

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	4400	NJ
B39-1	100-52-7	Benzaldehyde	85	NJ
B39-1	629-59-4	Tetradecane	84	NJ
B39-1	544-76-3	Hexadecane	110	NJ
B39-1	629-78-7	Heptadecane	270	NJ
B39-1	544-63-8	Tetradecanoic acid	120	NJ
B39-1	593-45-3	Octadecane	120	NJ
B39-1	57-10-3	Hexadecanoic acid	540	NJ
B39-1	544-85-4	Pentacosane	300	NJ
B39-1	55045-10-8	Hexacosane	260	NJ
B39-1	122-62-3	Unknown organic acid ester	1300	NJ
B39-1	630-03-5	Nonacosane	440	NJ
		TOTAL UNKNOWN TICS:	3244	
		TOTAL TICS	11273	

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	5332	NJ
B39-1RE	629-78-7	Heptadecane	262	NJ
B39-1RE	629-92-5	Nonadecane	123	NJ
B39-1RE	57-10-3	Hexadecanoic acid	508	NJ
B39-1RE	57-11-4	Octadecanoic acid	825	NJ
B39-1RE	629-97-0	Docosane	212	NJ
B39-1RE	638-67-5	Tricosane	215	NJ
B39-1RE	646-31-1	Tetracosane	201	NJ
B39-1RE	629-99-2	Pentacosane	240	NJ
B39-1RE	630-01-3	Hexacosane	218	NJ

B39-1RE	593-49-7	Heptacosane	245	NJ
B39-1RE	630-02-4	Octacosane	249	NJ
B39-1RE	630-03-5	Nonacosane	298	NJ
B39-1RE	638-68-6	Triacontane	182	NJ
B39-1RE	630-04-6	Henetriacontane	226	NJ
B39-1RE	544-85-4	Dotriacontane	158	NJ

TOTAL UNKNOWN TICS: 1767
TOTAL TICS 11261

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	4900	NJ
B39-2	14676-29-0	Unknown alkane	800	J
B39-2	124-18-5	Decane	3100	NJ
B39-2	1678-93-9	Cyclohexane, butyl-	620	NJ
B39-2	1120-21-4	Undecane	6100	NJ
B39-2	2958-76-1	Naphthalene, decahydro-2-met	1100	NJ
B39-2	4292-92-6	Cyclohexane, pentyl-	1000	NJ
B39-2	112-40-3	Dodecane	1500	NJ
B39-2	629-50-5	Tridecane	950	NJ

TOTAL UNKNOWN TICS: 11340
TOTAL TICS 31410

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4900	NJ
B39-2RE	95-63-6	Benzene, 1,2,4-trimethyl-	680	NJ
B39-2RE	124-18-5	Decane	3200	NJ
B39-2RE	1678-93-9	Cyclohexane, butyl-	810	NJ
B39-2RE	91-17-8	Naphthalene, Decahydro-	780	NJ
B39-2RE	2958-76-1	Naphthalene, decahydro-2-met	690	NJ
B39-2RE	112-40-3	Dodecane	1000	NJ
B39-2RE	629-50-5	Tridecane	460	NJ

TOTAL UNKNOWN TICS: 9340
TOTAL TICS 21860

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
B39-3	95-36-3	1,2,4-Trimethylbenzene	220	NJ
B39-3	124-18-5	Decane	1000	NJ
B39-3	1678-93-9	Cyclohexane, butyl-	170	NJ
B39-3	1120-21-4	Undecane	1000	NJ
B39-3	112-40-3	Dodecane	310	NJ

TOTAL UNKNOWN TICS: 3250
TOTAL TICS 11450

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
B39-3RE	95-63-6	Benzene, 1,2,4-trimethyl-	160	NJ
B39-3RE	124-18-5	Decane	770	NJ
B39-3RE	1678-93-9	Cyclohexane, butyl-	200	NJ
B39-3RE	1120-21-4	Undecane	770	NJ
B39-3RE	2958-76-1	Naphthalene, decahydro-2-met	100	NJ
B39-3RE	112-40-3	Dodecane	280	NJ
B39-3RE	629-50-6	Tridecane	99	NJ

TOTAL UNKNOWN TICS: 2520
TOTAL TICS 10399

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	4800	NJ
B39-4	95-63-6	Benzene, 1,2,4-trimethyl-	120	NJ
B39-4	124-18-5	Decane	890	NJ
B39-4	1678-93-9	Cyclohexane, butyl-	200	NJ
B39-4	1120-21-4	Undecane	940	NJ
B39-4	112-40-3	Dodecane	310	NJ
B39-4	629-50-5	Tridecane	110	NJ

TOTAL UNKNOWN TICS: 2530
TOTAL TICS 9900

SDG FILE: 1F34848 DATE: MATRIX:
ES: BK-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BK-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	5100	NJ
BK-1	57-10-3	Hexadecanoic acid	350	NJ
BK-1	593-49-7	Heptacosane	160	NJ
BK-1	630-03-5	Nonacosane	450	NJ
BK-1	630-04-6	Hentriacontane	280	NJ

TOTAL UNKNOWN TICS: 2648
TOTAL TICS 8988

SDG FILE: 1F34848 DATE: MATRIX:
ES: BK-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BK-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	2800	NJ

BK-2	2733-88-2	Unknown hexadecenoic acid	120	J
BK-2	57-10-3	Hexadecanoic acid	260	NJ
BK-2	593-49-7	Heptacosane	120	NJ
BK-2	630-03-5	Nonacosane	480	NJ
BK-2	630-68-6	Triacontane	270	NJ

TOTAL UNKNOWN TICS: 1547
TOTAL TICS 5597

SDG FILE: 1F34848 DATE: MATRIX:
ES: BK-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BK-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	6363	NJ
BK-2RE	544-63-8	Tetradecanoic acid	99	NJ
BK-2RE	57-10-3	Hexadecanoic acid	472	NJ
BK-2RE	57-11-4	Octadecanoic acid	176	NJ
BK-2RE	593-49-7	Heptacosane	256	NJ
BK-2RE	630-03-5	Nonacosane	765	NJ
BK-2RE	630-04-6	Henetriacontane	254	NJ
BK-2RE	57-88-5	Cholesterol	127	NJ

TOTAL UNKNOWN TICS: 2719
TOTAL TICS 11231

SDG FILE: 1E36521 DATE: MATRIX:
ES: B32-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 7
TOTAL TICS 7

SDG FILE: 1E36521 DATE: MATRIX:
ES: B32-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-3	91-17-	NAPHTHALENE, DECAHYDRO-	5100	JX

TOTAL UNKNOWN TICS: 57900
TOTAL TICS 63000

SDG FILE: 1E36521 DATE: MATRIX:
ES: B32-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-4	91-17-	NAPHTHALENE, DECAHYDRO-	4000	JX

TOTAL UNKNOWN TICS: 53700
TOTAL TICS 57700

SDG FILE: 1E36521 DATE: MATRIX:
ES: B36-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-3	91-17-	NAPHTHALENE, DECAHYDRO-	70	JX
		TOTAL UNKNOWN TICS:	722	
		TOTAL TICS	792	

SDG FILE: 1E36521 DATE: MATRIX:
ES: B36-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-4	91-17-	NAPHTHALENE, DECAHYDRO-	1200	JX
		TOTAL UNKNOWN TICS:	12260	
		TOTAL TICS	13460	

SDG FILE: 1E36521 DATE: MATRIX:
ES: B36-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-6	91-17-	NAPHTHALENE, DECAHYDRO-	100	JX
		TOTAL UNKNOWN TICS:	1139	
		TOTAL TICS	1239	

SDG FILE: 1E36521 DATE: MATRIX:
ES: B38-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	11	
		TOTAL TICS	11	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B32-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3100	BJ
B32-1	57-10-	HEXADECANOIC ACID	83	JX
B32-1	646-31-	TETRACOSANE	90	JX
B32-1	629-99-	PENTACOSANE	100	JX
B32-1	630-01-	HEXACOSANE	100	JX
B32-1	593-49-	HEPTACOSANE	110	JX
B32-1	630-02-	OCTACOSANE	150	JX
B32-1	630-03-	NONACOSANE	180	JX
		TOTAL UNKNOWN TICS:	1242	
		TOTAL TICS	5155	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B32-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-2	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3400	BJ
B32-2	57-10-	HEXADECANOIC ACID	140	JX
B32-2	57-11-	OCTADECANOIC ACID	81	JX
B32-2	661-19-	1-DOCOSANOL	320	JX
B32-2	506-51-	1-TETRACOSANOL	670	JX
B32-2	630-02-	OCTACOSANE	120	JX
B32-2	630-03-	NONACOSANE	480	JX
B32-2	506-52-	1-HEXACOSANOL	880	JN
		TOTAL UNKNOWN TICS:	1351	
		TOTAL TICS	7442	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B32-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4100	BJ
B32-3	1235-74-	1-PHENANTHRENECARBOXYLIC ACI	570	JX
		TOTAL UNKNOWN TICS:	25170	
		TOTAL TICS	29840	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B32-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-4	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	5400	BJ
B32-4	124-18-	DECANE	11000	JX
B32-4	1678-93-	CYCLOHEXANE, BUTYL-	5700	JX
B32-4	1120-21-	UNDECANE	11000	JX
B32-4	112-40-	DODECANE	6300	JX
B32-4	1921-70-	PENTADECANE, 2,6,10,14-TETRA	3200	JX
B32-4	629-99-	PENTACOSANE	5900	JX
		TOTAL UNKNOWN TICS:	69200	
		TOTAL TICS	117700	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2700	BJ
B36-1	1921-70-	PENTADECANE, 2,6,10,14-TETRA	740	JX
B36-1	638-36-	HEXADECANE, 2,6,10,14-TETRAM	720	JX
B36-1	629-92-	NONADECANE	540	JX
B36-1	57-10-	HEXADECANOIC ACID	400	JX
B36-1	112-95-	EICOSANE	370	JX
B36-1	646-31-	TETRACOSANE	980	JX

B36-1	629-99-	PENTACOSANE	2200	JX
B36-1	630-01-	HEXACOSANE	3000	JX
B36-1	593-49-	HEPTACOSANE	3200	JX
B36-1	630-02-	OCTACOSANE	4300	JX
B36-1	630-03-	NONACOSANE	3400	JX
B36-1	192-97-	BENZO[E]PYRENE	550	JX
B36-1	638-68-	TRIACONTANE	2000	JX
B36-1	544-85-	DOTRIACONTANE	400	JX
		TOTAL UNKNOWN TICS:	5500	
		TOTAL TICS	31000	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-2	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3400	BJ
B36-2	638-67-	TRICOSANE	1700	JX
B36-2	646-31-	TETRACOSANE	6500	JX
B36-2	629-99-	PENTACOSANE	9600	JX
B36-2	630-01-	HEXACOSANE	14000	JX
B36-2	593-49-	HEPTACOSANE	11000	JX
B36-2	630-02-	OCTACOSANE	19000	JX
B36-2	630-03-	NONACOSANE	15000	JX
B36-2	638-68-	TRIACONTANE	10000	JX
B36-2	544-85-	DOTRIACONTANE	2900	JX
		TOTAL UNKNOWN TICS:	19320	
		TOTAL TICS	112420	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4800	BJ
B36-3	1120-21-	UNDECANE	9900	JX
B36-3	112-40-	DODECANE	12000	JX
B36-3	629-50-	TRIDECANE	13000	JX
B36-3	629-59-	TETRADECANE	9800	JX
B36-3	581-42-	NAPHTHALENE, 2,6-DIMETHYL-	5600	JX
B36-3	575-41-	NAPHTHALENE, 1,3-DIMETHYL-	8800	JX
B36-3	629-62-	PENTADECANE	9500	JX
B36-3	544-76-	HEXADECANE	8300	JX
B36-3	629-78-	HEPTADECANE	5600	JX
B36-3	1921-70-	PENTADECANE, 2,6,10,14-TETRA	9700	JX
B36-3	593-45-	OCTADECANE	6700	JX
B36-3	638-36-	HEXADECANE, 2,6,10,14-TETRAM	6700	JX
B36-3	629-92-	NONADECANE	7300	JX
B36-3	112-95-	EICOSANE	6500	JX
B36-3	629-97-	DOCOSANE	5500	JX
B36-3	629-99-	PENTACOSANE	5800	JX
		TOTAL UNKNOWN TICS:	25500	
		TOTAL TICS	161000	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-4	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4700	BJ
B36-4	124-18-	DECANE	9100	JX
B36-4	1120-21-	UNDECANE	13000	JX
B36-4	112-40-	DODECANE	15000	JX
B36-4	629-50-	TRIDECANE	13000	JX
B36-4	629-59-	TETRADECANE	14000	JX
B36-4	575-41-	NAPHTHALENE, 1,3-DIMETHYL-	8500	JX
B36-4	629-62-	PENTADECANE	13000	JX
B36-4	544-76-	HEXADECANE	11000	JX
B36-4	629-78-	HEPTADECANE	10000	JX
B36-4	1921-70-	PENTADECANE, 2,6,10,14-TETRA	10000	JX
B36-4	593-45-	OCTADECANE	8100	JX
B36-4	638-36-	HEXADECANE, 2,6,10,14-TETRAM	8500	JX
B36-4	629-92-	NONADECANE	7300	JX
B36-4	112-95-	EICOSANE	8200	JX
B36-4	629-99-	PENTACOSANE	9100	JN
		TOTAL UNKNOWN TICS:	42500	
		TOTAL TICS	205000	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-6	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3600	BJ
B36-6	124-18-	DECANE	4100	JX
B36-6	1120-21-	UNDECANE	6800	JX
B36-6	112-40-	DODECANE	6200	JX
B36-6	629-50-	TRIDECANE	7100	JX
B36-6	629-59-	TETRADECANE	6300	JX
B36-6	575-41-	NAPHTHALENE, 1,3-DIMETHYL-	5000	JX
B36-6	629-62-	PENTADECANE	6200	JX
B36-6	544-76-	HEXADECANE	5700	JX
B36-6	629-78-	HEPTADECANE	5500	JX
B36-6	1921-70-	PENTADECANE, 2,6,10,14-TETRA	5600	JX
B36-6	593-45-	OCTADECANE	4400	JX
B36-6	638-36-	HEXADECANE, 2,6,10,14-TETRAM	4500	JX
B36-6	629-92-	NONADECANE	5400	JX
B36-6	112-95-	EICOSANE	4400	JX
B36-6	629-97-	DOCOSANE	3700	JX
B36-6	629-99-	PENTACOSANE	3700	JX
		TOTAL UNKNOWN TICS:	17000	
		TOTAL TICS	105200	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B37-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B37-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3100	BJ

TOTAL UNKNOWN TICS:	500
TOTAL TICS	3600

SDG FILE: 1F36521 DATE: MATRIX:
ES: B37-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B37-2	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	1900	BJ
B37-2	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	100	JX
		TOTAL UNKNOWN TICS:	360	
		TOTAL TICS	2360	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B37-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B37-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2300	BJ
B37-3	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	350	JX
		TOTAL UNKNOWN TICS:	700	
		TOTAL TICS	3350	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B37-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B37-6	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2800	BJ
B37-6	74367-34-	PROPANOIC ACID, 2-METHYL- 2,	81	JX
B37-6	74381-40-	PROPANOIC ACID, 2-METHYL- 1-	340	JX
		TOTAL UNKNOWN TICS:	680	
		TOTAL TICS	3901	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3000	BJ
B38-1	74381-40-	PROPANOIC ACID, 2-METHYL-1-(	590	JX
B38-1	57-10-	HEXADECANOIC ACID	1100	JX
B38-1	57-11-	OCTADECANOIC ACID	1500	JX
B38-1	629-99-	PENTACOSANE	580	JX
B38-1	593-49-	HEPTACOSANE	600	JX
B38-1	630-02-	OCTACOSANE	1200	JX
B38-1	630-03-	NONACOSANE	1400	JX
B38-1	638-68-	TRIACONTANE	1100	JX
B38-1	544-85-	DOTRIACONTANE	900	JX
		TOTAL UNKNOWN TICS:	12500	
		TOTAL TICS	24470	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-1RE	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2700	BJ
B38-1RE	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	510	JX
B38-1RE	629-78-	HEPTADECANE	510	JX
B38-1RE	57-10-	HEXADECANOIC ACID	1500	JX
B38-1RE	57-11-	OCTADECANOIC ACID	1700	JX
B38-1RE	629-99-	PENTACOSANE	550	JX
B38-1RE	629-78-	HEPTACOSANE	520	JX
B38-1RE	630-02-	OCTACOSANE	1200	JX
B38-1RE	630-03-	NONACOSANE	1500	JX
B38-1RE	638-68-	TRIACONTANE	1100	JX
B38-1RE	544-85-	DOTRIACONTANE	890	JX
		TOTAL UNKNOWN TICS:	12130	
		TOTAL TICS	24810	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-2	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2500	BJ
B38-2	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	480	JX
B38-2	57-10-	HEXADECANOIC ACID	120	JX
B38-2	238-84-	11H-BENZO[A]FLUORENE	100	JX
B38-2	593-49-	HEPTACOSANE	140	JX
B38-2	630-02-	OCTACOSANE	100	JX
B38-2	630-03-	NONACOSANE	240	JX
B38-2	192-97-	BENZO[E]PYRENE	200	JX
B38-2	638-68-	TRIACONTANE	88	JX
B38-2	544-85-	DOTRIACONTANE	100	JX
		TOTAL UNKNOWN TICS:	2094	
		TOTAL TICS	6162	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2300	BJ
B38-3	74367-33-	PROPANOIC ACID, 2-METHYL-, 2	87	JX
B38-3	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	480	JX
		TOTAL UNKNOWN TICS:	1064	
		TOTAL TICS	3931	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B38-4	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2000	BJ
B38-4	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	200	JX

TOTAL UNKNOWN TICS: 810
TOTAL TICS 3010

SDG FILE: 1E36549 DATE: MATRIX:
ES: B38-6MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6MS	75-07-0	Acetaldehyde	26	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 26

SDG FILE: 1E36549 DATE: MATRIX:
ES: B38-6MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6MSD	75-07-0	Acetaldehyde	13	NJ
B38-6MSD	75-07-0	Acetaldehyde	28	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 41

SDG FILE: 1E36549 DATE: MATRIX:
ES: B46-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 96
TOTAL TICS 96

SDG FILE: 1E36549 DATE: MATRIX:
ES: B46-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 9
TOTAL TICS 9

SDG FILE: 1E36549 DATE: MATRIX:
ES: B47-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 17
TOTAL TICS 17

SDG FILE: 1E36549 DATE: MATRIX:
ES: B47-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	34	
		TOTAL TICS	34	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B38-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6	123-42-2	2-Pentanone, 4-hydroxy-4-met	3800	NJ
		TOTAL UNKNOWN TICS:	1420	
		TOTAL TICS	5220	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B38-6MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	3200	NJ
B38-6MS	67753-47-3	Boronic acid, ethyl-, bis(2,	380	NJ
B38-6MS	294-62-2	Cyclododecane	93	NJ
B38-6MS	117-82-8	Bis(2-methoxyethyl) phthalat	130	NJ
B38-6MS	103-23-1	Hexanedioic acid, bis(2-ethy	540	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	4343	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B38-6MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6MSD	540-88-5	Acetic acid, 1,1-dimethyleth	3200	NJ
B38-6MSD	74381-40-1	Propanoic acid, 2-methyl-, 1	570	NJ
B38-6MSD	294-62-2	Cyclododecane	120	NJ
B38-6MSD	17851-53-5	1,2-Benzenedicarboxylic acid	150	NJ
B38-6MSD	103-23-1	Hexanedioic acid, bis(2-ethy	540	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	4580	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B45-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B45-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	4000	NJ
B45-1	57-10-3	Hexadecanoic acid	110	NJ
		TOTAL UNKNOWN TICS:	1489	

TOTAL TICS	5599

SDG FILE: 1F36549 DATE: MATRIX:
ES: B45-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B45-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	4000	NJ

TOTAL UNKNOWN TICS:	1738
TOTAL TICS	5738

SDG FILE: 1F36549 DATE: MATRIX:
ES: B45-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B45-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	3800	NJ

TOTAL UNKNOWN TICS:	1521
TOTAL TICS	5321

SDG FILE: 1F36549 DATE: MATRIX:
ES: B45-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B45-6	123-42-2	2-Pentanone, 4-hydroxy-4-met	4100	NJ
B45-6	57-10-3	Hexadecanoic acid	100	NJ

TOTAL UNKNOWN TICS:	1070
TOTAL TICS	5270

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	3900	NJ
B46-1	629-78-7	Heptadecane	170	NJ
B46-1	832-71-3	Phenanthrene, 3-methyl-	170	NJ
B46-1	2531-84-2	Phenanthrene, 2-methyl-	190	NJ
B46-1	238-84-6	11H-Benzo[a]fluorene	240	NJ
B46-1	2381-21-7	Pyrene, 1-methyl-	100	NJ
B46-1	195-19-7	Benzo[c]phenanthrene	140	NJ
B46-1	192-97-2	Benzo[e]pyrene	560	NJ
B46-1	198-55-0	Perylene	510	NJ

TOTAL UNKNOWN TICS:	4660
TOTAL TICS	10640

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4700	NJ
B46-1RE	629-78-7	Heptadecane	170	NJ
B46-1RE	1921-70-6	Pentadecane, 2,6,10,14-tetra	110	NJ
B46-1RE	832-71-3	Phenanthrene, 3-methyl-	170	NJ
B46-1RE	2531-84-2	Phenanthrene, 2-methyl-	190	NJ
B46-1RE	238-84-6	11H-Benzo[a]fluorene	250	NJ
B46-1RE	2381-21-7	Pyrene, 1-methyl-	100	NJ
B46-1RE	195-19-7	Benzo[c]phenanthrene	130	NJ
B46-1RE	192-97-2	Benzo[e]pyrene	470	NJ
		TOTAL UNKNOWN TICS:	5640	
		TOTAL TICS	11930	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3600	NJ
B46-2	132-65-0	Dibenzothiophene	80	NJ
B46-2	832-71-3	Phenanthrene, 3-methyl-	140	NJ
B46-2	2531-84-2	Phenanthrene, 2-methyl-	210	NJ
B46-2	203-64-5	4H-Cyclopenta[def]phenanthre	200	NJ
B46-2	610-48-0	Anthracene, 1-methyl-	85	NJ
B46-2	35465-71-5	2-Phenylnaphthalene	87	NJ
B46-2	238-84-6	11H-Benzo[a]fluorene	150	NJ
B46-2	192-97-2	Benzo[e]pyrene	210	NJ
		TOTAL UNKNOWN TICS:	1825	
		TOTAL TICS	6587	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	2900	NJ
		TOTAL UNKNOWN TICS:	2300	
		TOTAL TICS	5200	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	3700	NJ
		TOTAL UNKNOWN TICS:	3177	
		TOTAL TICS	6877	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B47-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B47-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	3100	NJ
B47-1	629-62-9	Pentadecane	97	NJ
B47-1	544-76-3	Hexadecane	95	NJ
B47-1	629-78-7	Heptadecane	160	NJ
B47-1	593-45-3	Octadecane	89	NJ
B47-1	629-92-5	Nonadecane	93	NJ
B47-1	57-10-3	Hexadecanoic acid	180	NJ
B47-1	112-95-8	Eicosane	73	NJ
B47-1	72-55-9	p,p'-DDE	180	NJ
B47-1	638-67-5	Tricosane	84	NJ
B47-1	629-99-2	Pentacosane	120	NJ
B47-1	630-01-3	Hexacosane	90	NJ
B47-1	593-49-7	Heptacosane	110	NJ
B47-1	630-02-4	Octacosane	86	NJ

TOTAL UNKNOWN TICS: 4416
TOTAL TICS 8973

SDG FILE: 1F36549 DATE: MATRIX:
ES: B47-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B47-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3200	NJ
B47-2	544-76-3	Hexadecane	99	NJ
B47-2	629-78-7	Heptadecane	170	NJ
B47-2	1921-70-6	Pentadecane, 2,6,10,14-tetra	190	NJ
B47-2	593-45-3	Octadecane	100	NJ
B47-2	57-10-3	Hexadecanoic acid	93	NJ

TOTAL UNKNOWN TICS: 4213
TOTAL TICS 8065

SDG FILE: 1F36549 DATE: MATRIX:
ES: B47-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B47-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	3000	NJ
B47-3	544-76-3	Hexadecane	77	NJ
B47-3	629-78-7	Heptadecane	100	NJ
B47-3	1921-70-6	Pentadecane, 2,6,10,14-tetra	110	NJ

TOTAL UNKNOWN TICS: 4772
TOTAL TICS 8059

SDG FILE: 1F36549 DATE: MATRIX:
ES: B48-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B48-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	3700	NJ
B48-1	629-62-9	Pentadecane	90	NJ
B48-1	544-76-3	Hexadecane	120	NJ
B48-1	629-78-7	Heptadecane	200	NJ
B48-1	1921-70-6	Pentadecane, 2,6,10,14-tetra	110	NJ

B48-1	593-45-3	Octadecane	140	NJ
B48-1	629-92-5	Nonadecane	130	NJ
B48-1	57-10-3	Hexadecanoic acid	180	NJ
B48-1	112-95-8	Eicosane	90	NJ

TOTAL UNKNOWN TICS: 3363
TOTAL TICS 8123

SDG FILE: 1F36549 DATE: MATRIX:
ES: B48-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B48-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3600	NJ
B48-2	57-10-3	Hexadecanoic acid	93	NJ

TOTAL UNKNOWN TICS: 2193
TOTAL TICS 5886

SDG FILE: 1F36549 DATE: MATRIX:
ES: B48-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B48-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	3500	NJ

TOTAL UNKNOWN TICS: 3180
TOTAL TICS 6680

SDG FILE: 1F36549 DATE: MATRIX:
ES: B48-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B48-6	123-42-2	2-Pentanone, 4-hydroxy-4-met	3600	NJ

TOTAL UNKNOWN TICS: 1210
TOTAL TICS 4810

SDG FILE: 1E34782 DATE: MATRIX:
ES: SD-WA
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	9	
		TOTAL TICS	9	

SDG FILE: 1E34782 DATE: MATRIX:
ES: SD-WFMSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	134	
		TOTAL TICS	134	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WA
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WA	123-42-2	2-Pentanone, 4-hydroxy-4-met	4100	NJ
SD-WA	1002-84-2	Pentadecanoic acid	230	NJ
SD-WA	2091-29-4	9-Hexadecenoic acid	270	NJ
SD-WA	57-10-3	Hexadecanoic acid	520	NJ
SD-WA	593-49-7	Heptacosane	200	NJ
SD-WA	630-03-5	Nonacosane	390	NJ
SD-WA	630-04-6	Hentriacontane	380	NJ
		TOTAL UNKNOWN TICS:	3030	
		TOTAL TICS	9120	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WB
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WB	123-42-2	2-Pentanone, 4-hydroxy-4-met	3100	NJ
SD-WB	57-10-3	Hexadecanoic acid	240	NJ
SD-WB	630-03-5	Nonacosane	130	NJ
SD-WB	630-04-6	Hentriacontane	140	NJ
		TOTAL UNKNOWN TICS:	778	
		TOTAL TICS	4388	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WB1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WB1	123-42-2	2-Pentanone, 4-hydroxy-4-met	4600	NJ
SD-WB1	2531-84-2	Phenanthrene, 2-methyl-	110	NJ

SD-WB1	57-10-3	Hexadecanoic acid	690	NJ
SD-WB1	57-11-4	Octadecanoic acid	310	NJ
SD-WB1	638-67-5	Tricosane	140	NJ
SD-WB1	629-99-2	Pentacosane	210	NJ
SD-WB1	593-49-7	Heptacosane	250	NJ
SD-WB1	630-03-5	Nonacosane	260	NJ
SD-WB1	192-97-2	Benzo[e]pyrene	330	NJ
SD-WB1	630-04-6	Hentriacontane	340	NJ

TOTAL UNKNOWN TICS: 2810
TOTAL TICS 10050

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WB1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WB1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	9500	NJ
SD-WB1RE	110-13-4	2,5-Hexanedione	190	NJ
SD-WB1RE	57-10-3	Hexadecanoic acid	330	NJ
SD-WB1RE	57-11-4	Octadecanoic acid	150	NJ
SD-WB1RE	638-67-5	Tricosane	100	NJ
SD-WB1RE	629-99-2	Pentacosane	100	NJ
SD-WB1RE	630-03-5	Nonacosane	170	NJ
SD-WB1RE	192-97-2	Benzo[e]pyrene	210	NJ
SD-WB1RE	630-04-6	Hentriacontane	180	NJ

TOTAL UNKNOWN TICS: 1650
TOTAL TICS 12580

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WBRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WBRE	123-42-2	2-Pentanone, 4-hydroxy-4-met	9700	NJ
SD-WBRE	110-13-4	2,5-Hexanedione	320	NJ
SD-WBRE	57-10-3	Hexadecanoic acid	510	NJ
SD-WBRE	57-11-4	Octadecanoic acid	250	NJ
SD-WBRE	638-67-5	Tricosane	140	NJ
SD-WBRE	646-31-1	Tetracosane	110	NJ
SD-WBRE	629-99-2	Pentacosane	160	NJ
SD-WBRE	593-49-7	Heptacosane	92	NJ
SD-WBRE	630-03-5	Nonacosane	120	NJ
SD-WBRE	192-97-2	Benzo[e]pyrene	130	NJ
SD-WBRE	630-04-6	Hentriacontane	240	NJ

TOTAL UNKNOWN TICS: 2580
TOTAL TICS 14352

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WC
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WC	123-42-2	2-Pentanone, 4-hydroxy-4-met	3400	NJ
SD-WC	110-13-4	2,5-Hexanedione	300	NJ

SD-WC	57-10-3	Hexadecanoic acid	250	NJ
SD-WC	593-49-7	Heptacosane	140	NJ
SD-WC	630-03-5	Nonacosane	250	NJ
SD-WC	192-97-2	Benzo[e]pyrene	160	NJ
SD-WC	630-04-6	Hentriacontane	300	NJ
		TOTAL UNKNOWN TICS:	3245	
		TOTAL TICS	8045	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WCRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WCRE	123-42-2	2-Pentanone, 4-hydroxy-4-met	8700	NJ
SD-WCRE	110-13-4	2,5-Hexanedione	430	NJ
SD-WCRE	57-10-3	Hexadecanoic acid	230	NJ
SD-WCRE	630-03-5	Nonacosane	150	NJ
SD-WCRE	630-04-6	Hentriacontane	220	NJ
		TOTAL UNKNOWN TICS:	2638	
		TOTAL TICS	12368	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WD	123-42-2	2-Pentanone, 4-hydroxy-4-met	5700	NJ
SD-WD	110-13-4	2,5-Hexanedione	450	NJ
SD-WD	2091-29-4	9-Hexadecenoic acid	1600	NJ
SD-WD	57-10-3	Hexadecanoic acid	1500	NJ
SD-WD	57-11-4	Octadecanoic acid	340	NJ
SD-WD	593-49-7	Heptacosane	890	NJ
SD-WD	630-03-5	Nonacosane	1200	NJ
SD-WD	630-04-6	Hentriacontane	1000	NJ
		TOTAL UNKNOWN TICS:	8550	
		TOTAL TICS	21230	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4600	NJ
SD-WE	2091-29-4	9-Hexadecenoic acid	240	NJ
SD-WE	57-10-3	Hexadecanoic acid	1000	NJ
SD-WE	57-11-4	Octadecanoic acid	180	NJ
SD-WE	593-49-7	Heptacosane	340	NJ
SD-WE	630-03-5	Nonacosane	1000	NJ
SD-WE	630-04-6	Hentriacontane	720	NJ
		TOTAL UNKNOWN TICS:	6420	
		TOTAL TICS	14500	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WERE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WERE	123-42-2	2-Pentanone, 4-hydroxy-4-met	11000	NJ
SD-WERE	110-13-4	2,5-Hexanedione	410	NJ
SD-WERE	1002-84-2	Pentadecanoic acid	150	NJ
SD-WERE	2091-29-4	9-Hexadecenoic acid	200	NJ
SD-WERE	57-10-3	Hexadecanoic acid	790	NJ
SD-WERE	57-11-4	Octadecanoic acid	220	NJ
SD-WERE	84-62-8	1,2-Benzenedicarboxylic acid	170	NJ
SD-WERE	593-49-7	Heptacosane	200	NJ
SD-WERE	630-03-5	Nonacosane	970	NJ
SD-WERE	192-97-2	Benzo[e]pyrene	220	NJ
SD-WERE	630-04-6	Hentriacontane	590	NJ
		TOTAL UNKNOWN TICS:	4070	
		TOTAL TICS	18990	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WF
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WF	123-42-2	2-Pentanone, 4-hydroxy-4-met	3800	NJ
SD-WF	1002-84-2	Pentadecanoic acid	130	NJ
SD-WF	2091-29-4	9-Hexadecenoic acid	120	NJ
SD-WF	57-10-3	Hexadecanoic acid	490	NJ
SD-WF	629-99-2	Pentacosane	190	NJ
SD-WF	593-49-7	Heptacosane	320	NJ
SD-WF	630-03-5	Nonacosane	650	NJ
SD-WF	63-04-6	Hentriacontane	510	NJ
		TOTAL UNKNOWN TICS:	4150	
		TOTAL TICS	10360	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WFMS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WFMS	288-47-1	Thiazole	160	NJ
SD-WFMS	4283-80-1	Pentane, 2-bromo-2-methyl-	580	NJ
SD-WFMS	17257-81-7	Ethanone, 1-(3-ethyloxiranyl	170	NJ
SD-WFMS	107-86-8	2-Butenal, 3-methyl-	190	NJ
SD-WFMS	141-79-7	3-Penten-2-one, 4-methyl-	96	NJ
SD-WFMS	624-41-9	1-Butanol, 2-methyl-, acetat	130	NJ
SD-WFMS	3031-75-2	Hydroperoxide, 1-methylethyl	250	NJ
SD-WFMS	123-42-2	2-Pentanone, 4-hydroxy-4-met	2200	NJ
SD-WFMS	547-63-7	Propanoic acid, 2-methyl-, m	290	NJ
SD-WFMS	3964-56-5	Phenol, 4-bromo-2-chloro-	140	NJ
SD-WFMS	354-21-2	Ethane, 1,2,2-trichloro-1,1-	89	NJ
SD-WFMS	1534-08-3	Ethanethioic acid, S-methyl	130	NJ
SD-WFMS	100-02-7	Phenol, 4-nitro-	560	NJ
SD-WFMS	2437-56-1	1-Tridecene	150	NJ
SD-WFMS	1002-84-2	Pentadecanoic acid	100	NJ
SD-WFMS	1441-02-7	CPA	130	NJ

SD-WFMS	2091-29-4	9-Hexadecenoic acid	100	NJ
SD-WFMS	109-29-5	Oxacycloheptadecan-2-one	350	NJ
SD-WFMS	57-10-3	Hexadecanoic acid	440	NJ
SD-WFMS	17351-34-7	14-Pentadecenoic acid	140	NJ
SD-WFMS	112-80-1	Oleic Acid	160	NJ
SD-WFMS	629-78-7	Heptadecane	160	NJ
SD-WFMS	630-06-8	Hexatriacontane	290	NJ
SD-WFMS	629-92-5	Nonadecane	530	NJ
SD-WFMS	36653-82-4	1-Hexadecanol	520	NJ
SD-WFMS	55045-08-4	Dodecane, 2-methyl-6-propyl-	450	NJ
SD-WFMS	83-47-6	.gamma.-Sitosterol	360	NJ
		TOTAL UNKNOWN TICS:	170	
		TOTAL TICS	9035	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WFMSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WFMSD	16747-28-7	Hexane, 2,3,3-trimethyl-	320	NJ
SD-WFMSD	34723-82-5	2H-Pyran, 2-(bromomethyl)tet	1200	NJ
SD-WFMSD	589-43-5	Hexane, 2,4-dimethyl-	300	NJ
SD-WFMSD	107-86-8	2-Butenal, 3-methyl-	380	NJ
SD-WFMSD	141-79-7	3-Penten-2-one, 4-methyl-	190	NJ
SD-WFMSD	105-54-4	Butanoic acid, ethyl ester	260	NJ
SD-WFMSD	3031-75-2	Hydroperoxide, 1-methylethyl	490	NJ
SD-WFMSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	4400	NJ
SD-WFMSD	5076-20-0	Oxirane, tetramethyl-	220	NJ
SD-WFMSD	17773-66-9	Butane, 2,2-dichloro-3-methy	170	NJ
SD-WFMSD	79-34-5	Ethane, 1,1,2,2-tetrachloro-	160	NJ
SD-WFMSD	627-08-7	Propane, 1-(1-methylethoxy)-	590	NJ
SD-WFMSD	3964-56-5	Phenol, 4-bromo-2-chloro-	140	NJ
SD-WFMSD	79-34-5	Ethane, 1,1,2,2-tetrachloro-	96	NJ
SD-WFMSD	1534-08-3	Ethanethioic acid, S-methyl	140	NJ
SD-WFMSD	100-02-7	Phenol, 4-nitro-	580	NJ
SD-WFMSD	294-62-2	Cyclododecane	180	NJ
SD-WFMSD	1002-84-2	Pentadecanoic acid	120	NJ
SD-WFMSD	1441-02-7	CPA	120	NJ
SD-WFMSD	2091-29-4	9-Hexadecenoic acid	120	NJ
SD-WFMSD	109-29-5	Oxacycloheptadecan-2-one	400	NJ
SD-WFMSD	57-10-3	Hexadecanoic acid	490	NJ
SD-WFMSD	2091-29-4	9-Hexadecenoic acid	150	NJ
SD-WFMSD	57-11-4	Octadecanoic acid	120	NJ
SD-WFMSD	629-78-7	Heptadecane	180	NJ
SD-WFMSD	7098-21-7	Tritetracontane	340	NJ
SD-WFMSD	593-45-3	Octadecane	150	NJ
SD-WFMSD	19218-94-1	Tetradecane, 1-iodo-	630	NJ
SD-WFMSD	629-92-5	Nonadecane	500	NJ
SD-WFMSD	83-47-6	.gamma.-Sitosterol	380	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	13516	

APPENDIX C

AIR EMISSION CALCULATIONS

ES ENGINEERING-SCIENCE, INC.

Client	Seneca Army Depot	Job No.	720489-01000	Sheet	1 of 45
Subject	Ash Landfill Removal Action	By	DMK	Date	9/28/93
	Air Emissions During Excavation	Checked		Rev.	

Estimate Air Emissions from Excavation of Contaminated Soil at the Bend-in-the-Road Area

Step I - estimate soil emissions
Step II - Use SCREEN model to estimate concentrations at receptors

Step I

Use EPA model LAND7 to estimate emission rates

Note - This model assumes tilling. According to EPA 450/1-89-003 (p.106), the agitation factor for tilling is comparable to that for excavation.

Check - use CRI emission model for vinyl chloride

Results: ($g/s \cdot m^2$)
LAND7 : 2.83×10^{-6} (1st day) 1.41×10^{-5} (1st 15 minutes)
CRI : 1.77×10^{-6}

∴ Models are comparable

Step II
- Use LAND7 output as input to SCREEN model
- Also look at 10x and 100x LAND7 emission rates

Assumptions
1) 400 yd³/day excavation rate ⇒ 150 m² a size of area source
2) Look at 200 ft and fenceline as receptors
3) Use peak (15-minute) emission rates for maximum concentrations (SGC)
4) Use long term emission rates for annual concentrations (AGC)

Seneca Army Depot
Air Contaminant Predicted Concentrations
Screen2 Model Results – Short and Long Term Emission Rates
Measured Concentrations

Compound	Short Term Emission Rate 1st Day (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	Peak Emission Rate 1st 15 Min. (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Max. 24–Hour Predicted Concentration (ppmv)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	N.Y. SGC (ug/m3)
Vinyl Chloride	2.83E–06	4.79	0.69	1.41E–05	23.86	0.0086	3.46	1300
Acetone	4.68E–07	0.79	0.11	2.28E–06	3.86	0.0015	0.56	140,000
Carbon disulfide	2.12E–07	0.36	0.05	1.03E–06	1.74	0.0005	0.25	710
1,1 Dichlorethene	2.40E–07	0.41	0.06	1.17E–06	1.98	0.0005	0.29	2,000
1,2 Dichlorethene (Total)	6.33E–06	10.71	1.55	3.08E–05	52.13	0.0120	7.55	190,000
Chloroform	1.14E–08	0.02	0.00	5.56E–08	0.09	0.0000	0.01	980
1,2 Dichlorethane	9.25E–08	0.16	0.02	4.48E–07	0.76	0.0002	0.11	950
2–Butanone	9.45E–09	0.02	0.00	4.58E–08	0.08	0.0000	0.01	140,000
Trichloroethene	2.22E–05	37.57	5.44	1.07E–04	181.09	0.0309	26.22	33,000
Benzene	2.51E–09	0.004	0.00	1.22E–08	0.02	0.0000	0.00	30
Tetrachloroethene	1.01E–09	0.002	0.00	4.85E–09	0.01	0.0000	0.00	81,000
Toluene	1.50E–07	0.25	0.04	7.20E–07	1.22	0.0003	0.18	89,000
Chlorobenzene	8.02E–08	0.14	0.02	3.82E–07	0.65	0.0001	0.09	11,000
Ethylbenzene	4.52E–08	0.08	0.01	2.14E–07	0.36	0.0001	0.05	100,000
Xylene	2.16E–07	0.37	0.05	1.02E–06	1.73	0.0004	0.25	100,000
						0.055		5 ppmv

Compound	Long Term Emission Rate (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	N.Y. AGC (ug/m3)
Vinyl Chloride	1.13E–08	0.0038	0.0006	0.02
Acetone	5.35E–09	0.0018	0.0003	14000
Carbon disulfide	2.26E–09	0.0008	0.0001	7
1,1 Dichlorethene	2.29E–09	0.0008	0.0001	0.02
1,2 Dichlorethene (Total)	1.08E–07	0.0367	0.0053	1900
Chloroform	1.61E–10	0.0001	0.0000	23
1,2 Dichlorethane	2.11E–09	0.0007	0.0001	0.039
2–Butanone	2.18E–10	0.0001	0.0000	300
Trichloroethene	4.83E–11	0.0000	0.0000	0.45
Benzene	5.69E–11	0.0000	0.0000	0.12
Tetrachloroethene	4.83E–11	0.0000	0.0000	0.075
Toluene	5.85E–09	0.0020	0.0003	2000
Chlorobenzene	4.07E–09	0.0014	0.0002	20
Ethylbenzene	2.32E–09	0.0008	0.0001	1000
Xylene	1.11E–08	0.0038	0.0005	300

Notes:

1 Maximum predicted concentration occured at a receptor located 200 feet from the nearest edge of the area source

2 Nearest Fenceline receptor is located 260 meters (853 feet) east of the aproximate location of the nearest edge of the area source

2/45

28–Sep–93

Seneca Army Depot
Air Contaminant Predicted Concentrations

Screen2 Model Results – Short and Long Term Emission Rates
10 Times Measured Concentrations

Compound	Short Term Emission Rate 1st Day (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	Peak Emission Rate 1st 15 Min. (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Max. 24–Hour Predicted Concentration (ppmv)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	N.Y. SGC (ug/m3)
Vinyl Chloride	2.83E–05	47.89	6.93	1.41E–04	238.63	0.0855	34.55	1300
Acetone	4.68E–06	7.92	1.15	2.28E–05	38.59	0.0149	5.59	140,000
Carbon disulfide	2.12E–06	3.59	0.52	1.03E–05	17.43	0.0050	2.52	710
1,1 Dichlorethene	2.40E–06	4.06	0.59	1.17E–05	19.80	0.0046	2.87	2,000
1,2 Dichlorethene (Total)	6.33E–05	107.13	15.51	3.08E–04	521.26	0.1204	75.47	190,000
Chloroform	1.14E–07	0.19	0.03	5.56E–07	0.94	0.0002	0.14	980
1,2 Dichlorethane	9.25E–07	1.57	0.23	4.48E–06	7.58	0.0017	1.10	950
2–Butanone	9.45E–08	0.16	0.02	4.58E–07	0.78	0.0002	0.11	140,000
Trichloroethene	2.22E–04	375.71	54.40	1.07E–03	1810.87	0.3087	262.19	33,000
Benzene	2.51E–08	0.042	0.01	1.22E–07	0.21	0.0001	0.03	30
Tetrachloroethene	1.01E–08	0.017	0.00	4.85E–08	0.08	0.0000	0.01	81,000
Toluene	1.50E–06	2.54	0.37	7.20E–06	12.19	0.0030	1.76	89,000
Chlorobenzene	8.02E–07	1.36	0.20	3.82E–06	6.46	0.0013	0.94	11,000
Ethylbenzene	4.52E–07	0.76	0.11	2.14E–06	3.62	0.0008	0.52	100,000
Xylene	2.16E–06	3.66	0.53	1.02E–05	17.26	0.0036	2.50	100,000
						0.550		5 ppmv

Compound	Long Term Emission Rate (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	N.Y. AGC (ug/m3)
Vinyl Chloride	1.13E–07	0.0383	0.0055	0.02
Acetone	5.35E–08	0.0181	0.0026	14000
Carbon disulfide	2.26E–08	0.0076	0.0011	7
1,1 Dichlorethene	2.29E–08	0.0077	0.0011	0.02
1,2 Dichlorethene (Total)	1.08E–06	0.3670	0.0531	1900
Chloroform	1.61E–09	0.0005	0.0001	23
1,2 Dichlorethane	2.11E–08	0.0071	0.0010	0.039
2–Butanone	2.18E–09	0.0007	0.0001	300
Trichloroethene	4.83E–10	0.0002	0.0000	0.45
Benzene	5.69E–10	0.0002	0.0000	0.12
Tetrachloroethene	4.83E–10	0.0002	0.0000	0.075
Toluene	5.85E–08	0.0198	0.0029	2000
Chlorobenzene	4.07E–08	0.0138	0.0020	20
Ethylbenzene	2.32E–08	0.0078	0.0011	1000
Xylene	1.11E–07	0.0377	0.0055	300

Notes:

1 Maximum predicted concentration occured at a receptor located 200 feet from the nearest edge of the area source
2 Nearest Fenceline receptor is located 260 meters (853 feet) east of the aproximate location of the nearest edge of the area source

3/45

Seneca Army Depot
Air Contaminant Predicted Concentrations

Screen2 Model Results – Short and Long Term Emission Rates
100 Times Measured Concentrations

Compound	Short Term Emission Rate 1st Day (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	Peak Emission Rate 1st 15 Min. (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Max. 24–Hour Predicted Concentration (ppmv)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	N.Y. SGC (ug/m3)
Vinyl Chloride	2.83E–04	478.95	69.35	1.41E–03	2386.28	0.8552	345.51	1300
Acetone	4.68E–05	79.20	11.47	2.28E–04	385.87	0.1490	55.87	140,000
Carbon disulfide	2.12E–05	35.88	5.19	1.03E–04	174.32	0.0500	25.24	710
1,1 Dichlorethene	2.40E–05	40.62	5.88	1.17E–04	198.01	0.0457	28.67	2,000
1,2 Dichlorethene (Total)	6.33E–04	1071.29	155.11	3.08E–03	5212.59	1.2037	754.72	190,000
Chloroform	1.14E–06	1.93	0.28	5.56E–06	9.41	0.0018	1.36	980
1,2 Dichlorethane	9.25E–06	15.65	2.27	4.48E–05	75.82	0.0172	10.98	950
2–Butanone	9.45E–07	1.60	0.23	4.58E–06	7.75	0.0024	1.12	140,000
Trichloroethene	2.22E–03	3757.13	543.99	1.07E–02	18108.68	3.0870	2621.93	33,000
Benzene	2.51E–07	0.425	0.06	1.22E–06	2.06	0.0006	0.30	30
Tetrachloroethene	1.01E–07	0.171	0.02	4.85E–07	0.82	0.0001	0.12	81,000
Toluene	1.50E–05	25.39	3.68	7.20E–05	121.85	0.0295	17.64	89,000
Chlorobenzene	8.02E–06	13.57	1.97	3.82E–05	64.65	0.0129	9.36	11,000
Ethylbenzene	4.52E–06	7.65	1.11	2.14E–05	36.22	0.0076	5.24	100,000
Xylene	2.16E–05	36.56	5.29	1.02E–04	172.62	0.0364	24.99	100,000
						5.499		5 ppmv

Compound	Long Term Emission Rate (g/s–m2)	Max. 24–Hour Predicted Concentration (ug/m3)	Predicted 24–Hour Concentration at Nearest Fenceline Point (ug/m3)	N.Y. AGC (ug/m3)
Vinyl Chloride	1.13E–06	0.3829	0.0554	0.02
Acetone	5.35E–07	0.1812	0.0262	14000
Carbon disulfide	2.26E–07	0.0764	0.0111	7
1,1 Dichlorethene	2.29E–07	0.0774	0.0112	0.02
1,2 Dichlorethene (Total)	1.08E–05	3.6696	0.5313	1900
Chloroform	1.61E–08	0.0055	0.0008	23
1,2 Dichlorethane	2.11E–07	0.0713	0.0103	0.039
2–Butanone	2.18E–08	0.0074	0.0011	300
Trichloroethene	4.83E–09	0.0016	0.0002	0.45
Benzene	5.69E–09	0.0019	0.0003	0.12
Tetrachloroethene	4.83E–09	0.0016	0.0002	0.075
Toluene	5.85E–07	0.1980	0.0287	2000
Chlorobenzene	4.07E–07	0.1379	0.0200	20
Ethylbenzene	2.32E–07	0.0784	0.0113	1000
Xylene	1.11E–06	0.3769	0.0546	300

Notes:

1 Maximum predicted concentration occured at a receptor located 200 feet from the nearest edge of the area source

2 Nearest Feneceline receptor is located 260 meters (853 feet) east of the aproximate location of the nearest edge of the area source

28–Sep–93

5/45

09/27/93
16:12:50

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Seneca Army Depot Toxic Chemicals Screening

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	AREA
EMISSION RATE (G/(S-M**2))	=	1.00000
SOURCE HEIGHT (M)	=	.0000
LENGTH OF SIDE (M)	=	10.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	.2515E+07	6	1.0	1.0	10000.0	.00	3.86	2.41	NO
200.	.9283E+06	6	1.0	1.0	10000.0	.00	7.53	4.16	NO
300.	.4857E+06	6	1.0	1.0	10000.0	.00	11.04	5.69	NO
400.	.3023E+06	6	1.0	1.0	10000.0	.00	14.45	7.11	NO
500.	.2083E+06	6	1.0	1.0	10000.0	.00	17.78	8.45	NO
600.	.1534E+06	6	1.0	1.0	10000.0	.00	21.05	9.74	NO
700.	.1184E+06	6	1.0	1.0	10000.0	.00	24.28	10.98	NO
800.	.9577E+05	6	1.0	1.0	10000.0	.00	27.46	12.02	NO
900.	.7942E+05	6	1.0	1.0	10000.0	.00	30.60	13.02	NO
1000.	.6718E+05	6	1.0	1.0	10000.0	.00	33.71	13.99	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

100.	.2515E+07	6	1.0	1.0	10000.0	.00	3.86	2.41	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
61.	.4233E+07	6	1.0	1.0	10000.0	.00	2.35	1.64	NO

6/45

```
   260.   .6126E+06    6      1.0     1.0 10000.0      .00      9.65      5.09     NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB
```

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.4233E+07	61.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA - 450/1-89-003
January 1989

Air/Superfund

EPA

AIR / SUPERFUND NATIONAL TECHNICAL GUIDANCE STUDY SERIES

Volume III - Estimation of Air Emissions from Cleanup Activities at Superfund Sites

Interim Final

8/45

TABLE 27. INCREASE IN EMISSIONS DUE TO SOILS HANDLING

Soils Handling Category	Agitation Factor[a]	Reference
Excavation		
Backhoe	2.5-28	50
Dragline	-	
Scraper	-	
Bulldozer	36-63	51
Transport		
Conveyor Belt	36	51
Truck	-	
Dumping[b]	42-72	51
Storage		
Short-term[c]	10	51
Long-term	1	Assumed
Stabilization	-	
Grading[d]	4 (2-9) 2.5-38	52 53

[a] Multiply agitation factor by baseline emissions estimate (BEE) to calculate VOC emission factor.

[b] Values from crushing of ore.

[c] <4 days.

[d] Values from tilling of waste.

- = No data available

1.1.1.1. From Soil Surface

ref. is Mackay & Matsugu 1973

description	units	variable		value	allowed range	typical value
<<------------- Output ------------>>						
mass flux per unit area	(moles/m²-hr)	Q/Ac	=	1.02E-04	= 1.77 x 10⁻⁶ g/m²-s	
<<------------- Input Variables -->>						
windspeed	m/hr	U	=	16092		
pool diameter or diameter of waste boundary	m	Dp	=	1		
Schmidt gas number	–	Sc	=	1.33		
vapor press of the vol at the surface	atm	P	=	0.0001		
pool temperature or temp of waste surface	°K	Tp	=	293		293°K
dist from soil surface down to surface of waste at time 0	m	ho	=	0		0 at surface
Henry's law constant	m³-atm/mol	H	=	0.086		
length of time waste at present location	hr	t	=	1		
air diffusion coeff of contaminant	m²/hr	Do	=	0.0382		
soil type constant	–	gamma	=	0.9	0.8 ■ gamma ■ 1.0	
total porosity	–	epsln_t	=	0.45	0 ■ epsln_t ■ 1	
air filled porosity	–	epsln_a	=	0.4		
soil type constant	–	μ	=	2.6		
<<------------- Intermediates (auto-calcs) ------------>>						
vapor phase mass transfer coeff into air	m/hr	ka	=	46.08		
vapor phase mass transfer coeff through soil	m/hr	ks	=	2.46E-02		
effective diffusion coeff of contaminant	m²/hr	De	=	0.00		
dist from soil surface down to surface of waste at time t	m	h	=	0.18		
overall mass transfer coeff	m/hr	k	=	0.024550734261		
<<------------- Constants ------------>>						
vapor press of the vol in the atmosphere	atm	P_inf	=	0		
gas constant	atm-m³/mole-°K	R	=	8.21E-05		

9/45

COMPOUND	COUNT	AVERAGE	STD.DEV	95%ile	COEF OF VARIATION	NORMAL?

COMPOUND	COUNT	AVERAGE	STD.DEV	95%ile	COEF OF VARIATION	NORMAL?
VOCs						
Vinyl Chloride	66	436.96	1792.10	799.84	4.10	NOT NORMAL
Acetone	66	258.69	592.90	378.74	2.29	NOT NORMAL
Carbon Disulfide	65	117.34	207.63	159.70	1.77	NOT NORMAL
1,1-Dichloroethene	65	119.33	207.29	161.63	1.74	NOT NORMAL
1,2-Dichloroethene (total)	66	5095.05	12707.04	7668.05	2.49	NOT NORMAL
Chloroform	50	9.70	8.08	11.58	0.83	
1,2-Dichloroethane	65	108.94	197.25	149.19	1.81	NOT NORMAL
2-Butanone	50	13.44	9.96	15.76	0.74	
Trichloroethene	65	23764.52	91096.36	42351.56	3.83	NOT NORMAL
Benzene	11	3.27	0.90	3.72	0.28	
Tetrachloroethene	11	3.45	1.21	4.06	0.35	
Toluene	66	260.14	841.28	430.48	3.23	NOT NORMAL
Chlorobenzene	66	224.41	873.47	401.27	3.89	NOT NORMAL
Ethylbenzene	66	170.02	358.46	242.61	2.11	NOT NORMAL
Xylene (total)	66	732.07	2749.52	1288.81	3.76	NOT NORMAL
SEMIVOLATILES						
Phenol	70	515.43	1645.82	839.02	3.19	NOT NORMAL
2-Nitrophenol	70	334.00	221.30	377.51	0.66	
Benzoic acid	4	518.50	665.20	1188.69	1.28	NOT NORMAL
Naphthalene	70	407.50	518.86	509.52	1.27	NOT NORMAL
2-Methylnaphthalene	70	514.11	754.55	662.47	1.47	NOT NORMAL
Acenaphthylene	49	219.06	95.37	241.47	0.44	
Acenaphthene	70	334.81	287.22	391.29	0.86	
4-Nitrophenol	42	558.24	330.11	642.03	0.59	
Dibenzofuran	71	865.37	4479.03	1739.79	5.18	NOT NORMAL
2,4-Dinitrotoluene	70	344.71	279.30	399.63	0.81	
Fluorene	70	344.81	291.04	402.04	0.84	
N-Nitrosodiphenylamine (1)	37	193.65	22.29	199.68	0.12	
Phenanthrene	70	360.56	347.79	428.94	0.96	
Anthracene	70	333.76	289.72	390.72	0.87	
Di-n-butylphthalate	70	327.86	291.49	385.17	0.89	
Fluoranthene	70	372.90	374.10	446.45	1.00	NOT NORMAL
Pyrene	70	340.10	363.99	411.67	1.07	NOT NORMAL
Benzo(a)anthracene	70	348.26	302.50	407.73	0.87	
Chrysene	70	329.55	302.27	388.98	0.92	
bis(2-Ethylhexyl)phthalate	70	398.69	322.07	462.01	0.81	
Di-n-octylphthalate	39	175.00	55.01	189.49	0.31	
Benzo(b)fluoranthene	70	349.83	299.91	408.80	0.86	
benzo(k)fluoranthene	70	331.86	295.07	389.87	0.89	
Benzo(a)pyrene	70	337.80	295.82	395.96	0.88	
Indeno(1,2,3-cd)pyrene	70	329.54	288.65	386.30	0.88	
Dibenz(a,h)anthracene	70	332.01	285.61	388.17	0.86	
Benzo(g,h,i)perylene	70	318.13	291.34	375.41	0.92	

10/45

COMPOUND	COUNT	AVERAGE	STD.DEV	95%ile	COEF OF VARIATION	NORMAL?
PESTICIDES/PCBs						
Heptachlor	77	5.73	4.02	6.48	0.70	
Dieldrin	77	11.45	8.10	12.97	0.71	
4,4'-DDE	77	22.58	39.76	30.04	1.76	NOT NORMAL
4,4'-DDD	77	14.44	11.71	16.64	0.81	
4,4'-DDT	77	16.51	22.33	20.69	1.35	NOT NORMAL
Aroclor-1242	70	59.90	37.71	67.32	0.63	
Aroclor-1260	77	172.29	148.03	200.04	0.86	
HERBICIDES						
2,4-DB	61	38.93	56.00	50.72	1.44	NOT NORMAL
2,4,5-TP (Silvex)	61	2.89	0.18	2.93	0.06	
MCPP	61	2908.20	167.13	2943.40	0.06	
METALS						
Aluminum	61	14913.61	3284.98	15605.49	0.22	
Antimony	61	3.83	1.68	4.19	0.44	
Arsenic	61	5.28	5.53	6.44	1.05	NOT NORMAL
Barium	61	79.38	31.55	86.02	0.40	
Beryllium	40	0.68	0.15	0.72	0.22	
Cadmium	61	1.70	1.60	2.04	0.94	
Calcium	61	32108.03	35534.07	39592.24	1.11	NOT NORMAL
Chromium	61	23.83	4.40	24.75	0.18	
Cobalt	61	12.35	2.73	12.93	0.22	
Copper	61	29.04	18.98	33.04	0.65	
Iron	61	29121.31	6483.91	30486.96	0.22	
Lead	59	43.08	95.53	63.54	2.22	NOT NORMAL
Magnesium	61	7408.20	2972.29	8034.22	0.40	
Manganese	61	656.69	286.17	716.96	0.44	
Mercury	57	0.06	0.11	0.09	1.76	NOT NORMAL
Nickel	61	36.16	7.83	37.81	0.22	
Potassium	61	1556.41	447.02	1650.56	0.29	
Selenium	61	0.30	0.35	0.37	1.17	NOT NORMAL
Silver	61	0.47	0.24	0.52	0.51	
Sodium	60	118.28	97.50	138.99	0.82	
Vanadium	57	21.71	4.41	22.67	0.20	
Zinc	61	300.23	689.36	445.42	2.30	NOT NORMAL
Cyanide	61	0.34	0.14	0.37	0.41	

12/45

09/23/93

COMPOUND	COUNT	AVERAGE	STD.DEV	95%ile	COEF OF VARIATION	NORMAL?
VOCs						
Vinyl Chloride	66	436.96	1792.10	799.84	4.10	NOT NORMAL
Chloroethane	0	ERR	ERR	3.00	0.00	
Acetone	66	258.69	592.90	378.74	2.29	NOT NORMAL
Carbon Disulfide	65	117.34	207.63	159.70	1.77	NOT NORMAL
1,1-Dichloroethene	65	119.33	207.29	161.63	1.74	NOT NORMAL
1,2-Dichloroethene (total)	66	5095.05	12707.04	7668.05	2.49	NOT NORMAL
Chloroform	50	9.70	8.08	11.58	0.83	
1,2-Dichloroethane	65	108.94	197.25	149.19	1.81	NOT NORMAL
2-Butanone	50	13.44	9.96	15.76	0.74	
1,1,1-Trichloroethane	0	ERR	ERR	3.00	0.00	
Trichloroethene	65	23764.52	91096.36	42351.56	3.83	NOT NORMAL
Benzene	11	3.27	0.90	3.72	0.28	
Tetrachloroethene	11	3.45	1.21	4.06	0.35	
Toluene	66	260.14	841.28	430.48	3.23	NOT NORMAL
Chlorobenzene	66	224.41	873.47	401.27	3.89	NOT NORMAL
Ethylbenzene	66	170.02	358.46	242.61	2.11	NOT NORMAL
Xylene (total)	66	732.07	2749.52	1288.81	3.76	NOT NORMAL
SEMIVOLATILES						
Phenol	70	515.43	1645.82	839.02	3.19	NOT NORMAL
bis(2-Chloroethyl) ether	0	ERR	ERR	9.00	0.00	
2-Nitrophenol	70	334.00	221.30	377.51	0.66	
Benzoic acid	4	518.50	665.20	1188.69	1.28	NOT NORMAL
Naphthalene	70	407.50	518.86	509.52	1.27	NOT NORMAL
2-Methylnaphthalene	70	514.11	754.55	662.47	1.47	NOT NORMAL
Acenaphthylene	49	219.06	95.37	241.47	0.44	
Acenaphthene	70	334.81	287.22	391.29	0.86	
4-Nitrophenol	42	558.24	330.11	642.03	0.59	
Dibenzofuran	71	865.37	4479.03	1739.79	5.18	NOT NORMAL
2,4-Dinitrotoluene	70	344.71	279.30	399.63	0.81	
Fluorene	70	344.81	291.04	402.04	0.84	
N-Nitrosodiphenylamine (1)	37	193.65	22.29	199.68	0.12	
Phenanthrene	70	360.56	347.79	428.94	0.96	
Anthracene	70	333.76	289.72	390.72	0.87	
Di-n-butylphthalate	70	327.86	291.49	385.17	0.89	
Fluoranthene	70	372.90	374.10	446.45	1.00	NOT NORMAL
Pyrene	70	340.10	363.99	411.67	1.07	NOT NORMAL
Butylbenzylphthalate	1	140.00	ERR	ERR	ERR	ERR
Benzo(a)anthracene	70	348.26	302.50	407.73	0.87	
Chrysene	70	329.55	302.27	388.98	0.92	
bis(2-Ethylhexyl)phthalate	70	398.69	322.07	462.01	0.81	
Di-n-octylphthalate	39	175.00	55.01	189.49	0.31	
Benzo(b)fluoranthene	70	349.83	299.91	408.80	0.86	
benzo(k)fluoranthene	70	331.86	295.07	389.87	0.89	
Benzo(a)pyrene	70	337.80	295.82	395.96	0.88	
Indeno(1,2,3-cd)pyrene	70	329.54	288.65	386.30	0.88	
Dibenz(a,h)anthracene	70	332.01	285.61	388.17	0.86	
Benzo(g,h,i)perylene	70	318.13	291.34	375.41	0.92	
PESTICIDES/PCBs						
Heptachlor	77	5.73	4.02	6.48	0.70	
Dieldrin	77	11.45	8.10	12.97	0.71	
4,4'-DDE	77	22.58	39.76	30.04	1.76	NOT NORMAL
4,4'-DDD	77	14.44	11.71	16.64	0.81	
4,4'-DDT	77	16.51	22.33	20.69	1.35	NOT NORMAL
Aroclor-1242	70	59.90	37.71	67.32	0.63	
Aroclor-1260	77	172.29	148.03	200.04	0.86	
HERBICIDES						
2,4-DB	61	38.93	56.00	50.72	1.44	NOT NORMAL
2,4,5-TP (Silvex)	61	2.89	0.18	2.93	0.06	
MCPP	61	2908.20	167.13	2943.40	0.06	
METALS						
Aluminum	61	14913.61	3284.98	15605.49	0.22	
Antimony	61	3.83	1.68	4.19	0.44	
Arsenic	61	5.28	5.53	6.44	1.05	NOT NORMAL
Barium	61	79.38	31.55	86.02	0.40	
Beryllium	40	0.68	0.15	0.72	0.22	
Cadmium	61	1.70	1.60	2.04	0.94	
Calcium	61	32108.03	35534.07	39592.24	1.11	NOT NORMAL
Chromium	61	23.83	4.40	24.75	0.18	
Cobalt	61	12.35	2.73	12.93	0.22	
Copper	61	29.04	18.98	33.04	0.65	
Iron	61	29121.31	6483.91	30486.96	0.22	
Lead	59	43.08	95.53	63.54	2.22	NOT NORMAL
Magnesium	61	7408.20	2972.29	8034.22	0.40	
Manganese	61	656.69	286.17	716.96	0.44	
Mercury	57	0.06	0.11	0.09	1.76	NOT NORMAL
Nickel	61	36.16	7.83	37.81	0.22	
Potassium	61	1556.41	447.02	1650.56	0.29	
Selenium	61	0.30	0.35	0.37	1.17	NOT NORMAL
Silver	61	0.47	0.24	0.52	0.51	
Sodium	60	118.28	97.50	138.99	0.82	
Vanadium	57	21.71	4.41	22.67	0.20	
Zinc	61	300.23	689.36	445.42	2.30	NOT NORMAL
Cyanide	61	0.34	0.14	0.37	0.41	

Compound	Concentration in Soil (ug/kg)	Theoretical Oil Concentration for 0.1 g/cm3 (ug/g)	Peak Emission Rate 1st 15 Min. (g/s−m2)	Short Term Emission Rate 1st Day (g/s−m2)
Vinyl chloride	799.8	11.92	1.41E−05	2.83E−06
Acetone	378.7	5.64	2.28E−06	4.68E−07
Carbon disulfide	159.7	2.38	1.03E−06	2.12E−07
1,1−Dichloroethene	161.63	2.41	1.17E−06	2.40E−07
1,2−Dichloroethene (total)	7668	114.25	3.08E−05	6.33E−06
Chloroform	11.58	0.17	5.56E−08	1.14E−08
1,2−Dichloroethane	149.2	2.22	4.48E−07	9.25E−08
2−Butanone	15.76	0.23	4.58E−08	9.45E−09
Trichloroethene	42351	631.03	1.07E−04	2.22E−05
Benzene	3.72	0.06	1.22E−08	2.51E−09
Tetrachloroethene	4.06	0.06	4.85E−09	1.01E−09
Toluene	430.5	6.41	7.20E−07	1.50E−07
Chlorobenzene	401.3	5.98	3.82E−07	8.02E−08
Ethylbenzene	242.6	3.61	2.14E−07	4.52E−08
Xylene	1288	19.19	1.02E−06	2.16E−07

SPECIFIED PARAMETERS FOR LAND TREATMENT
seneca

wind (cm/s)	447
Temp (C)	25
Oil content of waste (fraction)	.1
concentration of compound (ppm)	0
Time between applications (days)	365.25
Waste loading (g oil/cc soil)	.1
Thickness of contaminated soil (cm)	30
Area of land treatment (m2)	100
Aqueous waste, =1	0
Biomass density	.000001
Total porosity	.45
Air porosity	.4
width of land treatment area (meters)	158
length of land treatment area (meters)	158
amount of waste applied (gallons)	0
fraction liquid in waste	0
ETHYLBENZENE	3.61 ppmw
METHYL ETHYL KETONE	.23 ppmw
TETRACHLOROETHENE	.06 ppmw
TOLUENE	6.41 ppmw
TRICHLOROETHYLENE	631.03 ppmw
VINYL CHLORIDE	11.92 ppmw
XYLENE	19.19 ppmw

STATUS CHECK

Waste loading (g oil/cc soil) is relatively large.
Time between applications (days) is relatively large.

15/45

CALCULATED VALUES FROM SPECIFICATIONS

SOURCE: land treatment

The area for waste application is 100 m2 (0 acres).

The waste application volume is 28 m3 (7500 gallons).

The tilling depth is 30.0 cm.(11.8 inches).

compound partitions into the oil that is present.

Biomass is present for biodegradation.

The wind speed is 4.5 m/s (10.0 M.P.H.)

The temperature is 25.0 deg. C (77.0 deg. F)

SOURCE: land treatment
COMPOUND: ETHYLBENZENE

Equilibrium Keq	6.066909E-04
biological time const days-1	147155.8
maximum fraction biodegraded	3.383219E-03
fraction biodegraded during time period	1.318276E-03
fraction emitted during time period	.6746765
residual comcentration in oil (ppmw)	1.169659
diffusion coef cm2/s	1.751847E-02
emission rate during time period (g/s)	2.315368E-07
(Mg/year)	7.301746E-06
emission factor (g/cm2-s)	2.315368E-13
Short term emissions, first day (g/s)	4.517896E-06
Peak emissions, fifteen minutes (g/s)	2.144611E-05

The reference emission factor is 5.882279E-14 g/cm2-sec.

COMPOUND PROPERTIES OF ETHYLBENZENE

Type of compound	A aromatic
density (g/cc)	.87
molecular weight	106.2
diffusion coef. air (cm2/s)	.075
vapor pressure (mm Hg)	10
Henry's law constant (atm m3/mol)	.00644
vapor pressure temp. coefficients	6.975
	1424.255
	213.21
biorate constant Kmax (mg/g-l-hr)	6.8
UNIFAC code	31=115:0000000

STATUS CHECK

The estimated vapor pressure is 9.88 mm Hg.

SOURCE: land treatment
COMPOUND: METHYL ETHYL KETONE

Equilibrium Keq	6.06691E-03
biological time const days-1	500329.9
maximum fraction biodegraded	1.259744E-03
fraction biodegraded during time period	6.094296E-05
fraction emitted during time period	.9982697
residual comcentration in oil (ppmw)	3.839574E-04
diffusion coef cm2/s	1.887323E-02
emission rate during time period (g/s)	2.182695E-08
(Mg/year)	6.883346E-07
emission factor (g/cm2-s)	2.182695E-14
Short term emissions, first day (g/s)	9.447842E-07
Peak emissions, fifteen minutes (g/s)	4.582643E-06

The reference emission factor is 5.179344E-15 g/cm2-sec.

COMPOUND PROPERTIES OF METHYL ETHYL KETONE

Type of compound	0 oxygenate	
density (g/cc)		.82
molecular weight		72.1
diffusion coef. air (cm2/s)		.0808
vapor pressure (mm Hg)		100
Henry's law constant (atm m3/mol)		.0000435
vapor pressure temp. coefficients		6.97421
		1209.6
		216
biorate constant Kmax (mg/g-l-hr)		2
UNIFAC code		311121C0000000

STATUS CHECK

biorate constant Kmax (mg/g-l-hr) is relatively low.
The estimated vapor diffusion coefficient is .1347373 cm2/s
The estimated vapor pressure is 90.17252 mm Hg.

SOURCE: land treatment
COMPOUND: TETRACHLOROETHENE

Equilibrium Keq	1.152713E-03
biological time const days-1	92998.12
maximum fraction biodegraded	3.094673E-03
fraction biodegraded during time period	.0015475
fraction emitted during time period	.8459325
residual comcentration in oil (ppmw)	9.151201E-03
diffusion coef cm2/s	1.681773E-02
emission rate during time period (g/s)	4.825077E-09
(Mg/year)	1.521636E-07
emission factor (g/cm2-s)	4.825077E-15
Short term emissions, first day (g/s)	1.014126E-07
Peak emissions, fifteen minutes (g/s)	4.854595E-07

The reference emission factor is 1.012803E-15 g/cm2-sec.

COMPOUND PROPERTIES OF TETRACHLOROETHENE

Type of compound	C chlorinated
density (g/cc)	1.624
molecular weight	165.83
diffusion coef. air (cm2/s)	.072
vapor pressure (mm Hg)	19
Henry's law constant (atm m3/mol)	.029
vapor pressure temp. coefficients	6.976
	1386.92
	217.53
biorate constant Kmax (mg/g-1-hr)	10.76
UNIFAC code	2194v000000000

STATUS CHECK

density (g/cc) is relatively high.
The estimated vapor diffusion coefficient is .0318 cm2/s
The estimated vapor pressure is 18.088 mm Hg.

k1 UNF bio df C

SOURCE: land treatment
COMPOUND: TOLUENE

Equilibrium Keq	1.820073E-03
biological time const days-1	13618.12
maximum fraction biodegraded	7.941008E-03
fraction biodegraded during time period	6.513208E-03
fraction emitted during time period	.9597321
residual comcentration in oil (ppmw)	.2163679
diffusion coef cm2/s	2.032142E-02
emission rate during time period (g/s)	5.848241E-07
(Mg/year)	1.844301E-05
emission factor (g/cm2-s)	5.848241E-13
Short term emissions, first day (g/s)	1.496466E-05
Peak emissions, fifteen minutes (g/s)	7.20146E-05

The reference emission factor is 7.185387E-14 g/cm2-sec.

COMPOUND PROPERTIES OF TOLUENE

Type of compound	A aromatic	
density (g/cc)		.87
molecular weight		92.4
diffusion coef. air (cm2/s)		.087
vapor pressure (mm Hg)		30
Henry's law constant (atm m3/mol)		.00668
vapor pressure temp. coefficients		6.954
		1344.8
		219.48
biorate constant Kmax (mg/g-l-hr)		73.48
UNIFAC code		25:1<000000000

STATUS CHECK

biorate constant Kmax (mg/g-l-hr) is relatively high.
The estimated vapor pressure is 28.348 mm Hg.

20/45

SOURCE: land treatment
COMPOUND: TRICHLOROETHYLENE

Equilibrium Keq	4.550182E-03
biological time const days-1	256579.4
maximum fraction biodegraded	1.358926E-03
fraction biodegraded during time period	1.610189E-04
fraction emitted during time period	.9976444
residual comcentration in oil (ppmw)	1.384831
diffusion coef cm2/s	1.845279E-02
emission rate during time period (g/s)	5.98471E-05
(Mg/year)	1.887338E-03
emission factor (g/cm2-s)	5.98471E-11
Short term emissions, first day (g/s)	2.219694E-03
Peak emissions, fifteen minutes (g/s)	1.074961E-02

The reference emission factor is 1.393892E-11 g/cm2-sec.

COMPOUND PROPERTIES OF TRICHLOROETHYLENE

Type of compound	C chlorinated	
density (g/cc)		1.4
molecular weight		131.4
diffusion coef. air (cm2/s)		.079
vapor pressure (mm Hg)		75
Henry's law constant (atm m3/mol)		.0091
vapor pressure temp. coefficients		6.518
		1018.6
		192.7
biorate constant Kmax (mg/g-l-hr)		3.9
UNIFAC code		21^1b000000000

STATUS CHECK

density (g/cc) is relatively high.
biorate constant Kmax (mg/g-l-hr) is relatively low.
The estimated vapor diffusion coefficient is .0465 cm2/s
The estimated vapor pressure is 69.008 mm Hg.

2/45

SOURCE: land treatment
COMPOUND: VINYL CHLORIDE

Equilibrium Keq	.1613798
biological time const days-1	92998.12
maximum fraction biodegraded	1.209199E-03
fraction biodegraded during time period	1.562876E-05
fraction emitted during time period	.9983606
residual comcentration in oil (ppmw)	1.935566E-02
diffusion coef cm2/s	2.475943E-02
emission rate during time period (g/s)	1.131308E-06
(Mg/year)	3.567694E-05
emission factor (g/cm2-s)	1.131308E-12
Short term emissions, first day (g/s)	2.830065E-04
Peak emissions, fifteen minutes (g/s)	1.414397E-03

The reference emission factor is 2.711327E-13 g/cm2-sec.

COMPOUND PROPERTIES OF VINYL CHLORIDE

Type of compound C chlorinated	
density (g/cc)	.91
molecular weight	62.5
diffusion coef. air (cm2/s)	.106
vapor pressure (mm Hg)	2660
Henry's law constant (atm m3/mol)	.086
vapor pressure temp. coefficients	3.42486
	1000
	273.16
biorate constant Kmax (mg/g-1-hr)	10.76
UNIFAC code	

STATUS CHECK

The estimated vapor diffusion coefficient is .1583757 cm2/s
The estimated vapor pressure is 1.1704 mm Hg.

k1 low bio df C a df a df

SOURCE: land treatment
COMPOUND: XYLENE

Equilibrium Keq	5.156873E-04
biological time const days-1	24525.97
maximum fraction biodegraded	1.711321E-02
fraction biodegraded during time period	8.483052E-03
fraction emitted during time period	.6104454
residual comcentration in oil (ppmw)	7.312764
diffusion coef cm2/s	1.667758E-02
emission rate during time period (g/s)	1.113625E-06
(Mg/year)	3.511929E-05
emission factor (g/cm2-s)	1.113625E-12
Short term emissions, first day (g/s)	2.160365E-05
Peak emissions, fifteen minutes (g/s)	1.022544E-04

The reference emission factor is 1.392067E-13 g/cm2-sec.

COMPOUND PROPERTIES OF XYLENE

Type of compound A aromatic	
density (g/cc)	1.02
molecular weight	106.2
diffusion coef. air (cm2/s)	.0714
vapor pressure (mm Hg)	8.5
Henry's law constant (atm m3/mol)	.00525
vapor pressure temp. coefficients	.929413
	1000
	273.16
biorate constant Kmax (mg/g-l-hr)	40.8
UNIFAC code	24:2<000000000

STATUS CHECK

The estimated vapor pressure is .003762 mm Hg.

den df A dl cor dv cor a df a df

SUMMARY OF LONG TERM EMISSION FACTORS
seneca

compounds	conc. (ppmw)	emissions (g/s)
ETHYLBENZENE	3.61	2.315368E-07
METHYL ETHYL KETONE	0.23	2.182695E-08
TETRACHLOROETHENE	.600E-01	4.825077E-09
TOLUENE	6.41	5.848241E-07
TRICHLOROETHYLENE	631.03	5.98471E-05
VINYL CHLORIDE	11.92	1.131308E-06
XYLENE	19.19	1.113625E-06

24/45

SPECIFIED PARAMETERS FOR LAND TREATMENT
seneca

wind (cm/s)		447
Temp (C)		25
Oil content of waste (fraction)		.1
concentration of compound (ppm)		0
Time between applications (days)		365.25
Waste loading (g oil/cc soil)		.1
Thickness of contaminated soil (cm)		30
Area of land treatment (m2)		100
Aqueous waste, =1		0
Biomass density		.000001
Total porosity		.45
Air porosity		.4
width of land treatment area (meters)		158
length of land treatment area (meters)		158
amount of waste applied (gallons)		0
fraction liquid in waste		0
ACETONE	5.64 ppmw	
BENZENE	.06 ppmw	
CARBON DISULFIDE	2.38 ppmw	
CHLOROBENZENE	5.98 ppmw	
CHLOROFORM	.17 ppmw	
DICHLOROETHANE(1,2)	2.22 ppmw	
DICHLOROETHYLENE(1,1)	2.41 ppmw	
DICHLOROETHYLENE(1,2)	114.25 ppmw	

STATUS CHECK

Waste loading (g oil/cc soil) is relatively large.
Time between applications (days) is relatively large.

25/45

CALCULATED VALUES FROM SPECIFICATIONS

SOURCE: land treatment

The area for waste application is 100 m2 (0 acres).

The waste application volume is 28 m3 (7500 gallons).

The tilling depth is 30.0 cm.(11.8 inches).

compound partitions into the oil that is present.

Biomass is present for biodegradation.

The wind speed is 4.5 m/s (10.0 M.P.H.)

The temperature is 25.0 deg. C (77.0 deg. F)

SOURCE: land treatment
COMPOUND: ACETONE

Equilibrium Keq	1.613798E-02
biological time const days-1	769738.3
maximum fraction biodegraded	1.209497E-03
fraction biodegraded during time period	1.031009E-05
fraction emitted during time period	.9983603
residual comcentration in oil (ppmw)	9.189893E-03
diffusion coef cm2/s	2.896386E-02
emission rate during time period (g/s)	5.352833E-07
(Mg/year)	1.688069E-05
emission factor (g/cm2-s)	5.352833E-13
Short term emissions, first day (g/s)	4.680906E-05
Peak emissions, fifteen minutes (g/s)	2.280165E-04

The reference emission factor is 1.282799E-13 g/cm2-sec.

COMPOUND PROPERTIES OF ACETONE

Type of compound O oxygenate	
density (g/cc)	.79
molecular weight	58
diffusion coef. air (cm2/s)	.124
vapor pressure (mm Hg)	266
Henry's law constant (atm m3/mol)	.000025
vapor pressure temp. coefficients	7.117
	1210.595
	229.664
biorate constant Kmax (mg/g-l-hr)	1.3
UNIFAC code	2211C000000000

STATUS CHECK

biorate constant Kmax (mg/g-l-hr) is relatively low.
The estimated vapor diffusion coefficient is .1871243 cm2/s
The estimated vapor pressure is 230.8057 mm Hg.

SOURCE: land treatment
COMPOUND: BENZENE

Equilibrium Keq	5.775698E-03
biological time const days-1	52666.3
maximum fraction biodegraded	1.747251E-03
fraction biodegraded during time period	5.581543E-04
fraction emitted during time period	.997795
residual comcentration in oil (ppmw)	9.880801E-05
diffusion coef cm2/s	.020555
emission rate during time period (g/s)	5.691279E-09
(Mg/year)	1.794802E-07
emission factor (g/cm2-s)	5.691279E-15
Short term emissions, first day (g/s)	2.509619E-07
Peak emissions, fifteen minutes (g/s)	1.217166E-06

The reference emission factor is 1.235017E-15 g/cm2-sec.

COMPOUND PROPERTIES OF BENZENE

Type of compound A aromatic	
density (g/cc)	.87
molecular weight	78.1
diffusion coef. air (cm2/s)	.088
vapor pressure (mm Hg)	95.2
Henry's law constant (atm m3/mol)	.0055
vapor pressure temp. coefficients	6.905
	1211.033
	220.79
biorate constant Kmax (mg/g-1-hr)	19
UNIFAC code	16:00000000000

STATUS CHECK

The estimated vapor diffusion coefficient is .1173281 cm2/s
The estimated vapor pressure is 95.02693 mm Hg.

SOURCE: land treatment
COMPOUND: CARBON DISULFIDE

Equilibrium Keq	2.220489E-02
biological time const days-1	65402.59
maximum fraction biodegraded	1.297057E-03
fraction biodegraded during time period	1.060554E-04
fraction emitted during time period	.9982728
residual comcentration in oil (ppmw)	3.858238E-03
diffusion coef cm2/s	2.429227E-02
emission rate during time period (g/s)	2.258622E-07
(Mg/year)	7.12279E-06
emission factor (g/cm2-s)	2.258622E-13
Short term emissions, first day (g/s)	2.121932E-05
Peak emissions, fifteen minutes (g/s)	1.034354E-04

The reference emission factor is 5.320464E-14 g/cm2-sec.

COMPOUND PROPERTIES OF CARBON DISULFIDE

Type of compound	S sulfur	
density (g/cc)		1.26
molecular weight		76.1
diffusion coef. air (cm2/s)		.104
vapor pressure (mm Hg)		366
Henry's law constant (atm m3/mol)		.0168
vapor pressure temp. coefficients		6.942
		1169.11
		241.59
biorate constant Kmax (mg/g-l-hr)		15.3
UNIFAC code		

STATUS CHECK

The estimated vapor pressure is 360.1746 mm Hg.

k1 UNF bio df C k1 low bio df S

SOURCE: land treatment
COMPOUND: CHLOROBENZENE

Equilibrium Keq	7.158953E-04
biological time const days-1	2565794
maximum fraction biodegraded	1.309335E-03
fraction biodegraded during time period	7.146597E-05
fraction emitted during time period	.7164169
residual comcentration in oil (ppmw)	1.6954
diffusion coef cm2/s	1.705131E-02
emission rate during time period (g/s)	4.072717E-07
(Mg/year)	1.284372E-05
emission factor (g/cm2-s)	4.072717E-13
Short term emissions, first day (g/s)	8.020528E-06
Peak emissions, fifteen minutes (g/s)	3.816182E-05

The reference emission factor is 1.333553E-13 g/cm2-sec.

COMPOUND PROPERTIES OF CHLOROBENZENE

Type of compound C chlorinated	
density (g/cc)	1.11
molecular weight	112.6
diffusion coef. air (cm2/s)	.073
vapor pressure (mm Hg)	11.8
Henry's law constant (atm m3/mol)	.00393
vapor pressure temp. coefficients	6.978
	1431.05
	217.55
biorate constant Kmax (mg/g-l-hr)	.39
UNIFAC code	25:1^000000000

STATUS CHECK

biorate constant Kmax (mg/g-l-hr) is relatively low.
The estimated vapor diffusion coefficient is .0635 cm2/s
The estimated vapor pressure is 11.932 mm Hg.

SOURCE: land treatment
COMPOUND: CHLOROFORM

Equilibrium Keq	1.261917E-02
biological time const days-1	340360.4
maximum fraction biodegraded	1.232803E-03
fraction biodegraded during time period	3.4531E-05
fraction emitted during time period	.998337
residual comcentration in oil (ppmw)	2.768346E-04
diffusion coef cm2/s	2.429227E-02
emission rate during time period (g/s)	1.613405E-08
(Mg/year)	5.088034E-07
emission factor (g/cm2-s)	1.613405E-14
Short term emissions, first day (g/s)	1.142605E-06
Peak emissions, fifteen minutes (g/s)	5.560659E-06

The reference emission factor is 3.848678E-15 g/cm2-sec.

COMPOUND PROPERTIES OF CHLOROFORM

Type of compound C chlorinated	
density (g/cc)	1.49
molecular weight	119.4
diffusion coef. air (cm2/s)	.104
vapor pressure (mm Hg)	208
Henry's law constant (atm m3/mol)	.00339
vapor pressure temp. coefficients	6.493
	929.44
	196.03
biorate constant Kmax (mg/g-l-hr)	2.94
UNIFAC code	11c00000000000

STATUS CHECK

density (g/cc) is relatively high.
biorate constant Kmax (mg/g-l-hr) is relatively low.
The estimated vapor diffusion coefficient is .0517 cm2/s
The estimated vapor pressure is 194.0453 mm Hg.

SOURCE: land treatment
COMPOUND: DICHLOROETHANE(1,2)

Equilibrium Keq	4.853528E-03
biological time const days-1	476504.7
maximum fraction biodegraded	1.260936E-03
fraction biodegraded during time period	6.218813E-05
fraction emitted during time period	.9982788
residual comcentration in oil (ppmw)	3.683014E-03
diffusion coef cm2/s	2.429227E-02
emission rate during time period (g/s)	2.106794E-07
(Mg/year)	6.643986E-06
emission factor (g/cm2-s)	2.106794E-13
Short term emissions, first day (g/s)	9.253664E-06
Peak emissions, fifteen minutes (g/s)	4.4853E-05

The reference emission factor is 4.998032E-14 g/cm2-sec.

COMPOUND PROPERTIES OF DICHLOROETHANE(1,2)

Type of compound C chlorinated	
density (g/cc)	1.26
molecular weight	99
diffusion coef. air (cm2/s)	.104
vapor pressure (mm Hg)	80
Henry's law constant (atm m3/mol)	.0012
vapor pressure temp. coefficients	7.025
	1272.3
	222.9
biorate constant Kmax (mg/g-l-hr)	2.1
UNIFAC code	12]00000000000

STATUS CHECK

biorate constant Kmax (mg/g-l-hr) is relatively low.
The estimated vapor diffusion coefficient is .0719 cm2/s
The estimated vapor pressure is 78.09826 mm Hg.

k1 low bio df C a df a df

SOURCE: land treatment
COMPOUND: DICHLOROETHYLENE(1,1)

Equilibrium Keq	3.822153E-02
biological time const days-1	92998.12
maximum fraction biodegraded	1.254857E-03
fraction biodegraded during time period	6.122631E-05
fraction emitted during time period	.998315
residual comcentration in oil (ppmw)	3.913351E-03
diffusion coef cm2/s	1.756518E-02
emission rate during time period (g/s)	2.287188E-07
(Mg/year)	7.212877E-06
emission factor (g/cm2-s)	2.287188E-13
Short term emissions, first day (g/s)	2.397144E-05
Peak emissions, fifteen minutes (g/s)	1.169641E-04

The reference emission factor is 5.432327E-14 g/cm2-sec.

COMPOUND PROPERTIES OF DICHLOROETHYLENE(1,1)

Type of compound	C chlorinated	
density (g/cc)		1.21
molecular weight		97
diffusion coef. air (cm2/s)		.0752
vapor pressure (mm Hg)		630
Henry's law constant (atm m3/mol)		.015
vapor pressure temp. coefficients		6.9722
		1099.4
		237.2
biorate constant Kmax (mg/g-l-hr)		10.76
UNIFAC code		2162v000000000

STATUS CHECK

The estimated vapor pressure is 601.379 mm Hg.

den df A dl cor dv cor a df a df bio df C dl cor dv cor

SOURCE: land treatment
COMPOUND: DICHLOROETHYLENE(1,2)

Equilibrium Keq	1.213382E-02
biological time const days-1	92998.12
maximum fraction biodegraded	1.37645E-03
fraction biodegraded during time period	1.827602E-04
fraction emitted during time period	.9981934
residual comcentration in oil (ppmw)	.1855188
diffusion coef cm2/s	1.719145E-02
emission rate during time period (g/s)	1.084147E-05
(Mg/year)	3.418966E-04
emission factor (g/cm2-s)	1.084147E-11
Short term emissions, first day (g/s)	6.334437E-04
Peak emissions, fifteen minutes (g/s)	3.081097E-03

The reference emission factor is 2.515229E-12 g/cm2-sec.

COMPOUND PROPERTIES OF DICHLOROETHYLENE(1,2)

Type of compound	C chlorinated	
density (g/cc)		1.28
molecular weight		96.95
diffusion coef. air (cm2/s)		.0736
vapor pressure (mm Hg)		200
Henry's law constant (atm m3/mol)		.0319
vapor pressure temp. coefficients		7.0223
		1205.4
		230.6
biorate constant Kmax (mg/g-l-hr)		10.76
UNIFAC code		

STATUS CHECK

The estimated vapor pressure is 202.4324 mm Hg.

k1 df C bio df C dl cor dv cor

SUMMARY OF LONG TERM EMISSION FACTORS
seneca

compounds	conc. (ppmw)	emissions (g/s)
ACETONE	5.64	5.352833E-07
BENZENE	.600E-01	5.691279E-09
CARBON DISULFIDE	2.38	2.258622E-07
CHLOROBENZENE	5.98	4.072717E-07
CHLOROFORM	0.17	1.613405E-08
DICHLOROETHANE(1,2)	2.22	2.106794E-07
DICHLOROETHYLENE(1,1)	2.41	2.287188E-07
DICHLOROETHYLENE(1,2)	114.25	1.084147E-05

SPECIFIED PARAMETERS FOR LAND TREATMENT
seneca

wind (cm/s)		447
Temp (C)		25
Oil content of waste (fraction)		.1
concentration of compound (ppm)		0
Time between applications (days)		365.25
Waste loading (g oil/cc soil)		.1
Thickness of contaminated soil (cm)		30
Area of land treatment (m2)		100
Aqueous waste, =1		0
Biomass density		.000001
Total porosity		.45
Air porosity		.4
width of land treatment area (meters)		158
length of land treatment area (meters)		158
amount of waste applied (gallons)		0
fraction liquid in waste		0
BENZOPYRENE 3,4	5.9 ppmw	
NAPHTHALENE	7.59 ppmw	
NITROPHENOL,4-	9.57 ppmw	
PHENOL	12.5 ppmw	

STATUS CHECK

Waste loading (g oil/cc soil) is relatively large.
Time between applications (days) is relatively large.

CALCULATED VALUES FROM SPECIFICATIONS

SOURCE: land treatment

The area for waste application is 100 m2 (0 acres).

The waste application volume is 28 m3 (7500 gallons).

The tilling depth is 30.0 cm.(11.8 inches).

compound partitions into the oil that is present.

Biomass is present for biodegradation.

The wind speed is 4.5 m/s (10.0 M.P.H.)

The temperature is 25.0 deg. C (77.0 deg. F)

SOURCE: land treatment
COMPOUND: BENZOPYRENE 3,4

Equilibrium Keq	4.604957E-08
biological time const days-1	32175.55
maximum fraction biodegraded	.972598
fraction biodegraded during time period	1.423491E-02
fraction emitted during time period	3.098731E-04
residual comcentration in oil (ppmw)	5.814186
diffusion coef cm2/s	5.278898E-03
emission rate during time period (g/s)	1.738014E-10
(Mg/year)	5.481001E-09
emission factor (g/cm2-s)	1.738014E-16
Short term emissions, first day (g/s)	1.747888E-10
Peak emissions, fifteen minutes (g/s)	3.140446E-08

The reference emission factor is 1.179705E-08 g/cm2-sec.

COMPOUND PROPERTIES OF BENZOPYRENE 3,4

Type of compound	A aromatic	
density (g/cc)		1.02
molecular weight		252.32
diffusion coef. air (cm2/s)		.0226
vapor pressure (mm Hg)		7.590285E-04
Henry's law constant (atm m3/mol)		.000126
vapor pressure temp. coefficients		-3.119722
		1000
		273.16
biorate constant Kmax (mg/g-l-hr)		31.1
UNIFAC code		

STATUS CHECK

molecular weight is relatively high.
diffusion coef. air (cm2/s) is relatively low.
The estimated vapor pressure is 3.3592E-07 mm Hg.

den df A vp hls k1 df A bio df A dl cor dv cor a df a df a df

SOURCE: land treatment
COMPOUND: NAPHTHALENE

Equilibrium Keq	1.395389E-05
biological time const days-1	23561.57
maximum fraction biodegraded	.392375
fraction biodegraded during time period	1.443594E-02
fraction emitted during time period	9.217793E-02
residual comcentration in oil (ppmw)	6.780801
diffusion coef cm2/s	1.378119E-02
emission rate during time period (g/s)	6.650986E-08
(Mg/year)	2.097455E-06
emission factor (g/cm2-s)	6.650986E-14
Short term emissions, first day (g/s)	1.277689E-06
Peak emissions, fifteen minutes (g/s)	5.130601E-06

The reference emission factor is 2.633833E-11 g/cm2-sec.

COMPOUND PROPERTIES OF NAPHTHALENE

Type of compound A aromatic	
density (g/cc)	1.14
molecular weight	128.2
diffusion coef. air (cm2/s)	.059
vapor pressure (mm Hg)	.23
Henry's law constant (atm m3/mol)	.00048
vapor pressure temp. coefficients	7.01
	1733.71
	201.86
biorate constant Kmax (mg/g-1-hr)	42.47
UNIFAC code	28:2;000000000

STATUS CHECK

diffusion coef. air (cm2/s) is relatively low.
The estimated vapor diffusion coefficient is .0526 cm2/s
The estimated vapor pressure is .23256 mm Hg.

SOURCE: land treatment
COMPOUND: NITROPHENOL,4-

Equilibrium Keq	1.33472E-04
biological time const days-1	103160.8
maximum fraction biodegraded	2.522385E-02
fraction biodegraded during time period	2.958387E-03
fraction emitted during time period	.2443542
residual comcentration in oil (ppmw)	7.203219
diffusion coef cm2/s	1.004392E-02
emission rate during time period (g/s)	2.223049E-07
(Mg/year)	7.010606E-06
emission factor (g/cm2-s)	2.223049E-13
Short term emissions, first day (g/s)	4.253589E-06
Peak emissions, fifteen minutes (g/s)	1.938318E-05

The reference emission factor is 1.258414E-12 g/cm2-sec.

COMPOUND PROPERTIES OF NITROPHENOL,4-

Type of compound N nitrogen	
density (g/cc)	1.4
molecular weight	139.11
diffusion coef. air (cm2/s)	.043
vapor pressure (mm Hg)	2.2
Henry's law constant (atm m3/mol)	.00634
vapor pressure temp. coefficients	10.88068
	4417.218
	273.16
biorate constant Kmax (mg/g-1-hr)	9.7
UNIFAC code	34:1B1j0000000

STATUS CHECK

density (g/cc) is relatively high.
diffusion coef. air (cm2/s) is relatively low.
The estimated vapor pressure is 1.1628E-04 mm Hg.

k1 low bio df N dl cor dv cor a vpbp

SOURCE: land treatment
COMPOUND: PHENOL

Equilibrium Keq	2.068816E-05
biological time const days-1	10316.08
maximum fraction biodegraded	.4132372
fraction biodegraded during time period	3.172934E-02
fraction emitted during time period	.1314362
residual comcentration in oil (ppmw)	10.46043
diffusion coef cm2/s	1.915352E-02
emission rate during time period (g/s)	1.561861E-07
(Mg/year)	4.925485E-06
emission factor (g/cm2-s)	1.561861E-13
Short term emissions, first day (g/s)	3.020505E-06
Peak emissions, fifteen minutes (g/s)	1.26384E-05

The reference emission factor is 4.805418E-11 g/cm2-sec.

COMPOUND PROPERTIES OF PHENOL

Type of compound O oxygenate	
density (g/cc)	1.07
molecular weight	94.1
diffusion coef. air (cm2/s)	.082
vapor pressure (mm Hg)	.341
Henry's law constant (atm m3/mol)	4.54E-07
vapor pressure temp. coefficients	7.133
	1516.79
	174.95
biorate constant Kmax (mg/g-l-hr)	97
UNIFAC code	25:1B000000000

STATUS CHECK

biorate constant Kmax (mg/g-l-hr) is relatively high.
The estimated vapor pressure is .35188 mm Hg.

SUMMARY OF LONG TERM EMISSION FACTORS
seneca

compounds	conc. (ppmw)	emissions (g/s)
BENZOPYRENE 3,4	5.90	1.738014E-10
NAPHTHALENE	7.59	6.650986E-08
NITROPHENOL,4-	9.57	2.223049E-07
PHENOL	12.50	1.561861E-07

SOURCE: land treatment
COMPOUND: DDD,p,p'-

Equilibrium Keq	6.188248E-11
biological time const days-1	65402.59
maximum fraction biodegraded	.9988101
fraction biodegraded during time period	5.662252E-03
fraction emitted during time period	6.626456E-06
residual comcentration in oil (ppmw)	.2485828
diffusion coef cm2/s	3.643841E-03
emission rate during time period (g/s)	1.574848E-13
(Mg/year)	4.96644E-12
emission factor (g/cm2-s)	1.574848E-19
Short term emissions, first day (g/s)	1.579237E-13
Peak emissions, fifteen minutes (g/s)	1.691443E-12

The reference emission factor is 2.651003E-07 g/cm2-sec.

COMPOUND PROPERTIES OF DDD,p,p'-

Type of compound P pesticide	
density (g/cc)	1.18
molecular weight	320.05
diffusion coef. air (cm2/s)	.0156
vapor pressure (mm Hg)	1.02E-06
Henry's law constant (atm m3/mol)	2.147726E-05
vapor pressure temp. coefficients	-5.991361
	1000
	273.16
biorate constant Kmax (mg/g-1-hr)	15.3
UNIFAC code	

STATUS CHECK

molecular weight is relatively high.
diffusion coef. air (cm2/s) is relatively low.
The estimated vapor pressure is 4.5144E-10 mm Hg.

den df P Hl vps k1 low bio df P dl cor dv cor a df a df

SOURCE: land treatment
COMPOUND: DDE,p,p'-

Equilibrium Keq	3.943491E-10
biological time const days-1	65402.59
maximum fraction biodegraded	.9969802
fraction biodegraded during time period	5.805484E-03
fraction emitted during time period	1.681754E-05
residual comcentration in oil (ppmw)	.4473799
diffusion coef cm2/s	3.682919E-03
emission rate during time period (g/s)	7.194362E-13
(Mg/year)	2.268814E-11
emission factor (g/cm2-s)	7.194362E-19
Short term emissions, first day (g/s)	7.214415E-13
Peak emissions, fifteen minutes (g/s)	1.931724E-11

The reference emission factor is 7.408612E-08 g/cm2-sec.

COMPOUND PROPERTIES OF DDE,p,p'-

Type of compound	P pesticide	
density (g/cc)		1.18
molecular weight		318.03
diffusion coef. air (cm2/s)		.0157673
vapor pressure (mm Hg)		.0000065
Henry's law constant (atm m3/mol)		6.800052E-05
vapor pressure temp. coefficients		-5.187053
		1000
		273.16
biorate constant Kmax (mg/g-1-hr)		15.3
UNIFAC code		

STATUS CHECK

molecular weight is relatively high.
diffusion coef. air (cm2/s) is relatively low.
The estimated vapor pressure is 2.8728E-09 mm Hg.

den df P Hl vps k1 low bio df P dl cor dv cor a df a df

SOURCE: land treatment
COMPOUND: DDT

Equilibrium Keq	9.100365E-12
biological time const days-1	65402.59
maximum fraction biodegraded	.9995724
fraction biodegraded during time period	5.602541E-03
fraction emitted during time period	2.381352E-06
residual comcentration in oil (ppmw)	.3082625
diffusion coef cm2/s	3.20004E-03
emission rate during time period (g/s)	7.017824E-14
(Mg/year)	2.213141E-12
emission factor (g/cm2-s)	7.017824E-20
Short term emissions, first day (g/s)	7.037385E-14
Peak emissions, fifteen minutes (g/s)	2.840798E-13

The reference emission factor is 2.545335E-06 g/cm2-sec.

COMPOUND PROPERTIES OF DDT

Type of compound P pesticide	
density (g/cc)	1.18
molecular weight	354.49
diffusion coef. air (cm2/s)	.0137
vapor pressure (mm Hg)	1.5E-07
Henry's law constant (atm m3/mol)	.114
vapor pressure temp. coefficients	15.19374
	6564.769
	273.16
biorate constant Kmax (mg/g-1-hr)	15.3
UNIFAC code	58:1>1d2f1;000

STATUS CHECK

molecular weight is relatively high.
diffusion coef. air (cm2/s) is relatively low.
The estimated vapor pressure is 1.4972E-07 mm Hg.

den df P k1 low bio df P dl cor dv cor a vpbp

SOURCE: land treatment
COMPOUND: DIELDRIN

Equilibrium Keq	1.092044E-11
biological time const days-1	65402.59
maximum fraction biodegraded	.9995525
fraction biodegraded during time period	.0056041
fraction emitted during time period	2.491775E-06
residual comcentration in oil (ppmw)	.1889347
diffusion coef cm2/s	2.919744E-03
emission rate during time period (g/s)	4.500697E-14
(Mg/year)	1.41934E-12
emission factor (g/cm2-s)	4.500697E-20
Short term emissions, first day (g/s)	4.513242E-14
Peak emissions, fifteen minutes (g/s)	1.964459E-13

The reference emission factor is 1.42484E-06 g/cm2-sec.

COMPOUND PROPERTIES OF DIELDRIN

Type of compound P pesticide	
density (g/cc)	1.18
molecular weight	380.93
diffusion coef. air (cm2/s)	.0125
vapor pressure (mm Hg)	1.8E-07
Henry's law constant (atm m3/mol)	.0000584
vapor pressure temp. coefficients	-6.744684
	1000
	273.16
biorate constant Kmax (mg/g-1-hr)	15.3
UNIFAC code	

STATUS CHECK

molecular weight is relatively high.
diffusion coef. air (cm2/s) is relatively low.
The estimated vapor pressure is 7.904E-11 mm Hg.

den df P k1 df P bio df P dl cor dv cor a df a df

ES ENGINEERING-SCIENCE, INC.

Client	Seneca Army Depot	Job No.	720489-01000	Sheet	1 of 20
Subject	Ash Landfill Removal Action	By	DMK	Date	10/14/93
	Thermal Desorption Air Emissions	Checked		Rev.	

Estimate Air Emissions from Thermal Desorption Unit

<u>Inputs</u>

1) Mass throughputs
   - Use 95th percentile U.C.L. concentration for average soil concentrations to calculate annual concentrations
   - Use maximum concentrations for short-term concentrations

2) Unit specifications

Weston -
- 8" diameter stack
- 15' tall stack
- 70°F Temperature
- 1400 acfm
- 20 tons per hour

Canonie -
- 2.2' diameter stack
- 15' tall stack
- 100°F temperature
- 17,208 acfm
- 20 tons per hour

<u>Assumptions</u>

1) No emissions controls
2) 2 months of operation
3) Nearest receptor is at SEDA boundary - 260 m from source

<u>Calculations</u>

calculate potential emissions (lb/hour) use vinyl chloride as example

$$P.E.\ (lb/hr) = C\ (\mu g/kg) \times 20\ tons/hour \times \frac{2000\ lb}{ton} \times \frac{1\ kg}{2.2\ lb} \times \frac{1\ lb}{454 \times 10^6\ \mu g}$$

$$= (799.8)(0.00004)$$

$$\boxed{= 0.032}$$

ES ENGINEERING-SCIENCE, INC.

Client: Seneca Army Depot — Job No. 720489-01000 — Sheet 2 of 20

Subject: Ash Landfill Removal Action — By: DMK — Date: 10/14/93

Thermal Desorption Air Emissions — Checked: — Rev.:

Convert to g/sec

$0.032\ \text{lb/hour} \times 454\ \text{g/lb} \times \frac{1\ \text{hour}}{3600\ \text{sec}} = \boxed{0.004\ \text{g/sec}}$

Next, run SCREEN model to estimate concentrations at receptor. Use a 1 g/sec source · estimate 1-hour impact

Max concentration = 749.8 µg/m³

Scale for actual source = 0.004 g/sec

$0.004\ \text{g/sec} \times 749.8 = 2.99\ \mu g/m^3$ at receptor

Next, estimate annual impact

Annual = 0.1 × 1-hour
= 0.1 × 2.99
= 0.3

Next, estimate based on 2 months unit will run

$\boxed{0.3/6 = 0.05\ \mu g/m^3}$

Thermal Desorption Air Emissions Estimate
Weston Unit – 20 Tons per Hour Throughput

Compound	95th % UCL Concentration in Soil (ug/kg)	Maximum Concentration in Soil (ug/kg)	Average Mass Throughput (grams per hour)	Average Potential Emissions (lb/hr)	Average Potential Emissions (g/sec)	Maximum Potential Emissions (lb/hr)	Maximum Potential Emissions (g/sec)	Adjusted Annual Concentration (ug/m3)	AGC (ug/m3)	Maximum Short–term Concentration (ug/m3)	SGC (ug/m3)
Volatiles											
Vinyl chloride	799.8	1000	15	0.0320	0.004035	0.04	0.005044	**0.050**	0.02	3.78	1300
Acetone	378.7	680	7	0.0151	0.00191	0.03	0.00343	0.024	14000	2.57	140,000
Carbon disulfide	159.7	120	3	0.0064	0.000806	0.00	0.000605	0.0101	7	0.45	710
1,1–Dichloroethene	161.63	140	3	0.0065	0.000815	0.01	0.000706	0.0102	0.02	0.53	2,000
1,2–Dichloroethene (total)	7668	79000	139	0.3067	0.038681	3.16	0.398511	0.483	1900	298.80	190,000
Chloroform	11.58	32	0	0.0005	0.000058	0.00	0.000161	0.0007	23	0.12	980
1,2–Dichloroethane	149.2	210	3	0.0060	0.000753	0.01	0.001059	0.0094	0.039	0.79	950
2–Butanone	15.76	22	0	0.0006	0.00008	0.00	0.000111	0.00099	300	0.08	140,000
Trichloroethene	42351	540000	770	1.6940	0.213637	21.60	2.724	**2.670**	0.45	2042.46	33,000
Benzene	3.72	6	0	0.0001	0.000019	0.00	0.00003	0.00023	0.12	0.02	30
Tetrachloroethene	4.06	7	0	0.0002	0.00002	0.00	0.000035	0.00026	0.075	0.03	81,000
Toluene	430.5	5700	8	0.0172	0.002172	0.23	0.028753	0.027	2000	21.56	89,000
Chlorobenzene	401.3	620	7	0.0161	0.002024	0.02	0.003128	0.025	20	2.35	11,000
Ethylbenzene	242.6	2000	4	0.0097	0.001224	0.08	0.010089	0.0153	1000	7.56	100,000
Xylene	1288	17000	23	0.0515	0.006497	0.68	0.085756	0.081	300	64.30	100,000

3/20

Thermal Desorption Air Emissions Estimate
Weston Unit – 20 Tons per Hour Throughput

Compound	95th % UCL Concentration in Soil (ug/kg)	Maximum Concentration in Soil (ug/kg)	Average Mass Throughput (grams per hour)	Average Potential Emissions (lb/hr)	Average Potential Emissions (g/sec)	Maximum Potential Emissions (lb/hr)	Maximum Potential Emissions (g/sec)	Adjusted Annual Concentration (ug/m3)	AGC (ug/m3)	Maximum Short–term Concentration (ug/m3)	SGC (ug/m3)
Semivolatiles											
Phenol	839.02	14000	15	0.0336	0.004232	0.56	0.070622	0.053	9.6	52.95	4500
2–Nitrophenol	377.51	1300	7	0.0151	0.001904	0.05	0.006558	0.024		4.92	
Benzoic acid	1188.69	1500	22	0.0475	0.005996	0.06	0.007567	0.075		5.67	
Naphthalene	509.52	2500	9	0.0204	0.00257	0.10	0.012611	0.032	120	9.46	12000
2–Methylnaphthalene	662.47	3600	12	0.0265	0.003342	0.14	0.01816	0.042		13.62	
Acenaphthylene	241.47	510	4	0.0097	0.001218	0.02	0.002573	0.0152		1.93	
Acenaphthene	391.29	14000	7	0.0157	0.001974	0.56	0.070622	0.025		52.95	
4–Nitrophenol	642.03	1600	12	0.0257	0.003239	0.06	0.008071	0.040	0.1	6.05	–
Dibenzofuran	1739.79	7000	32	0.0696	0.008776	0.28	0.035311	0.110		26.48	
2,4–Dinitrotoluene	399.63	2000	7	0.0160	0.002016	0.08	0.010089	0.025		7.56	
Fluorene	402.04	12000	7	0.0161	0.002028	0.48	0.060533	0.025		45.39	
N–Nitrosodiphenylamine (1)	199.68	450	4	0.0080	0.001007	0.02	0.00227	0.0126		1.70	
Phenanthrene	428.94	43000	8	0.0172	0.002164	1.72	0.216911	0.027		162.64	
Anthracene	390.72	15000	7	0.0156	0.001971	0.60	0.075667	0.025		56.73	
Di–n–butylphthalate	385.17	25000	7	0.0154	0.001943	1.00	0.126111	0.024		94.56	
Fluoranthene	446.45	29000	8	0.0179	0.002252	1.16	0.146289	0.028		109.69	
Pyrene	411.67	24000	7	0.0165	0.002077	0.96	0.121067	0.026		90.78	
Benzo(a)anthracene	407.73	9600	7	0.0163	0.002057	0.38	0.048427	0.026		36.31	
Chrysene	388.98	9900	7	0.0156	0.001962	0.40	0.04994	0.025		37.45	
bis(2–Ethylhexyl)phthalate	462.01	230000	8	0.0185	0.002331	9.20	1.160222	0.029		869.93	
Di–n–octylphthalate	189.49	430	3	0.0076	0.000956	0.02	0.002169	0.0119		1.63	
Benzo(b)fluoranthene	408.80	9500	7	0.0164	0.002062	0.38	0.047922	0.026		35.93	
benzo(k)fluoranthene	389.87	6700	7	0.0156	0.001967	0.27	0.033798	0.025		25.34	
Benzo(a)pyrene	395.96	9000	7	0.0158	0.001997	0.36	0.0454	0.025	0.002	34.04	–
Indeno(1,2,3–cd)pyrene	386.30	48000	7	0.0155	0.001949	1.92	0.242133	0.024		181.55	
Dibenz(a,h)anthracene	388.17	2100	7	0.0155	0.001958	0.08	0.010593	0.024		7.94	
Benzo(g,h,i)perylene	375.41	5000	7	0.0150	0.001894	0.20	0.025222	0.024		18.91	

Thermal Desorption Air Emissions Estimate
Weston Unit – 20 Tons per Hour Throughput

Compound	95th % UCL Concentration in Soil (ug/kg)	Maximum Concentration in Soil (ug/kg)	Average Mass Throughput (grams per hour)	Average Potential Emissions (lb/hr)	Average Potential Emissions (g/sec)	Maximum Potential Emissions (lb/hr)	Maximum Potential Emissions (g/sec)	Adjusted Annual Concentration (ug/m3)	AGC (ug/m3)	Maximum Short–term Concentration (ug/m3)	SGC (ug/m3)
Pesticides/PCBs											
Heptachlor	6.48	14	0	0.0003	0.000033	0.00	0.000071	0.00041	0.0008	0.05	5
Dieldrin	12.97	46	0	0.0005	0.000065	0.00	0.000232	0.00082		0.17	
4,4'–DDE	30.04	290	1	0.0012	0.000152	0.01	0.001463	0.00189		1.10	
4,4'–DDD	16.64	350	0	0.0007	0.000084	0.01	0.001766	0.00105		1.32	
4,4'–DDT	20.69	260	0	0.0008	0.000104	0.01	0.001312	0.00130		0.98	
Aroclor–1242	67.32	260	1	0.0027	0.00034	0.01	0.001312	**0.00424**	0.00045	0.98	0.1
Aroclor–1260	200.04	770	4	0.0080	0.001009	0.03	0.003884	**0.01261**	0.00045	2.91	0.1
Herbicides											
2,4–DB	50.72	410	1	0.0020	0.000256	0.02	0.002068	0.0032		1.55	
2,4,5–TP (Silvex)	2.93	10	0	0.0001	0.000015	0.00	0.00005	0.00018		0.04	
MCPP	2943.40	24000	54	0.1177	0.014848	0.96	0.121067	0.186		90.78	

5/26

Thermal Desorption Air Emissions Estimate
Canonie Unit – 20 Tons per Hour Throughput

Compound	95th % UCL Concentration in Soil (ug/kg)	Maximum Concentration in Soil (ug/kg)	Average Mass Throughput (grams per hour)	Average Potential Emissions (lb/hr)	Average Potential Emissions (g/sec)	Maximum Potential Emissions (lb/hr)	Maximum Potential Emissions (g/sec)	Adjusted Annual Concentration (ug/m3)	AGC (ug/m3)	Maximum Short-term Concentration (ug/m3)	SGC (ug/m3)
Volatiles											
Vinyl chloride	799.8	1000	15	0.0320	0.004035	0.04	0.005044	0.006	0.02	0.42	1300
Acetone	378.7	680	7	0.0151	0.00191	0.03	0.00343	0.003	14000	0.28	140,000
Carbon disulfide	159.7	120	3	0.0064	0.000806	0.00	0.000605	0.0011	7	0.05	710
1,1-Dichloroethene	161.63	140	3	0.0065	0.000815	0.01	0.000706	0.0011	0.02	0.06	2,000
1,2-Dichloroethene (total)	7668	79000	139	0.3067	0.038681	3.16	0.398511	0.053	1900	32.96	190,000
Chloroform	11.58	32	0	0.0005	0.000058	0.00	0.000161	0.0001	23	0.01	980
1,2-Dichloroethane	149.2	210	3	0.0060	0.000753	0.01	0.001059	0.0010	0.039	0.09	950
2-Butanone	15.76	22	0	0.0006	0.00008	0.00	0.000111	0.00011	300	0.01	140,000
Trichloroethene	42351	540000	770	1.6940	0.213637	21.60	2.724	0.294	0.45	225.30	33,000
Benzene	3.72	6	0	0.0001	0.000019	0.00	0.00003	0.00003	0.12	0.00	30
Tetrachloroethene	4.06	7	0	0.0002	0.00002	0.00	0.000035	0.00003	0.075	0.00	81,000
Toluene	430.5	5700	8	0.0172	0.002172	0.23	0.028753	0.003	2000	2.38	89,000
Chlorobenzene	401.3	620	7	0.0161	0.002024	0.02	0.003128	0.003	20	0.26	11,000
Ethylbenzene	242.6	2000	4	0.0097	0.001224	0.08	0.010089	0.0017	1000	0.83	100,000
Xylene	1288	17000	23	0.0515	0.006497	0.68	0.085756	0.009	300	7.09	100,000

6/32

Thermal Desorption Air Emissions Estimate
Canonie Unit – 20 Tons per Hour Throughput

Compound	95th % UCL Concentration in Soil (ug/kg)	Maximum Concentration in Soil (ug/kg)	Average Mass Throughput (grams per hour)	Average Potential Emissions (lb/hr)	Average Potential Emissions (g/sec)	Maximum Potential Emissions (lb/hr)	Maximum Potential Emissions (g/sec)	Adjusted Annual Concentration (ug/m3)	AGC (ug/m3)	Maximum Short-term Concentration (ug/m3)	SGC (ug/m3)
Semivolatiles											
Phenol	839.02	14000	15	0.0336	0.004232	0.56	0.070622	0.006	9.6	5.84	4500
2-Nitrophenol	377.51	1300	7	0.0151	0.001904	0.05	0.006558	0.003		0.54	
Benzoic acid	1188.69	1500	22	0.0475	0.005996	0.06	0.007567	0.008		0.63	
Naphthalene	509.52	2500	9	0.0204	0.00257	0.10	0.012611	0.004	120	1.04	12000
2-Methylnaphthalene	662.47	3600	12	0.0265	0.003342	0.14	0.01816	0.005		1.50	
Acenaphthylene	241.47	510	4	0.0097	0.001218	0.02	0.002573	0.0017		0.21	
Acenaphthene	391.29	14000	7	0.0157	0.001974	0.56	0.070622	0.003		5.84	
4-Nitrophenol	642.03	1600	12	0.0257	0.003239	0.06	0.008071	0.004	0.1	0.67	–
Dibenzofuran	1739.79	7000	32	0.0696	0.008776	0.28	0.035311	0.012		2.92	
2,4-Dinitrotoluene	399.63	2000	7	0.0160	0.002016	0.08	0.010089	0.003		0.83	
Fluorene	402.04	12000	7	0.0161	0.002028	0.48	0.060533	0.003		5.01	
N-Nitrosodiphenylamine (1)	199.68	450	4	0.0080	0.001007	0.02	0.00227	0.0014		0.19	
Phenanthrene	428.94	43000	8	0.0172	0.002164	1.72	0.216911	0.003		17.94	
Anthracene	390.72	15000	7	0.0156	0.001971	0.60	0.075667	0.003		6.26	
Di-n-butylphthalate	385.17	25000	7	0.0154	0.001943	1.00	0.126111	0.003		10.43	
Fluoranthene	446.45	29000	8	0.0179	0.002252	1.16	0.146289	0.003		12.10	
Pyrene	411.67	24000	7	0.0165	0.002077	0.96	0.121067	0.003		10.01	
Benzo(a)anthracene	407.73	9600	7	0.0163	0.002057	0.38	0.048427	0.003		4.01	
Chrysene	388.98	9900	7	0.0156	0.001962	0.40	0.04994	0.003		4.13	
bis(2-Ethylhexyl)phthalate	462.01	230000	8	0.0185	0.002331	9.20	1.160222	0.003		95.96	
Di-n-octylphthalate	189.49	430	3	0.0076	0.000956	0.02	0.002169	0.0013		0.18	
Benzo(b)fluoranthene	408.80	9500	7	0.0164	0.002062	0.38	0.047922	0.003		3.96	
benzo(k)fluoranthene	389.87	6700	7	0.0156	0.001967	0.27	0.033798	0.003		2.80	
Benzo(a)pyrene	395.96	9000	7	0.0158	0.001997	0.36	0.0454	**0.003**	0.002	3.76	–
Indeno(1,2,3-cd)pyrene	386.30	48000	7	0.0155	0.001949	1.92	0.242133	0.003		20.03	
Dibenz(a,h)anthracene	388.17	2100	7	0.0155	0.001958	0.08	0.010593	0.003		0.88	
Benzo(g,h,i)perylene	375.41	5000	7	0.0150	0.001894	0.20	0.025222	0.003		2.09	

Thermal Desorption Air Emissions Estimate
Canonie Unit – 20 Tons per Hour Throughput

Compound	95th % UCL Concentration in Soil (ug/kg)	Maximum Concentration in Soil (ug/kg)	Average Mass Throughput (grams per hour)	Average Potential Emissions (lb/hr)	Average Potential Emissions (g/sec)	Maximum Potential Emissions (lb/hr)	Maximum Potential Emissions (g/sec)	Adjusted Annual Concentration (ug/m3)	AGC (ug/m3)	Maximum Short-term Concentration (ug/m3)	SGC (ug/m3)
Pesticides/PCBs											
Heptachlor	6.48	14	0	0.0003	0.000033	0.00	0.000071	0.00005	0.0008	0.01	5
Dieldrin	12.97	46	0	0.0005	0.000065	0.00	0.000232	0.00009		0.02	
4,4'-DDE	30.04	290	1	0.0012	0.000152	0.01	0.001463	0.00021		0.12	
4,4'-DDD	16.64	350	0	0.0007	0.000084	0.01	0.001766	0.00012		0.15	
4,4'-DDT	20.69	260	0	0.0008	0.000104	0.01	0.001312	0.00014		0.11	
Aroclor-1242	67.32	260	1	0.0027	0.00034	0.01	0.001312	**0.00047**	0.00045	0.11	0.1
Aroclor-1260	200.04	770	4	0.0080	0.001009	0.03	0.003884	**0.00139**	0.00045	0.32	0.1
Herbicides											
2,4-DB	50.72	410	1	0.0020	0.000256	0.02	0.002068	0.0004		0.17	
2,4,5-TP (Silvex)	2.93	10	0	0.0001	0.000015	0.00	0.00005	0.00002		0.00	
MCPP	2943.40	24000	54	0.1177	0.014848	0.96	0.121067	0.020		10.01	

8/20

9/20

10/13/93
14:18:51

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Seneca Army Depot - Ash Landfill Unit 3 - Weston - Stack Height = 15 Feet

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.00000
STACK HEIGHT (M)	=	4.5720
STK INSIDE DIAM (M)	=	.2032
STK EXIT VELOCITY (M/S)	=	20.3744
STK GAS EXIT TEMP (K)	=	294.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	2.4380
MIN HORIZ BLDG DIM (M)	=	4.5720
MAX HORIZ BLDG DIM (M)	=	9.1440

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 1400.0000 (ACFM)

BUOY. FLUX = .007 M**4/S**3; MOM. FLUX = 4.270 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	612.1	3	2.0	2.0	640.0	10.78	12.59	7.65	NO
200.	637.3	5	1.0	1.0	10000.0	12.80	11.86	6.67	NO
300.	755.0	5	1.0	1.0	10000.0	12.80	17.06	9.01	NO
400.	763.5	6	1.0	1.0	10000.0	12.07	14.79	7.37	NO
500.	769.8	6	1.0	1.0	10000.0	12.07	18.09	8.66	NO
600.	717.3	6	1.0	1.0	10000.0	12.07	21.34	9.92	NO
700.	647.3	6	1.0	1.0	10000.0	12.07	24.55	11.14	NO
800.	577.2	6	1.0	1.0	10000.0	12.07	27.72	12.17	NO
900.	514.9	6	1.0	1.0	10000.0	12.07	30.85	13.16	NO
1000.	460.9	6	1.0	1.0	10000.0	12.07	33.95	14.12	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

453.	778.0	6	1.0	1.0	10000.0	12.07	16.58	8.07	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED

10/20

```
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*********************************
  * SCREEN DISCRETE DISTANCES ***
*********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST      CONC               U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)    (UG/M**3)    STAB   (M/S)  (M/S)    (M)    HT (M)   Y (M)   Z (M)  DWASH
-------  ----------    ----   -----  -----  ------   ------  ------  ------  -----
    61.    670.6         4     8.0     8.0  2560.0     6.12    5.20    4.48    HS

*********************************
*** SCREEN DISCRETE DISTANCES ***
*********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST      CONC               U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)    (UG/M**3)    STAB   (M/S)  (M/S)    (M)    HT (M)   Y (M)   Z (M)  DWASH
-------  ----------    ----   -----  -----  ------   ------  ------  ------  -----
   260.    749.8         5     1.0     1.0 10000.0    12.80   14.99    8.08    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

 ********************************************
 *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
 *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
 ********************************************

      TERRAIN       DISTANCE RANGE (M)
       HT (M)      MINIMUM    MAXIMUM
      -------     --------   --------
           0.         100.      1000.
           0.          61.        --
           0.         260.        --

 *** CAVITY CALCULATION - 1 ***       *** CAVITY CALCULATION - 2 ***
  CONC (UG/M**3)      =    .0000       CONC (UG/M**3)      =    .0000
  CRIT WS @10M (M/S)  =    99.99       CRIT WS @10M (M/S)  =    99.99
  CRIT WS @ HS (M/S)  =    99.99       CRIT WS @ HS (M/S)  =    99.99
  DILUTION WS (M/S)   =    99.99       DILUTION WS (M/S)   =    99.99
  CAVITY HT (M)       =     2.78       CAVITY HT (M)       =     2.47
  CAVITY LENGTH (M)   =     6.70       CAVITY LENGTH (M)   =     5.45
  ALONGWIND DIM (M)   =     4.57       ALONGWIND DIM (M)   =     9.14

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S.  CONC SET = 0.0

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
```

11/20

****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	778.0	453.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

12/20

10/13/93
14:20:32

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Seneca Army Depot - Ash Landfill Unit 3 - Weston - Stack Height = 21 Feet

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.00000
STACK HEIGHT (M)	=	6.4008
STK INSIDE DIAM (M)	=	.2032
STK EXIT VELOCITY (M/S)	=	20.3744
STK GAS EXIT TEMP (K)	=	294.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	2.4380
MIN HORIZ BLDG DIM (M)	=	4.5720
MAX HORIZ BLDG DIM (M)	=	9.1440

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 1400.0000 (ACFM)

BUOY. FLUX = .007 M**4/S**3; MOM. FLUX = 4.270 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	434.6	3	2.5	2.5	800.0	11.37	12.54	7.58	NO
200.	407.5	4	2.0	2.0	640.0	12.61	15.66	8.68	NO
300.	554.3	5	1.0	1.0	10000.0	14.63	17.06	9.01	NO
400.	542.3	5	1.0	1.0	10000.0	14.63	22.14	11.07	NO
500.	561.1	6	1.0	1.0	10000.0	13.90	18.09	8.66	NO
600.	563.6	6	1.0	1.0	10000.0	13.90	21.34	9.92	NO
700.	534.5	6	1.0	1.0	10000.0	13.90	24.55	11.14	NO
800.	491.6	6	1.0	1.0	10000.0	13.90	27.72	12.17	NO
900.	449.0	6	1.0	1.0	10000.0	13.90	30.85	13.16	NO
1000.	409.1	6	1.0	1.0	10000.0	13.90	33.95	14.12	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

552.	568.0	6	1.0	1.0	10000.0	13.90	19.82	9.33	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED

13/20

DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

```
*********************************
*** SCREEN DISCRETE DISTANCES ***
*********************************
```

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
61.	380.1	2	3.0	3.0	960.0	10.54	12.33	6.79	NO

```
*********************************
*** SCREEN DISCRETE DISTANCES ***
*********************************
```

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
260.	510.8	5	1.0	1.0	10000.0	14.63	14.99	8.08	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

```
********************************************
*  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
*     SIMPLE ELEVATED TERRAIN PROCEDURE    *
********************************************
```

TERRAIN HT (M)	DISTANCE RANGE (M) MINIMUM	MAXIMUM
0.	100.	1000.
0.	61.	--
0.	260.	--

*** CAVITY CALCULATION - 1 ***

CONC (UG/M**3)	=	.0000
CRIT WS @10M (M/S)	=	99.99
CRIT WS @ HS (M/S)	=	99.99
DILUTION WS (M/S)	=	99.99
CAVITY HT (M)	=	2.78
CAVITY LENGTH (M)	=	6.70
ALONGWIND DIM (M)	=	4.57

*** CAVITY CALCULATION - 2 ***

CONC (UG/M**3)	=	.0000
CRIT WS @10M (M/S)	=	99.99
CRIT WS @ HS (M/S)	=	99.99
DILUTION WS (M/S)	=	99.99
CAVITY HT (M)	=	2.47
CAVITY LENGTH (M)	=	5.45
ALONGWIND DIM (M)	=	9.14

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

```
***************************************
*** SUMMARY OF SCREEN MODEL RESULTS ***
```

14/20

```
****************************************

 CALCULATION          MAX CONC    DIST TO   TERRAIN
  PROCEDURE          (UG/M**3)    MAX (M)    HT (M)
--------------     -----------   -------   -------
SIMPLE TERRAIN        568.0          552.        0.

***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
***************************************************
```

15/20

10/14/93
16:35:16

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Seneca Army Depot - Ash Landfill Unit 1 - Canonie - Stack Height = 15 Feet

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.00000
STACK HEIGHT (M)	=	4.5720
STK INSIDE DIAM (M)	=	.6700
STK EXIT VELOCITY (M/S)	=	36.5708
STK GAS EXIT TEMP (K)	=	310.7780
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	2.4380
MIN HORIZ BLDG DIM (M)	=	4.5720
MAX HORIZ BLDG DIM (M)	=	9.1440

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 27320.000 (ACFM)

BUOY. FLUX = 2.302 M**4/S**3; MOM. FLUX = 141.507 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	99.22	3	10.0	10.0	3200.0	11.92	12.64	7.73	NO
200.	91.59	4	10.0	10.0	3200.0	11.92	15.70	8.75	NO
300.	76.12	4	8.0	8.0	2560.0	13.76	22.76	12.37	NO
400.	64.43	4	5.0	5.0	1600.0	19.27	29.75	15.84	NO
500.	55.68	4	4.5	4.5	1440.0	20.91	36.45	18.88	NO
600.	48.80	4	3.5	3.5	1120.0	25.57	43.14	22.04	NO
700.	43.48	4	3.5	3.5	1120.0	25.57	49.55	24.77	NO
800.	42.70	5	1.0	1.0	10000.0	43.82	43.03	21.44	NO
900.	46.82	5	1.0	1.0	10000.0	43.82	47.61	22.90	NO
1000.	49.70	5	1.0	1.0	10000.0	43.82	52.16	24.36	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

109.	100.3	3	10.0	10.0	3200.0	11.92	13.77	8.39	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***

```
**********************************

*** TERRAIN HEIGHT OF     0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

   DIST      CONC              U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)    (UG/M**3)   STAB   (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
 -------  ----------   ----   -----  -----  ------  ------  ------  ------  -----
     61.   52.59         3     10.0   10.0  3200.0   11.92    8.15    5.16    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF     0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

   DIST      CONC              U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)    (UG/M**3)   STAB   (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
 -------  ----------   ----   -----  -----  ------  ------  ------  ------  -----
    260.   82.71         4      8.0    8.0  2560.0   13.76   19.99   11.00    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

 ********************************************
 *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
 *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
 ********************************************

      TERRAIN       DISTANCE RANGE (M)
       HT (M)      MINIMUM     MAXIMUM
      -------     --------    --------
           0.         100.       1000.
           0.          61.         --
           0.         260.         --

 *** CAVITY CALCULATION - 1 ***        *** CAVITY CALCULATION - 2 ***
  CONC (UG/M**3)       =    .0000        CONC (UG/M**3)       =    .0000
  CRIT WS @10M (M/S)  =    99.99        CRIT WS @10M (M/S)  =    99.99
  CRIT WS @ HS (M/S)  =    99.99        CRIT WS @ HS (M/S)  =    99.99
  DILUTION WS (M/S)   =    99.99        DILUTION WS (M/S)   =    99.99
  CAVITY HT (M)       =     2.78        CAVITY HT (M)       =     2.47
  CAVITY LENGTH (M)   =     6.70        CAVITY LENGTH (M)   =     5.45
  ALONGWIND DIM (M)   =     4.57        ALONGWIND DIM (M)   =     9.14

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S.  CONC SET = 0.0

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************

 CALCULATION         MAX CONC     DIST TO   TERRAIN
  PROCEDURE         (UG/M**3)     MAX (M)    HT (M)
 ------------      -----------    -------   -------
 SIMPLE TERRAIN      100.3          109.        0.

**************************************************
```

18/20

10/14/93
16:34:52

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Seneca Army Depot - Ash Landfill Unit 1 - Canonie - Stack Height = 25 Feet

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.00000
STACK HEIGHT (M)	=	7.6200
STK INSIDE DIAM (M)	=	.6700
STK EXIT VELOCITY (M/S)	=	36.5708
STK GAS EXIT TEMP (K)	=	310.7780
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	2.4380
MIN HORIZ BLDG DIM (M)	=	4.5720
MAX HORIZ BLDG DIM (M)	=	9.1440

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 27320.000 (ACFM)

BUOY. FLUX = 2.302 M**4/S**3; MOM. FLUX = 141.507 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	49.99	3	10.0	10.0	3200.0	14.97	12.64	7.73	NO
200.	58.63	3	8.0	8.0	2560.0	16.81	23.77	14.27	NO
300.	56.15	4	8.0	8.0	2560.0	16.81	22.76	12.37	NO
400.	50.04	4	5.0	5.0	1600.0	22.32	29.75	15.84	NO
500.	45.97	4	4.5	4.5	1440.0	23.95	36.45	18.88	NO
600.	41.70	4	4.0	4.0	1280.0	26.00	43.04	21.85	NO
700.	38.01	4	3.5	3.5	1120.0	28.62	49.55	24.77	NO
800.	34.90	4	3.0	3.0	960.0	32.12	56.01	27.68	NO
900.	35.98	5	1.0	1.0	10000.0	46.87	47.61	22.90	NO
1000.	39.37	5	1.0	1.0	10000.0	46.87	52.16	24.36	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

142.	63.02	3	10.0	10.0	3200.0	14.97	17.47	10.53	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***

19/20

```
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST      CONC               U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
  (M)    (UG/M**3)     STAB   (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------   ----   -----  -----  ------  ------  ------  ------  -----
    61.   11.31          3    10.0   10.0  3200.0   14.97    8.15    5.16    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST      CONC               U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
  (M)    (UG/M**3)     STAB   (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------   ----   -----  -----  ------  ------  ------  ------  -----
   260.   56.97          4    10.0   10.0  3200.0   14.97   19.93   10.88    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

 ********************************************
 *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
 *     SIMPLE ELEVATED TERRAIN PROCEDURE     *
 ********************************************

      TERRAIN        DISTANCE RANGE (M)
       HT (M)       MINIMUM     MAXIMUM
      -------      ---------   --------
          0.          100.       1000.
          0.           61.         --
          0.          260.         --

 *** CAVITY CALCULATION - 1 ***        *** CAVITY CALCULATION - 2 ***
  CONC (UG/M**3)       =    .0000       CONC (UG/M**3)       =    .0000
  CRIT WS @10M (M/S) =    99.99       CRIT WS @10M (M/S) =    99.99
  CRIT WS @ HS (M/S) =    99.99       CRIT WS @ HS (M/S) =    99.99
  DILUTION WS (M/S)  =    99.99       DILUTION WS (M/S)  =    99.99
  CAVITY HT (M)      =     2.78       CAVITY HT (M)      =     2.47
  CAVITY LENGTH (M)  =     6.70       CAVITY LENGTH (M)  =     5.45
  ALONGWIND DIM (M)  =     4.57       ALONGWIND DIM (M)  =     9.14

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S.  CONC SET = 0.0

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************

 CALCULATION         MAX CONC    DIST TO    TERRAIN
  PROCEDURE         (UG/M**3)    MAX (M)     HT (M)
 ------------      -----------   -------    -------
SIMPLE TERRAIN       63.02         142.          0.

***************************************************
```

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

20/20

ES ENGINEERING-SCIENCE, INC.

Client	Seneca Army Depot	Job No.	720489-01000	Sheet	1 of 11
Subject	Ash Landfill Removal Action Soil Vapor Extraction Air Emissions	By	DMK	Date	10/15/93
		Checked		Rev.	

Estimate emissions from SVE system

Assume
No controls
Emissions spread over 2 years (vinyl chloride over 2 months)
Entire mass of contaminants emitted
14,500 yd³ ≅ 21,000 tons

Calculation - use vinyl chloride as example

$$Mass = Co(\mu g/kg) \times 21{,}000 \text{ tons} \times \frac{2000 \text{ lbs}}{\text{ton}} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} \times 1\times10^{-6} g/\mu g \times \frac{1 \text{ lb}}{454 g}$$

$$Mass = (799.8)(21{,}000)(2000)(1/2.2)(1/10^6)(1/454)$$

$$\boxed{Mass = 33.6 \text{ lbs}}$$

$$\text{Potential Emissions (lb/hr)} = 33.6 \text{ lbs} / 24 \tfrac{hr}{day} \times 60 \text{ day}$$

$$\boxed{= 0.023 \text{ lb/hr}}$$

" $$(g/sec) = 0.023 \text{ lb/hr} \times 454 g/lb \times \frac{1 \text{ hr}}{3600 \text{ sec}}$$

$$\boxed{= 0.0029 g/sec}$$

For short-term concentration use scaling factor (1300) from EPA SCREEN - based upon output temp of 100°F

$$\text{Short-term } (\mu g/m^3) = (0.0029 \text{ g/sec})(1300 \frac{\mu g/m^3}{g/sec})$$

$$= 3.83 \mu g/m^3$$

ES ENGINEERING-SCIENCE, INC.

Client	Seneca Army Depot	Job No.	720489-01000	Sheet	2 of 11
Subject	Ash Landfill Removal Action Soil Vapor Extraction Air Emissions	By	DMK	Date	10/15/93
		Checked		Rev.	

Correct for annual - use 0.1

annual ($\mu g/m^3$) = 3.83 × 0.1

= 0.383 $\mu g/m^3$

Note: for vinyl chloride - divide by 6 since all vinyl chloride emitted in 2 months

= 0.383/6

= 0.064 $\mu g/m^3$

Soil Vapor Extraction Air Emissions Estimate

Compound	95th % UCL Concentration in Soil (ug/kg)	Mass in Soil (lb)	Average Potential Emissions (lb/hr)	Average Potential Emissions (g/sec)	AGC (ug/m3)	Annual Concentration (ug/m3)	SGC (ug/m3)	Short–term Concentratior (ug/m3)
Volatiles								
Vinyl chloride	799.8	34	0.0234	0.002945	0.02	0.061	1300	3.64
Acetone	378.7	16	0.0009	0.000115	14000	0.014	140,000	0.14
Carbon disulfide	159.7	7	0.0004	0.000048	7	0.006	710	0.06
1,1–Dichloroethene	161.63	7	0.0004	0.000049	0.02	0.006	2,000	0.06
1,2–Dichloroethene (total)	7668	322	0.0184	0.002321	1900	0.287	190,000	2.87
Chloroform	11.58	0	0.0000	3.5E–06	23	0.000	980	0.00
1,2–Dichloroethane	149.2	6	0.0004	0.000045	0.039	0.006	950	0.06
2–Butanone	15.76	1	0.0000	4.8E–06	300	0.001	140,000	0.01
Trichloroethene	42351	1781	0.1016	0.012819	0.45	1.584	33,000	15.84
Benzene	3.72	0	0.0000	1.1E–06	0.12	0.0001	30	0.001
Tetrachloroethene	4.06	0	0.0000	1.2E–06	0.075	0.0002	81,000	0.002
Toluene	430.5	18	0.0010	0.00013	2000	0.016	89,000	0.16
Chlorobenzene	401.3	17	0.0010	0.000121	20	0.015	11,000	0.15
Ethylbenzene	242.6	10	0.0006	0.000073	1000	0.009	100,000	0.09
Xylene	1288	54	0.0031	0.00039	300	0.048	100,000	0.48

4/11

10/15/93
09:25:00

** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Seneca Army Depot - Ash Landfill SVE Hs= 15 Feet; T=100 F (310.78K)

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.00000
STACK HEIGHT (M)	=	4.5720
STK INSIDE DIAM (M)	=	.1524
STK EXIT VELOCITY (M/S)	=	2.5872
STK GAS EXIT TEMP (K)	=	310.7800
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 100.00000 (ACFM)

BUOY. FLUX = .008 M**4/S**3; MOM. FLUX = .037 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	3884.	4	1.0	1.0	320.0	5.75	8.21	4.66	NO
200.	1912.	4	1.0	1.0	320.0	5.75	15.57	8.51	NO
300.	1237.	6	1.0	1.0	10000.0	9.59	11.32	5.80	NO
400.	1237.	6	1.0	1.0	10000.0	9.59	14.71	7.19	NO
500.	1100.	6	1.0	1.0	10000.0	9.59	18.02	8.52	NO
600.	945.3	6	1.0	1.0	10000.0	9.59	21.28	9.79	NO
700.	807.2	6	1.0	1.0	10000.0	9.59	24.50	11.02	NO
800.	695.2	6	1.0	1.0	10000.0	9.59	27.67	12.06	NO
900.	604.1	6	1.0	1.0	10000.0	9.59	30.81	13.06	NO
1000.	529.6	6	1.0	1.0	10000.0	9.59	33.91	14.03	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

100.	3884.	4	1.0	1.0	320.0	5.75	8.21	4.66	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***

****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
61.	4073.	3	1.0	1.0	320.0	5.75	7.90	4.75	NO
260.	1300.	4	1.0	1.0	320.0	5.75	19.82	10.68	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
* SUMMARY OF TERRAIN HEIGHTS ENTERED FOR *
* SIMPLE ELEVATED TERRAIN PROCEDURE *
****

TERRAIN HT (M)	DISTANCE RANGE (M) MINIMUM	MAXIMUM
0.	100.	1000.
0.	61.	--
0.	260.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	4073.	61.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

6/11

10/15/93
09:25:05

** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Seneca Army Depot - Ash Landfill SVE Hs= 15 Feet; T=200 F (366.34K)

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.00000
STACK HEIGHT (M)	=	4.5720
STK INSIDE DIAM (M)	=	.1524
STK EXIT VELOCITY (M/S)	=	2.5872
STK GAS EXIT TEMP (K)	=	366.3400
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 100.00000 (ACFM)

BUOY. FLUX = .029 M**4/S**3; MOM. FLUX = .031 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	3540.	4	1.0	1.0	320.0	6.10	8.21	4.67	NO
200.	1859.	4	1.0	1.0	320.0	6.10	15.57	8.51	NO
300.	1025.	4	1.0	1.0	320.0	6.10	22.62	12.10	NO
400.	744.0	6	1.0	1.0	10000.0	12.19	14.80	7.38	NO
500.	755.0	6	1.0	1.0	10000.0	12.19	18.10	8.67	NO
600.	706.5	6	1.0	1.0	10000.0	12.19	21.35	9.93	NO
700.	639.4	6	1.0	1.0	10000.0	12.19	24.55	11.14	NO
800.	571.2	6	1.0	1.0	10000.0	12.19	27.72	12.17	NO
900.	510.4	6	1.0	1.0	10000.0	12.19	30.85	13.16	NO
1000.	457.3	6	1.0	1.0	10000.0	12.19	33.95	14.12	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

100.	3540.	4	1.0	1.0	320.0	6.10	8.21	4.67	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***

****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
61.	3725.	3	1.0	1.0	320.0	6.10	7.90	4.76	NO
260.	1277.	4	1.0	1.0	320.0	6.10	19.83	10.69	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
* SUMMARY OF TERRAIN HEIGHTS ENTERED FOR *
* SIMPLE ELEVATED TERRAIN PROCEDURE *
****

TERRAIN HT (M)	DISTANCE RANGE (M) MINIMUM	MAXIMUM
0.	100.	1000.
0.	61.	--
0.	260.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	3725.	61.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

8/11

10/15/93
09:25:11

```
 *** SCREEN2 MODEL RUN ***
 *** VERSION DATED 92245 ***

Seneca Army Depot - Ash Landfill SVE Hs= 15 Feet; T=300 F (421.89K)

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE              =        POINT
   EMISSION RATE (G/S)      =      1.00000
   STACK HEIGHT (M)         =       4.5720
   STK INSIDE DIAM (M)      =        .1524
   STK EXIT VELOCITY (M/S)  =       2.5872
   STK GAS EXIT TEMP (K)    =     421.8900
   AMBIENT AIR TEMP (K)     =     293.0000
   RECEPTOR HEIGHT (M)      =        .0000
   URBAN/RURAL OPTION       =        RURAL
   BUILDING HEIGHT (M)      =        .0000
   MIN HORIZ BLDG DIM (M)   =        .0000
   MAX HORIZ BLDG DIM (M)   =        .0000

   STACK EXIT VELOCITY WAS CALCULATED FROM
   VOLUME FLOW RATE =   100.00000     (ACFM)

BUOY. FLUX =     .045 M**4/S**3;  MOM. FLUX =     .027 M**4/S**2.

*** FULL METEOROLOGY ***

 **********************************
 *** SCREEN AUTOMATED DISTANCES ***
 **********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***
```

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	3006.	4	1.0	1.0	320.0	6.67	8.22	4.69	NO
200.	1766.	4	1.0	1.0	320.0	6.67	15.57	8.52	NO
300.	998.9	4	1.0	1.0	320.0	6.67	22.62	12.11	NO
400.	642.9	4	1.0	1.0	320.0	6.67	29.46	15.28	NO
500.	627.9	6	1.0	1.0	10000.0	13.35	18.14	8.76	NO
600.	611.2	6	1.0	1.0	10000.0	13.35	21.38	10.00	NO
700.	568.7	6	1.0	1.0	10000.0	13.35	24.58	11.21	NO
800.	517.2	6	1.0	1.0	10000.0	13.35	27.75	12.24	NO
900.	468.5	6	1.0	1.0	10000.0	13.35	30.88	13.22	NO
1000.	424.3	6	1.0	1.0	10000.0	13.35	33.98	14.18	NO

```
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND   100. M:
   100.  3006.        4     1.0    1.0   320.0    6.67    8.22    4.69    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*********************************
*** SCREEN DISCRETE DISTANCES ***
```

```
************************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

   DIST     CONC              U10M   USTK  MIX HT   PLUME  SIGMA   SIGMA
    (M)   (UG/M**3)    STAB  (M/S)  (M/S)    (M)   HT (M)  Y (M)   Z (M)   DWASH
 -------  ----------   ----  -----  -----  ------  ------  ------  ------  -----
     61.   3180.         3     1.0    1.0   320.0    6.67    7.91    4.77    NO
    260.   1236.         4     1.0    1.0   320.0    6.67   19.83   10.69    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

 ********************************************
 *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
 *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
 ********************************************

      TERRAIN        DISTANCE RANGE (M)
       HT (M)       MINIMUM    MAXIMUM
      -------      --------   --------
           0.          100.      1000.
           0.           61.        --
           0.          260.        --

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************

 CALCULATION          MAX CONC    DIST TO   TERRAIN
  PROCEDURE          (UG/M**3)    MAX (M)    HT (M)
--------------      -----------   -------   -------
SIMPLE TERRAIN        3180.          61.        0.

***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
***************************************************
```

10/11

10/15/93
09:23:20

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Seneca Army Depot - Ash Landfill SVE Hs= 15 Feet; T=400 F (477.44K)

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.00000
STACK HEIGHT (M)	=	4.5720
STK INSIDE DIAM (M)	=	.1524
STK EXIT VELOCITY (M/S)	=	2.5872
STK GAS EXIT TEMP (K)	=	477.4400
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 100.00000 (ACFM)

BUOY. FLUX = .057 M**4/S**3; MOM. FLUX = .024 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	2659.	4	1.0	1.0	320.0	7.07	8.23	4.71	NO
200.	1699.	4	1.0	1.0	320.0	7.07	15.58	8.53	NO
300.	979.7	4	1.0	1.0	320.0	7.07	22.62	12.11	NO
400.	635.1	4	1.0	1.0	320.0	7.07	29.46	15.29	NO
500.	557.8	6	1.0	1.0	10000.0	14.06	18.17	8.82	NO
600.	556.5	6	1.0	1.0	10000.0	14.06	21.41	10.06	NO
700.	526.9	6	1.0	1.0	10000.0	14.06	24.61	11.26	NO
800.	484.7	6	1.0	1.0	10000.0	14.06	27.77	12.28	NO
900.	442.9	6	1.0	1.0	10000.0	14.06	30.90	13.26	NO
1000.	403.9	6	1.0	1.0	10000.0	14.06	33.99	14.21	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

105.	2669.	4	1.0	1.0	320.0	7.07	8.68	4.94	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***

****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
61.	2824.	3	1.0	1.0	320.0	7.07	7.92	4.79	NO
260.	1206.	4	1.0	1.0	320.0	7.07	19.83	10.70	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
* SUMMARY OF TERRAIN HEIGHTS ENTERED FOR *
* SIMPLE ELEVATED TERRAIN PROCEDURE *
****

TERRAIN HT (M)	DISTANCE RANGE (M) MINIMUM	MAXIMUM
0.	100.	1000.
0.	61.	--
0.	260.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	2824.	61.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

APPENDIX D

COST BACK-UP

Seneca Army Depot
Ash Landfill Removal Action
Thermal Desorption Cost Estimate Summary

Operation	Canonie		Weston		ReTeC
Work Plans	$450,000	*	$115,000		$15,000
Mobilization/permitting		*	1,000,000		500,000
Proveout					600,000
Excavation		**	290,000	+	800,000
Material handling		**		+	325,000
Offsite disposal		*		+	75,000
Thermal treatment	2,280,000	**	1,522,000		3,870,000
Confirmational sampling		**	300,000	***	360,000
Site restoration		*		***	80,000
Air monitoring		**		***	80,000
Demobilization		*		***	150,000
Subtotal	$2,730,000		$3,227,000		$6,855,000
Contingency (10%)	273,000		323,000		686,000
Oversight	150,000		150,000		150,000
Total	$3,153,000		$3,700,000		$7,691,000

* Cost for work plans includes all these items
** Cost for thermal treatment includes all these items
*** ES estimate for items not included in vendor bid.
+ Cost for excavation includes all these items

h:\eng\seneca\actmem\sedacost.wk3

Seneca Army Depot
Ash Landfill Removal Action
Soil Vapor Extraction Cost Estimate Summary

Operation	Vapex	Terravac	CORA
Work Plans	$50,000	$100,000	
Groundwater collection /treatment	250,000		$177,000
Soil vapor extraction	780,000	735,000	$1,500,000
Air treatment	250,000		86,000
Air monitoring	150,000 **	150,000 **	*
Confirmation sampling	300,000 **	300,000	300,000 **
O & M (2 years)	300,000	720,000	582,000
Subtotal	$2,080,000	$2,005,000	$2,645,000
Contingency (10%)	208,000	200,500	265,000
Oversight	200,000	200,000	200,000
Total	$2,488,000	$2,405,500	$3,110,000

Each month additional will cost $25,000 in O & M costs.
* Cost for soil vapor extraction includes all these items
** Estimated cost.

WESTON
MANAGERS DESIGNERS/CONSULTANTS
1 WESTON WAY
WEST CHESTER, PA 19380-1499
215-692-3030 • FAX: 215-430-7296

12 October 1993

Engineering-Science, Inc.
Prudential Center
Boston, MA 02199

Attention: Mr. Michael Curry
Project Engineer

Subject: Order-of-Magnitude Cost Estimate for Soil Treatment

Dear Mike:

As we discussed, Roy F. Weston, Inc. (WESTON.) would apply its Low Temperature Thermal Treatment (LT³.) System to the TCE and DCE contaminated soil on your site. The LT³ is an indirectly heated screw conveyor to evaporate and condense organics or collect them on carbon columns that would be regenerated at off-site locations. A set of brochures describing the LT³ are attached.

Because WESTON uses indirect heating the total volume of gas emission is very small. The estimated emission from our processor while treating 20 tph is only 1,400 acfm at 70°F. The 8 inch diameter stack height is adjustable but typically only 6 feet above grade.

The budgetary cost estimate (±30%) based on the technical date in your 11 June 1993 letter is as follows:

• Plans and Per-operational Permitting	$ 355,000
• Mobilization	$ 760,000
• Excavation and Feed Material Prepared (14,500 yd³) ($20/yd)	$ 290,000
• Treatment of Soil (21,750 tons) ($70/ton)	$1,522,500
	$2,927,500

WESTON

Engineering-Science, Inc.
Attn: Mr. Michael Curry -2- 12 October 1993

This cost element does not include soil excavation dewatering or water treatment. These cannot be estimated based upon current information.

If you have any other questions, please call me at (215) 430-7423.

Very truly yours,

ROY F. WESTON, INC.

Michael G. Cosmos, P.E.
Operations and Engineering Manager
Treatment Systems

MGC:ma

E-SINC.O12

CanonieEnvironmental

Canonie Environmental Services Corp.
500 North Gulph Road · Third Floor
King of Prussia, Pennsylvania 19406
Phone: 215-337-2551
Fax: 215-337-0560

June 29, 1993

77-316-00

Mr. Michael Curry
Engineering-Science, Inc.
101 Huntington Avenue
Boston, MA 02199

<u>Thermal Desorption</u>
<u>Budgetary Cost Estimate</u>
<u>Ash Landfill Removal Action</u>

Dear Mr. Curry:

Canonie Environmental Services Corp. (Canonie) is pleased to submit a preliminary cost estimate for completing the Ash Landfill removal action using Canonie's low temperature thermal aeration (LTTA®) process. This submittal is prepared in response to your June 11, 1993 letter to Canonie and includes a description of the proposed remediation system and a budgetary cost estimate for completing the removal action.

<u>Description of the Proposed Remediation System</u>

Canonie will conduct the remediation using its transportable LTTA® soil processor. LTTA® is a thermal treatment technology developed by Canonie to treat soil containing volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), chlorinated pesticides, and other organic compounds. The system cost-effectively separates these hazardous constituents from excavated soil by heating the soil to a temperature of 300° F to 800° F. Following treatment, the soil may be redeposited on-site without restriction. A detailed description of Canonie's LTTA® soil remediation process is presented in the enclosed booklet.

An important aspect of Canonie's LTTA® soil remediation service is the on-site analysis of treated soil to verify compliance with site cleanup criteria. Compliance is verified and documented in Canonie's on-site analytical laboratory before treated soil is returned to the excavation.

Preliminary Cost Estimate

As requested in your June 11, 1993 letter, Canonie has reviewed the site information which you provided and has prepared a cost estimate for budgetary purposes. The estimated costs are presented below:

Item	Estimated Cost
Fixed Costs: Development of work plans, health and safety plans, and sampling and analysis plans; obtaining necessary permits; site preparation; mobilization; site restoration; disposal of treatment residuals such as spent carbon; and decontamination and demobilization of all excavation/treatment equipment.	$450,000
Treatment Costs: Soil excavation, segregation, and sizing operations; thermal desorption; off-gas treatment; process water treatment; backfill of treated soil; ambient air monitoring; and soil sampling and analysis (assumes treatment of 21,000 tons of soil).	$2,280,000
TOTAL ESTIMATED REMEDIATION COST	$2,730,000

The above estimate does not include costs for two items mentioned in your June 11, 1993 letter. These items are ground water treatment and water discharge. Your letter states that the soil requiring excavation may be unsaturated. In this case, dewatering of the excavation and ground water treatment and discharge will not be necessary. Because scrubber water in the LTTA® processor is treated and recycled for reuse or quenching of soil, there is no process water discharge from the LTTA®. Thus, if dewatering of the excavation is not required, there will be no water discharge to the creek or the publicly owned treatment works (POTW). Please note that Canonie has significant experience in designing, constructing, and operating ground water recovery and treatment systems. If ground water treatment is required, we would be happy to provide these services to you.

Conclusions

Based on the information presented in your June 11, 1993 letter, Canonie's LTTA® process will remediate the Ash Landfill soil impacts in a manner which is verifiable, cost-effective, and environmentally sound.

For your information, I have enclosed an LTTA® demonstration bulletin that was produced by the United States Environmental Protection Agency (EPA) Superfund Innovative Technology Evaluation (SITE) program. We are very proud of the success that has been documented by the EPA, and are certain that the LTTA® process will serve your purposes as well.

If you have any questions regarding the LTTA® process or the budgetary cost estimate, please do not hesitate to call.

Very truly yours,

Douglas M. Anderson

Douglas M. Anderson, P.E.
Project Engineer

DMA/rm

Enclosure

cc: Daniel Kelmar, Engineering-Science, Inc.

RETEC

Damonmill Square
9 Pond Lane
Concord, MA 01742-2851
(508) 371-1422
FAX (508) 369-9279

July 8, 1993

Mr. Michael Curry
Engineering Science, Inc.
Prudential Center
Boston, MA 02199

Dear Mr. Curry:

Enclosed is the budgetary cost estimate you solicited for the remediation of 15,000 yards of soil by thermal desorption. I have taken our price estimates and indicated the tasks which would be included in our general cost catagories. If you need more breakdown I will take some additional time to generate an itemized list.

I have also enclosed a copy of our Statement of Qualifications for thermal desorption and for subsurface treatment which includes soil venting. If you would like ReTeC to provide the same type of cost estimate for soil venting please contact me and I will have the estimate generated.

ReTeC would be glad to visit your offices and present our capabilities in and answer any questions you have concerning the cost estimate and our technology. Thank you for your consideration.

Sincerely,

Paul N. Rice

Task	Lump Sum	$/cubic yard	Total
Work Plans and Health and Safety Plan	$10,000		$10,000
Sampling and Analysis Plan	$5,000		$5,000
Commissioning	$600,000		$600,000
Permitting			
Treatability			
Mobilization			
Site Development			
Material Handling		$75	$1,125,000
Soils Removal			
Segregation Operations			
Sizing Operations			
Backfill Operations			
Excavation/Dewatering Groundwater Treatment*			
Debris Treatment and Offsite Disposal		$5	$75,000
Thermal Desorption		$258	$3,870,000
Offgas Treatment			
Water Treatment		$11	$165,000
Water Discharge			
Site Restoration		$5	$75,000
Clean fill*		$10	$15,000
Ambient Air Monitoring	$80,000		$80,000
Soil and Water Sampling and Analysis		$24	$360,000
Disposal of Secondary Wastes		$5	$75,000
Decommissioning	$150,000		$150,000
Equipment Decontamination			
Demobilization			
Stabilization**		$15	$225,000
Total			$6,830,000

TERRA VAC
57 EAST MAIN STREET, SUITE 205
WESTBOROUGH, MASSACHUSETTS 01581
TEL (508) 366-8033
FAX (508) 366-5442

June 17, 1993

Michael Curry
Project Engineer
Engineering-Science, Inc.
Prudential Center
Boston, MA 02199

RE: Removal Action in Western New York State
Terra Vac #42-0072

Dear Michael:

Per your request of June 11, 1993, Terra Vac has prepared this preliminary cost estimate for the removal action in Western New York State. Although we have attempted to be as accurate as possible, please keep in mind that this is a preliminary cost estimate only, based upon very limited site data and a preliminary scope of work.

<u>Site Conditions</u>
The site is in and adjacent to a former ash landfill. The surface of the site is unpaved, and gently rolling.

A 2 to 11 foot thick mantle of dense glacial till covers the shale on site. The till is generally characterized by silt, clay, and fine sand.

Groundwater elevation is highly variable, with complete saturation observed in springtime, and totally unsaturated conditions possibly occurring in late summer. Groundwater flow is thought to be from the north-east to south-west.

Approximately 55,000 square feet of the site is impacted with trichloroethylene (TCE), dichloroethylene (DCE), and other volatile and semivolatile compounds. There are two separate areas of contamination, with Area A being 38,000 square feet, and Area B being 17,000 square feet. The depth of contamination varies between 4 and 10 feet to bedrock.

Given the total volume of impacted soil, (14,500 cubic yards) and the average contaminant concentrations (TCE: 42 ppm; DCE: 8 ppm; other VOCs: 2 ppm), Terra Vac estimates that approximately 2,000 pounds of VOCs exist in the soils.

Vinyl chloride has been identified at the site, at an average concentration of 43 ppb. Terra Vac estimates that there is less than 1-1/2 pounds of vinyl chloride at the site.

No groundwater analytical data was available. For purposes of this proposal, it is assumed that the groundwater is impacted with low to moderate levels of the compounds listed above.

Assumptions

This preliminary cost estimate is based upon the following assumptions:

* Electrical service is available nearby
* Terrain is accessible with an ATV drilling rig
* Soil cuttings will be spread on-site
* Discharge of water will occur to a nearby creek
* TCE and DCE are the only two compounds of concern
* Groundwater transmissivity is low, and total dewatering flow rate will be 50 gpm or less
* Level B personal protection will be required during intrusive operations

Design Basis

Based upon the preliminary information provided, Terra Vac recommends using Dual Vacuum Extraction to dewater the site and remediate the soils. Dual Vacuum Extraction is the process of simultaneously removing both vapors and groundwater from the same well. By lowering the groundwater table and exposing the previously saturated zone to air flow, the source of continuing groundwater contamination is remediated, thereby remediating the groundwater in conjunction with the soil.

With the fairly low total mass of VOCs, carbon adsorption has been selected for vapor treatment. Vinyl chloride is assumed not to be a problem due to the low total mass, but air modeling should be done to verify this prior to the final selection of a vapor treatment system. Extracted groundwater would be treated using a low-profile aeration unit with carbon polish, and discharged to a nearby stream. Vapors from the aeration unit would be treated through the vapor treatment system.

Given the expected low permeability of the site soils, and the shallow depth of contamination, a ten foot effective radius of influence (ROI) has been assumed. Using this ROI, approximately 120 wells are required for Area A, and approximately 50 for Area B. Terra Vac recommends verifying the ROI before full-scale implementation using a phased installation approach.

With 170 shallow wells, a dual vacuum extraction system capable of treating roughly 2500 SCFM of vapors and 50 gpm of groundwater has been assumed. It is anticipated that the extraction blowers will need to be capable of generating a medium vacuum (12" Hg to 18" Hg).

Given the maximum levels of TCE (540 ppm) and DCE (79 ppm), and the stated cleanup objectives (0.7 ppm, 0.3 ppm, respectively), soil concentration reductions of up to 99.9% will be required. Using the system described above, this will likely take 1-2 years. An operational time of 18 months is used for estimating purposes.

Cost Estimate

Terra Vac presents the following preliminary cost estimate for the tasks outlined in the request dated June 11, 1993:

Task		Cost
1. Work Plan, H&S Plan, S&A Plan, Permitting, Design, Mobilization		$100,000
2. Well Installation		$85,000
3. Treatment System Installation		$500,000
4. Operations, per month	$30,000	
Total Operations, 18 months		$540,000
5. Interim and Confirmatory Soil and Water Analysis		$300,000
6. Demobilization		$150,000
TOTAL ESTIMATED PROJECT COST		$1,675,000

Please remember that this is a preliminary cost estimate only. Actual costs will vary depending on the actual scope of work and site conditions encountered. In particular, the actual ROI will greatly impact the drilling costs; and the actual water extraction rate will greatly impact the construction and operations cost.

We look forward to presenting a formal bid to Engineering-

Science, Inc. later this year. Please do not hesitate to contact us if you have any questions regarding this estimate.

Sincerely,

David E. Ott, P.E.
Division Manager, New England

CC: J. Malot
E. Malmanis
R. Ross
File 42-0072.12

VAPEX

VAPEX
ENVIRONMENTAL
TECHNOLOGIES

480 NEPONSET STREET
CANTON, MA 02021

617-821-5560
617-821-4967 FAX

4100 QUAKERBRIDGE ROAD
LAWRENCEVILLE, NJ 08648

1-800-969-VAPEX

July 7, 1993

Mr. Michael Curry
Project Engineer
Engineering-Science, Inc.
Prudential Center
Boston, MA 02199

RE: Cost Estimate, Soil Vapor Extraction (SVE), Seneca, NY Site

Dear Mr. Curry:

In response to your request, Vapex Environmental Technologies, Inc., (*VAPEX*) has reviewed the information that you provided concerning the site referenced above. The following text discusses the results of our review and presents rough cost estimates for your consideration as you develop plans for the remediation of the site.

As you are aware, *VAPEX* has built its approach to the design of remedial systems on a fundamental understanding of the sub-surface processes that govern the effectiveness of the technology. While other companies focus on above-ground hardware, *VAPEX* believes that only by measuring site-specific physical and chemical parameters, and accounting for these factors in the design process, can a predictable, efficient, and cost-effective system be constructed. *VAPEX* uses proprietary models as design tools and a wealth of construction and operation experience gained from over 250 remedial projects to plan for and achieve site remediation goals.

In addition, as a subsidiary of Envirogen, Inc., a leader in the development and application of biotechnology for the environmental market, *VAPEX* is uniquely qualified to evaluate, design and implement biological treatment for remedial programs. Envirogen's facility in Lawrenceville, NJ, includes full laboratory capabilities to conduct treatability studies for the accurate assessment of the potential of bioremediation of contaminated soils and groundwater.

This estimate has been prepared based on a review of the data presented in your letter dated June 11, 1993. The costs presented are a rough estimate presented for planning purposes only. In addition, this estimate has been provided to Engineering-Science as a courtesy to assist in the Feasibility Study phase of this program. In return, *VAPEX* expects to be offered an opportunity to bid on the SVE pilot testing, design and installation phases of the program at the appropriate times.

In general, it appears that these soils will exhibit somewhat low permeability to air when tested. For this reason, we have based our cost estimate on a conservative estimate of the effective radius of influence of each SVE well.

VAPEX
ENVIRONMENTAL
TECHNOLOGIES

VAPEX's estimate for the site is as follows:

Area A

Area: 38,000 square feet
Number of SVE wells: 200, each to a depth of 7 feet
Manifold piping: 5,800 linear feet

Drilling:	$76,000 to $125,000
Manifold and installation:	$98,000 to $130,000
Equipment, Buildings & Installation:	$200,000 to $275,000
System Startup:	$50,000
Subtotal, Northwestern Source Area:	$424,000 to $580,000

Area B

Area: 17,000 square feet
Number of SVE wells: 85, each to a depth of 7 feet
Manifold piping: 2500 linear feet

Drilling:	$37,000 to $64,000
Manifold and installation:	$49,000 to $75,000
Equipment & Installation:	$50,000
System Startup:	$10,000
Subtotal, Northeastern Source Area:	$146,000 to $199,000

In-Situ Summary

Mobilization:	$ 50,000
Area A:	$424,000 to $580,000
Area B:	$ 146,000 to $199,000
Air Controls System:	$150,000 to $250,000
Water Treatment System:	$150,000 to $250,000
Total	$920,000 to $1,329,000
Operation & Maintenance (24 months):	$150,000 to $300,000
TOTAL ESTIMATED COST:	**$1,070,000 to $1,629,000**

VAPEX
ENVIRONMENTAL
TECHNOLOGIES

Once again, it was a pleasure speaking with you again, and I hope that this information is adequate for your needs. If you have any questions regarding this estimate, please feel free to contact me or Mr. Peter Nangeroni, P.E., *VAPEX's* Vice President of Operations.

We would welcome the opportunity to work for Engineering-Science, Inc., on this program or any others in the future.

Sincerely,
VAPEX ENVIRONMENTAL TECHNOLOGIES, INC.

Scott R. Drew
Director, Business Development

CC: Mr. Peter Nangeroni, P.E., *VAPEX*

RUST REMEDIAL SERVICES INC.

100 Nassau Park Boulevard
Princeton, NJ 08540
Tel. (609) 243-7800

July 8, 1993

Mr. Michael Curry
Project Engineer
Engineering-Science, Inc.
Prudential Center
Boston, Massachusetts 02199

RE: ROMULUS, NEW YORK, PROJECT SITE

RRS Proposal No. 432387

Dear Mr. Curry:

RUST Remedial Services Inc. (RRS) is pleased to submit to Engineering-Science, Inc. this outline of estimated costs for project remediation activities at your client's site near Romulus, New York. These costs are being provided with the understanding that this is for budgetary purposes only and for your exclusive use with your client. These cost numbers cannot be used for any other purpose except by written permission from RRS.

The scope of work provided by you in a letter dated 15 June 1993 results in the following cost outline:

	Estimated Cost
Develop Work Plans and Health and Safety Plans for site activities	$5,000
Obtain necessary permits	$2,500
Develop Sampling Plans and implement sampling program to include analysis for disposal at CWM (Chemical Waste Management, Inc., Model City, NY)	$50,000
Site Mobilization of Personnel and Equipment to include site preparation and development	$175,000
Excavate 14,500 cubic yards of contaminated soil	$275,000
Ground water treatment and dewatering	$75,000

	Estimated Cost
Transportation and Disposal $178*-$278*/ton for 14,500 cu. yds. at 1.5 tons/cu. yd. or 21,750 tons	*$3,871,500-$6,046,500
Backfill to grade - site restoration	$215,000
Air monitoring	$150,000
Demobilization	$65,000
Estimated Total:	$4,884,000-$7,059,000

*Note: Transportation and Disposal costs are dependent on sample analysis and approval at CWM, Model City, NY. These costs can be significantly reduced based on analytical data and sample evaluation.

To provide a very detailed operation plan and cost analysis it would be necessary to meet with your client and visit the project site to better understand your total scope of the project. Because we have not had this opportunity, the cost numbers provided may not represent the true accuracy necessary to provide advisement to your client.

RRS can provide a variety of capabilities to you and your client with respect to this project. Utilizing one company for all on-site activities in conjunction with providing transportation and disposal will be a cost saving advantage to you and reduce your client's environmental liabilities.

RRS offers a wealth of experience (see attached capabilities) as well as access to the resources of other RUST International Inc. companies, including:

- RUST Environment and Infrastructure (REI) with 80 years of environmental engineering and consulting experience;
- RUST Industrial Services with over 15 years of industrial services (including cleaning, demolition, marine construction and scaffolding) experience;
- RUST Construction Services, with 80 years of large-scale heavy construction experience in fields of energy systems, materials handling, chemical processing, metals, environmental and automation control;
- RUST Engineering, with 80 years of experience in architectural, electrical, control systems, mechanical, piping, structural, and civil engineering; and
- RUST Limited, the company's International Business Unit.

Please review these estimated costs and if questions develop please contact me at 716-754-0328 / 215-245-8100.

All correspondence should be forwarded to the RRS regional office at:

RUST Remedial Services Inc.
3220 Tillman Drive, Suite 200
Bensalem, Pennsylvania 19020

Phone 215-245-8100
FAX 215-245-8116

Thank you for considering RUST Remedial Services Inc. for your client's hazardous waste and remediation requirements.

Sincerely,
RUST Remedial Services Inc.

Art Pethybridge Jw

Arthur Pethybridge
Business Development Manager

cc: Dana Kaas
Mike Warminsky
Lauren Sionko (CWM)

RUST REMEDIAL SERVICES INC. CAPABILITIES

- On-site Innovative Technologies

  - Low-temperature thermal desorption
  - X*TRAX™ thermal organics extractor
  - LT*X™
  - PY*ROX™ High-temperature incineration of RCRA and PCB wastes
  - In-situ and ex-situ bioremediation
  - MAG*SEP™ metals removal water treatment system
  - ACT*DE*CON™ actinides removal chemical treatment system
  - Soil vapor extraction
  - Chem*Matrix℠ and MEC*Tool™ ex-situ and in-situ stabilization and solidification systems
  - De*Chlor™ chemical dechlorination system
  - Groundwater, surface water, and wastewater treatment

    - PO*WW*ER™ organics separator
    - Pumping and extraction
    - Injection wells
    - Air stripping
    - UV oxidation
    - Modeling
    - Feasibility studies
    - Carbon phase filtration
    - Filter pressing
    - Fuel recovery
    - Chemical neutralization, reduction, and stabilization
    - Oil/water separation
    - Biodegradation/bioreclamation
    - Ion exchange

- Engineered controls

  - Slurry trench cut-off walls
  - Landfill/impoundment closures
  - Permeable and impermeable caps
  - Subsurface drains
  - Grout curtains
  - Sheet piling cut-off walls
  - Injection barriers and flow control
  - Waste site bottom sealing
  - Dikes and levees
  - Revegetation
  - Grading contouring

- Media monitoring and sampling

- Air pollution controls

  - Gas collection and venting
  - Dust suppression
  - Wind screens

- Nuclear waste treatment and disposal

- Excavation and off-site disposal of contaminated materials

***** VERSION 3.0 DRAFT *****

DATE: 10/14/93
TIME: 13:17:37

CORA GROUNDWATER EXTRACTION COST MODULE (206)

SITE NAME: SENECA ARMY DEPOT
OPERABLE UNIT: ASH LANDFILL ESTIMATED START: MID FY 1994
SCENARIO: SOIL VAPOR EXTRACTION
RUN BY: Dan Kelmar PHONE NUMBER:

INPUTS

Parameter	Value
Number of wells known?	Y
Number of wells	15
Pumping rate per well (GPM)	10.0
Well diameter (inches)	6
Will wells be gravel packed?	Y
Average well depth (ft)	10
Transfer piping length (ft)	1000
Pumping water level/well (ft)	3
Average temp (degrees F)	65
Confidence level	L
Protection above grade	D
Protection during drilling	B

RESULTS

Component	Total
CAPITAL COST	78,000
O & M COSTS	94,000

BYPRODUCTS FOR TRANSPORT/DISPOSAL:

WELL CUTTINGS (CY) (SWELL FACTOR=1.25)	4

***** VERSION 3.0 DRAFT *****

DATE: 10/14/93
TIME: 13:18:05

CORA SOIL VAPOR EXTRACTION COST MODULE (305)

SITE NAME: SENECA ARMY DEPOT
OPERABLE UNIT: ASH LANDFILL ESTIMATED START: MID FY 1994
SCENARIO: SOIL VAPOR EXTRACTION
RUN BY: Dan Kelmar PHONE NUMBER:

INPUTS		RESULTS	
Parameter	Value	Component	Total
Soil: Silty clay, clay		CAPITAL COST	1,500,000
Site area (square ft)	45000	O & M COSTS	70,000
Well spacing (ft)	20		
Average length of well screen per well (ft)	5	TOTAL VAPOR FLOW (CFM)	700
Well depth (ft)	8	NUMBER OF WELLS	112
Vapor flow per well per length of well screen	1	VOCs (LBS/DAY)	2.74
VOCs on site (lbs)	1000.00	BYPRODUCTS FOR TRANSPORT/DISPOSAL:	
Protection level for well drilling & installation	B	WELL CUTTINGS (CY)	33
Protection level for above grade construction	D	(SWELL FACTOR = 1.25)	
Average temp (degrees F)	65		
Confidence level	L		

***** VERSION 3.0 DRAFT *****

DATE: 10/14/93
TIME: 13:18:47

CORA VAPOR PHASE CARBON COST MODULE (308)

SITE NAME: SENECA ARMY DEPOT
OPERABLE UNIT: ASH LANDFILL ESTIMATED START: MID FY 1994
SCENARIO: SOIL VAPOR EXTRACTION
RUN BY: Dan Kelmar PHONE NUMBER:

INPUTS		RESULTS	
Parameter	Value	Component	Total
Loading (lbs/day)	4	CAPITAL COST	86,000
Air flow (CFM)	650	O & M COSTS	95,000
Discount rate (%)	8.4		
Years in service	2.0		
Protection level	D		
Confidence level	L	CARBON USED (LB/YR)	14,976
Average temp (degrees F)	65		

*** Costs shown are for disposable system