01904

85

RISK TABLES - DECISION DOCUMENT
FOURTEEN AREAS OF CONCERN
SENECA ARMY DEPOT
ROMULUS, NEW YORK

Prepared For:

Seneca Army Depot
Romulus, New York

Prepared By:

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LIST OF ATTACHMENTS

ATTACHMENT A
Fourteen Areas of Concern

TABLE A-1
MINI-RISK ASSESSMENT SITES
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

SITE	DESCRIPTION
SEAD-9	Old Scrap Wood Site
SEAD-27	Building 360 - Steam Cleaning Waste Tank
SEAD-28	Building 360 - Underground Waste Oil Tanks (2)
SEAD-32	Building 718 - Underground Waste Oil Tanks(2)
SEAD-33	Building 121 - Underground Waste Oil Tank
SEAD-34	Building 319 - Underground Waste Oil Tanks (2)
SEAD-58	Building 606 - Herbacide and Pestacide Storage
SEAD-64A	Garbage Disposal Area
SEAD-64B	Garbage Disposal Area
SEAD-64C	Garbage Disposal Area
SEAD-64D	Garbage Disposal Area
SEAD-66	Pesticide Storage Near Buildings 5 and 6
SEAD-68	Building S-335 - Old Pest Control Shop
SEAD-70	Fill Area Adjacent to Building T-2100

TABLE A-2
BASIS FOR MINI-RISK ASSESSMENT
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

SEAD NO.	DESCRIPTION	MEDIA INVESTIGATED[1]	FUTURE LAND USE	RECEPTORS AND EXPOSURE PATHWAYS[6]
9	Old Scrap Wood Site	Soil, GW[2]	Planned Industrial Development	**Industrial Worker:** Air-Dust (IH), Soil (IG, D), GW (IG) **Construction Worker:** Air-Dust/VOC[7] (IH), Soil (IG,D) **Worker at On-Site Day Care Center:** Air-Dust (IH), Soil (IG, D), GW (IG) **Child at On-Site Day Care Center:** Air-Dust (IH), Soil (IG, D), GW (IG)
27	Building 360 - Steam Cleaning Waste Tank		Planned Industrial Development	**Industrial Worker:** **Construction Worker:** **Worker at On-Site Day Care Center:** **Child at On-Site Day Care Center:** **Trespasser (Child):**
28	Building 360 - Underground Waste Oil Tanks (2)		Planned Industrial Development	**Industrial Worker:** **Construction Worker:** **Worker at On-Site Day Care Center:** **Child at On-Site Day Care Center:** **Trespasser (Child):**
32	Building 718 - Underground Waste Oil Tanks (2)	Soil, GW[3]	Institutional	**Institution Worker:** Air-Dust (IH), Soil (IG, D), GW (IH, IG, D) **Institution Student:** Air-Dust (IH), Soil (IG, D), GW (IH, IG, D) **Construction Worker:** Air-Dust/VOC (IH), Soil (IG,D) **Worker at On-Site Day Care Center:** Air-Dust (IH), Soil (IG, D), GW (IG) **Child at On-Site Day Care Center:** Air-Dust (IH), Soil (IG, D), GW (IG)

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BASIS FOR MINI-RISK ASSESSMENT
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

SEAD NO.	DESCRIPTION	MEDIA INVESTIGATED[1]	FUTURE LAND USE	RECEPTORS AND EXPOSURE PATHWAYS[6]
33	Building 121 - Underground Waste Oil Tank	Soil[3]	Planned Industrial Development	**Industrial Worker**: Air-Dust (IH), Soil (IG, D) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D) **Worker at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D) **Child at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D)
34	Building 319 - Underground Waste Oil Tanks (2)	Soil, GW[3]	Planned Industrial Development	**Industrial Worker**: Air-Dust (IH), Soil (IG, D), GW (IG) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D) **Worker at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D), GW (IG) **Child at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D), GW (IG)
58	Debris Area near Booster Station 2131	Soil, GW, SW, Sed[2]	Conservation and Recreation	**Park Worker**: Air-Dust (IH), Soil (IG, D), GW (IG), SW (D), Sed (D) **Recreational Visitor (Child)**: Air-Dust (IH), Soil (IG, D), GW (IH, IG, D), SW (D), Sed (D) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D)
64A	Garbage Disposal Area	Soil, GW[2]	Warehouse	**Warehouse Worker**: Air-Dust (IH), Soil (IG, D), GW (IG) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D) **Trespasser (Child)**: Air-Dust (IH), Soil (IG,D)

TABLE A-2
BASIS FOR MINI-RISK ASSESSMENT
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Seneca Army Depot Activity

SEAD NO.	DESCRIPTION	MEDIA INVESTIGATED[1]	FUTURE LAND USE	RECEPTORS AND EXPOSURE PATHWAYS[6]
64B	Garbage Disposal Area	Soil, GW, SW, Sed[2]	Conservation and Recreation	**Park Worker**: Air-Dust (IH), Soil (IG, D), GW (IG), SW (D), Sed (D) **Recreational Visitor (Child)**: Air-Dust (IH), Soil (IG, D), GW (IH, IG, D), SW (D), Sed (D) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D)
64C	Garbage Disposal Area	Soil, GW[2]	Prison	**Prison Worker**: Air-Dust (IH), Soil (IG, D), GW (IH, IG, D) **Prison Inmate**: Air-Dust (IH), Soil (IG, D), GW (IH, IG, D) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D) **Worker at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D), GW (IG) **Child at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D), GW (IG)
64D	Garbage Disposal Area	Soil, GW[2]	Conservation and Recreation	**Park Worker**: Air-Dust (IH), Soil (IG, D), GW (IG) **Recreational Visitor (Child)**: Air-Dust (IH), Soil (IG, D), GW (IH, IG, D) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D)
66	Pesticide Storage Near Buildings 5 and 6	Soil[4]	Planned Industrial Development	**Industrial Worker**: Air-Dust (IH), Soil (IG, D) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D) **Worker at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D) **Child at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D)

TABLE A-2
BASIS FOR MINI-RISK ASSESSMENT
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

SEAD NO.	DESCRIPTION	MEDIA INVESTIGATED[1]	FUTURE LAND USE	RECEPTORS AND EXPOSURE PATHWAYS[6]
68	Building S-335 - Old Pest Control Shop	Soil[5]	Planned Industrial Development	**Industrial Worker**: Air-Dust (IH), Soil (IG, D) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D) **Worker at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D) **Child at On-Site Day Care Center**: Air-Dust (IH), Soil (IG, D)
70	Fill Area Adjacent to Building T-2110	Soil, GW, SW, Sed[2]	Conservation and Recreation	**Park Worker**: Air-Dust (IH), Soil (IG, D), GW (IG), SW (D), Sed (D) **Recreational Visitor (Child)**: Air-Dust (IH), Soil (IG, D), GW (IH, IG, D), SW (D), Sed (D) **Construction Worker**: Air-Dust/VOC (IH), Soil (IG,D)

Notes:

1. Media Investigated:
   - Soil
   - Groundwater (GW)
   - Surface Water (SW)
   - Sediment (Sed)
2. Type of media was obtained through the Expanded Site Inspection Reports (Parsons, 1995 and 1996).
3. Type of media was obtained through the SWMU Classification Reports - Limited Sampling (Parsons, 1994).
4. Type of media was obtained through the Project Scoping Plan (Parsons, 1996).
5. Type of media was obtained through the Investigation of Environmental Baseline Report (Parsons, 1998).
6. Exposure Pathways:
   - Inhalation (IH)
   - Ingestion (IG)
   - Dermal Contact (D)
7. Inhalation of volatile organic compounds (VOCs) in dust will be reviewed. Significant concentrations will be included in the risk calculations.

TABLE A-3
TOXICITY VALUES
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

Analyte	Oral RfD (mg/kg-day)		Inhalation RfD (mg/kg-day)		Carc. Slope Oral (mg/kg-day)-1		Rank Wt. of Evidence	Carc. Slope Inhalation (mg/kg-day)-1		Dermal RfD (mg/kg-day)		Carc. Slope Dermal (mg/kg-day)-1		Oral Absorption Factor	
Volatile Organics															
Acetone	1.00E-01	a	NA	a	NA	a	D	NA	a	1.00E-01	f	NA		1.00	j
Benzene	3.00E-03	i	1.71E-03	i	2.90E-02	a	A	2.73E-02	a	2.85E-03	f	3.05E-02	g	0.95	k
Carbon disulfide	1.00E-01	a	2.00E-01	a	NA	a	NA	NA	a	6.30E-02	f	NA		0.63	k
Chlorobenzene	2.00E-02	a	5.70E-03	b	NA	a	D	NA	a	NA		NA		1.00	
Chloroform	1.00E-02	a	NA	a	6.10E-03	a	B2	8.05E-02	a	1.00E-02	f	6.10E-03	g	1.00	k
Ethylbenzene	1.00E-01	a	2.86E-01	a	NA	a	D	NA	a	NA		NA		1.00	
Methylene chloride	6.00E-02	a	8.57E-01	b	7.50E-03	a	B2	1.65E-03	a	5.88E-02	f	7.65E-03	g	0.98	k
Methyl ethyl ketone	6.00E-01	a	2.86E-01	a	NA	a	D	NA	a	6.00E-01	f	NA		1.00	j
Tetrachloroethene	1.00E-02	a	NA	c	5.20E-02	c	NR	2.00E-03	c	1.00E-02	f	5.20E-02	g	1.00	j
Toluene	2.00E-01	a	1.14E-01	a	NA	a	D	NA	a	2.00E-01	f	NA		1.00	j
Trichloroethene	NA	a	NA	c	1.10E-02	c	NA	6.00E-03	c	NA		1.22E-02	g	0.90	k
Total Xylenes	2.00E+00	a	NA	c	NA	a	D	NA	a	1.80E+00	f	NA		0.90	k
Semivolatiles*															
2-Methylnaphthalene	4.00E-02	i	NA	a	NA	a	NA	NA	a	4.00E-02	f	NA		1.00	j
4-Methylphenol	5.00E-03	b	NA	a	NA	a	C	NA	a	NA		NA		1.00	
Acenaphthene	6.00E-02	a	NA	a	NA	a	NA	NA	a	6.00E-02	f	NA		1.00	j
Acenaphthylene	NA	c	NA	a	NA	a	D	NA	a	NA		NA		1.00	j
Anthracene	3.00E-01	a	NA	a	NA	a	D	NA	a	3.00E-01	f	NA		1.00	j
Benzo(a)anthracene	NA	a	NA	a	7.30E-01	c	B2	NA	a	NA		7.30E-01	g	1.00	j
Benzo(a)pyrene	NA	a	NA	a	7.30E+00	a	B2	NA	a	NA		1.46E+01	g	0.50	k
Benzo(b)fluoranthene	NA	a	NA	a	7.30E-01	c	B2	NA	a	NA		7.30E-01	g	1.00	j
Benzo(ghi)perylene	NA	a	NA	a	NA	a	D	NA	a	NA		NA		1.00	j
Benzo(k)fluoranthene	NA	a	NA	a	7.30E-02	c	B2	NA	a	NA		7.30E-02	g	1.00	j
Butylbenzylphthalate	2.00E-01	b	NA	a	NA	a	C	NA	a	2.00E-01	f	NA		1.00	j
Carbazole	NA	a	NA	a	2.00E-02	b	B2	NA	a	NA		2.00E-02	g	1.00	j
Chrysene	NA	a	NA	a	7.30E-03	c	B2	NA	a	NA		7.30E-03	g	1.00	j
Dibenz(a,h)anthracene	NA	a	NA	a	7.30E+00	c	B2	NA	a	NA		7.30E+00	g	1.00	j
Dibenzofuran	NA	a	NA	a	NA	a	D	NA	a	NA		NA		1.00	j
Diethyl phthalate	8.00E-01	b	NA	a	NA	a	D	NA	a	8.00E-01	f	NA		1.00	j
Di-n-butylphthalate	1.00E-01	a	NA	a	NA	a	D	NA	a	9.00E-02	f	NA		0.90	k
Di-n-octylphthalate	2.00E-02	b	NA	a	NA	a	NA	NA	a	NA		NA		1.00	j
Fluoranthene	4.00E-02	a	NA	a	NA	a	D	NA	a	4.00E-02	f	NA		1.00	j
Fluorene	4.00E-02	a	NA	a	NA	a	D	NA	a	4.00E-02	f	NA		1.00	j
Indeno(1,2,3-cd)pyrene	NA	a	NA	a	7.30E-01	c	B2	NA	a	NA		7.30E-01	g	1.00	j
Naphthalene	2.00E-02	a	8.60E-04	a	NA	a	C	NA	a	2.00E-02	f	NA		1.00	j
Pentachlorophenol	3.00E-02	a	NA	a	1.20E-01	a	B2	NA	a	3.00E-02	f	1.20E-01	g	1.00	j
Phenanthrene	NA	a	NA	a	NA	a	D	NA	a	NA		NA		1.00	j
Phenol	6.00E-01	a	NA	a	NA	a	D	NA	a	5.40E-01	f	NA		0.90	k
Pyrene	3.00E-02	a	NA	a	NA	a	D	NA	a	3.00E-02	f	NA		1.00	k
bis(2-Ethylhexyl)phthalate	2.00E-02	a	NA	a	1.40E-02	a	B2	NA	a	1.00E-02	f	2.80E-02	g	0.50	k
Pesticides/PCBs															
4,4'-DDD	NA	a	NA	a	2.40E-01	a	B2	NA	a	NA		1.20E+00	g	0.20	k
4,4'-DDE	NA	a	NA	a	3.40E-01	a	B2	NA	a	NA		1.70E+00	g	0.20	k
4,4'-DDT	5.00E-04	a	NA	a	3.40E-01	a	B2	3.40E-01	a	1.00E-04	f	1.70E+00	g	0.20	k
Aldrin	3.00E-05	a	NA	a	1.70E+01	a	B2	1.72E+01	a	1.50E-05	f	3.40E+01	g	0.50	k
Aroclor-1254	2.00E-05	a	NA	a	2.00E+00	a	B2	4.00E-01	a	1.80E-05	f	2.22E+00	g	0.90	k
Dieldrin	5.00E-05	a	NA	a	1.60E+01	a	B2	1.61E+01	a	2.50E-05	f	3.20E+01	g	0.50	k
Endosulfan I	6.00E-03	o	NA	a	NA	a	NA	NA	a	6.00E-03	f	NA		1.00	j
Endosulfan II	6.00E-03	o	NA	a	NA	a	NA	NA	a	6.00E-03	f	NA		1.00	j
Endosulfan sulfate	6.00E-03	o	NA	a	NA	a	NA	NA	a	6.00E-03	f	NA		1.00	j
Heptachlor	5.00E-04	a	NA	a	4.50E+00	a	B2	4.55E+00	a	5.00E-04	f	4.50E+00	g	1.00	j
Heptachlor epoxide	1.30E-05	a	NA	a	9.10E+00	a	B2	9.10E+00	a	1.30E-05	f	9.10E+00	g	1.00	j
alpha-Chlordane	5.00E-04	p	2.00E-04	p	3.50E-01	p	B2	3.50E-01	p	5.00E-04	f	3.50E-01	g	1.00	j
gamma-BHC (Lindane)	3.00E-04	a	NA	a	1.30E+00	a	B2/C	NA	a	3.00E-04	f	1.80E+00	x	1.00	j
gamma-Chlordane	5.00E-04	p	2.00E-04	p	3.50E-01	p	B2	3.50E-01	p	5.00E-04	f	3.50E-01	g	1.00	j
delta-BHC	NA	a	NA	a	NA	a	NA	NA	a	NA		NA		1.00	j
Metals															
Aluminum	1.00E+00	m	1.43E-03	m	NA	a	D	NA	a	NA		NA		0.04	k
Antimony	4.00E-04	a	NA	e	NA	a	B1	NA	a	4.00E-04	f	NA		0.01	k
Arsenic	3.00E-04	a	NA	e	1.50E+00	d	A	1.51E+01	a	2.40E-04	f	1.88E+00	g	0.80	k
Barium	7.00E-02	a	1.43E-04	b	NA	a	D	NA	a	3.50E-02	f	NA		0.50	k
Beryllium	2.00E-03	a	6.00E-06	a	NA	a	B2	8.40E+00	a	2.00E-05	f	NA		0.01	k
Cadmium	5.00E-04	q	NA	a	NA	a	B1	6.30E+00	a	5.00E-05	f	NA		0.10	l
Calcium	NA	a	NA	a	NA	a	NA	NA	a	NA		NA		1.00	j
Chromium	3.00E-03	r	2.80E-05	r	NA	a	A	4.20E+01	r	6.00E-05	f	NA		0.02	k
Cobalt	6.00E-02	m	NA	a	NA	a	NA	NA	a	NA		NA		0.05	k
Copper	4.00E-02	b	NA	a	NA	a	D	NA	a	2.40E-02	f	NA		0.60	k
Cyanide	2.00E-02	a	NA	a	NA	a	D	NA	a	1.00E-02	f	NA		0.50	k
Iron	3.00E-01	e	NA	a	NA	a	NR	NA	a	6.00E-02	f	NA		0.20	k
Lead	NA	a	NA	a	NA	a	B2	NA	a	NA		NA		0.15	k
Magnesium	NA	a	NA	a	NA	a	D	NA	a	NA		NA		1.00	j
Manganese	5.00E-02	s	1.40E-05	a	NA	a	D	NA	a	1.50E-03	f	NA		0.03	k
Mercury	3.00E-04	t	8.57E-05	a	NA	a	D	NA	a	3.00E-06	f	NA		0.01	k
Nickel	2.00E-02	a	NA	a	NA	a	NR	NA	a	8.00E-04	f	NA		0.04	k
Potassium	NA	a	NA	a	NA	a	NA	NA	a	NA		NA		1.00	j
Selenium	5.00E-03	a	NA	a	NA	a	D	NA	a	4.50E-03	f	NA		0.90	k
Sodium	NA	a	NA	a	NA	a	NA	NA	a	NA		NA		1.00	j
Thallium	8.00E-05	u	NA	a	NA	a	D	NA	a	8.00E-05	f	NA		1.00	k
Vanadium	7.00E-03	b	NA	a	NA	a	D	NA	a	7.00E-05	f	NA		0.01	k
Zinc	3.00E-01	a	NA	a	NA	a	D	NA	a	7.50E-02	f	NA		0.25	k
Herbicides															
2,4,5-T	1.00E-02	a	NA	a	NA	a	NA	NA	a	1.00E-02	f	NA		1.00	j
2,4-DB	8.00E-03	a	NA	a	NA	a	NA	NA	a	8.00E-03	f	NA		1.00	j

a = Taken from the Integrated Risk Information System (IRIS) (Online August 1999)
b = Taken from HEAST 1995
c = Calculated using TEF
d = Calculated from proposed oral unit risk value
e = Provided by USEPA - October 1993
f = Calculated from oral RFD value. (Dermal Rfd = Oral Rfd * Oral Absorption Factor)
g = Calculated from oral slope factor (Dermal Slope Factor = Oral Slope Factor/Oral Absorption Efficiency)
h = Slope factor is for the mixture of 2,4/2,6-dinitrotoluene.
i = Provisional health guideline from EPA Risk Assessment Issue Papers (1995-1996) provided by EPA Technical Support Center.
(Inhalation RfD's were derived from EPA RfC's based on the assumption of 20 m3/day inhalation rate and 70 kg body weight.)
j = Where no oral absorption efficiency data are available, EPA Region 2 recommends that no adjustment be made for relative absorption (i.e. assume oral absorption factor = 1.0)
k = Taken from ATSDR Toxicity Profiles (1989 - 1995)
l = EPA Region 2 accepted oral absorption factor for cadmium (personal communication between A. Schatz of Parsons and M. Maddaloni of EPA)
m = Provisional health guideline from EPA Risk Assessment Issue Papers (1997) provided by EPA Technical Support Center.
(Inhalation RfD's were derived from EPA RfC's based on the assumption of 20 m3/day inhalation rate and 70 kg body weight.)
n = RfD is for aroclor-1254.
o = Value for Endosulfan.
p = Value for Chlordane.
q = Two RfDs are available for cadmium and the most conservative is presented.
r = Values for Chromium VI.
s = For manganese, for dietary intake, a RfD of 0.14 mg/kg/day is presented in IRIS. For non-dietary intake (groundwater/soil), IRIS recommends applying a modifying factor of 3, resulting in an RfD of 0.05 mg/kg/day.
t = Value for mercuric chloride.
u = Value for thallium chloride.
NA = Not Available
*Dinitrotoluene, 2,4- and dinitrotoluene, 2,6- were analyzed as both nitroaromatics and semivolatiles.

TABLE A-4
CHEMICALS OF POTENTIAL CONCERN IN SOIL
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

COMPOUND	SEAD-9	SEAD-27	SEAD-28	SEAD-32	SEAD-33	SEAD-34	SEAD-58	SEAD-64A	SEAD-64B	SEAD-64C	SEAD-64D	SEAD-66	SEAD-68	SEAD-70
Volatile Organics														
Acetone									X					X
Benzene								X					X	
Carbon disulfide									X					
Chlorobenzene	X													
Chloroform													X	
Ethylbenzene	X													
Methyl ethyl ketone									X		X			X
Methylene chloride				X			X		X		X			
Tetrachloroethene													X	
Toluene	X							X			X		X	X
Total Xylenes	X												X	
Trichloroethene								X					X	
Semivolatile Organics														
2-Methylnaphthalene	X							X			X		X	
Acenaphthene	X							X					X	
Acenaphthylene	X							X						
Anthracene	X							X					X	
Benzo(a)anthracene	X							X	X		X		X	
Benzo(a)pyrene	X							X	X		X		X	
Benzo(b)fluoranthene	X							X	X		X		X	
Benzo(ghi)perylene	X							X	X		X		X	
Benzo(k)fluoranthene								X	X		X		X	
Bis(2-Ethylhexyl)phthalate	X						X	X	X	X	X		X	X
Butylbenzylphthalate													X	
Carbazole	X							X					X	
Chrysene	X						X	X	X		X		X	
Dibenz(a,h)anthracene	X							X			X		X	
Dibenzofuran	X							X					X	
Di-n-butylphthalate	X							X	X	X	X		X	X
Di-n-octylphthalate							X				X		X	X
Fluoranthene	X						X	X	X		X		X	X
Fluorene	X							X					X	
Indeno(1,2,3-cd)pyrene	X							X	X		X		X	
Naphthalene	X							X			X		X	
Pentachlorophenol													X	
Phenanthrene	X							X	X		X		X	
Phenol								X			X			
Pyrene	X						X	X	X		X		X	X
Pesticides/PCBs														
4,4'-DDD	X							X				X		
4,4'-DDE	X							X	X			X	X	
4,4'-DDT	X							X	X			X	X	
Aldrin	X								X					
Alpha-Chlordane	X							X				X	X	
Aroclor-1254	X											X		
Delta-BHC	X													
Dieldrin	X							X		X				
Endosulfan I							X	X				X		
Endosulfan II												X		
Endosulfan sulfate								X						
Gamma-BHC (Lindane)	X											X		
Gamma-Chlordane	X												X	
Heptachlor	X									X				
Heptachlor epoxide	X							X	X				X	
Metals														
Arsenic														X
Lead	X							X						
Mercury	X													
Selenium										X				
Herbicides														
2,4,5-T													X	
2,4-DB													X	

TABLE A-5
CHEMICALS OF POTENTIAL CONCERN IN GROUND WATER
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

COMPOUND	SEAD-9	SEAD-27	SEAD-28	SEAD-32	SEAD-33	SEAD-34	SEAD-58	SEAD-64A	SEAD-64B	SEAD-64C	SEAD-64D	SEAD-66	SEAD-68	SEAD-70
Volatile Organics														
Acetone														X
Semivolatile Organics														
Diethyl phthalate										X				
Phenol										X				
Metals														
Aluminum											X			
Barium											X			
Beryllium											X			
Cadmium											X			
Calcium											X			
Cobalt											X			
Copper											X			
Iron											X			
Lead											X			
Manganese								X			X			
Nickel											X			
Sodium	X													
Zinc											X			

TABLE A-6
CHEMICALS OF POTENTIAL CONCERN IN SURFACE WATER
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

COMPOUND	SEAD-9	SEAD-27	SEAD-28	SEAD-32	SEAD-33	SEAD-34	SEAD-58	SEAD-64A	SEAD-64B	SEAD-64C	SEAD-64D	SEAD-66	SEAD-68	SEAD-70
Volatile Organics														
Carbon disulfide									X					
Metals														
Aluminum							X		X					X
Arsenic														X
Barium							X		X					X
Calcium							X		X					X
Chromium							X		X					X
Cobalt														X
Copper							X		X					X
Iron							X		X					X
Lead							X							X
Magnesium							X		X					X
Manganese							X		X					X
Mercury							X							X
Nickel							X		X					X
Potassium							X		X					X
Sodium							X		X					X
Thallium							X							X
Vanadium							X							X
Zinc							X		X					X

TABLE A-7
CHEMICALS OF POTENTIAL CONCERN IN SEDIMENT
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

COMPOUND	SEAD-9	SEAD-27	SEAD-28	SEAD-32	SEAD-33	SEAD-34	SEAD-58	SEAD-64A	SEAD-64B	SEAD-64C	SEAD-64D	SEAD-66	SEAD-68	SEAD-70
Volatile Organics														
Methylene chloride									X					
Semivolatiles														
4-Methylphenol							X							
Anthracene							X							
Benzo(a)anthracene							X							X
Benzo(a)pyrene							X		X					
Benzo(b)fluoranthene							X		X					
Benzo(ghi)perylene							X							
Benzo(k)fluoranthene							X		X					
Bis(2-Ethylhexyl)phthalate							X		X					
Chrysene							X							X
Dibenz(a,h)anthracene							X							
Di-n-butylphthalate							X							
Fluoranthene							X		X					X
Indeno(1,2,3-cd)pyrene							X							
Phenanthrene							X		X					X
Phenol							X							
Pyrene							X		X					X
Pesticides/PCBs														
4,4'-DDE									X					
Endosulfan I									X					
Heptachlor									X					
Metals														
Aluminum							X		X					X
Antimony							X		X					
Arsenic							X		X					X
Barium							X		X					X
Beryllium							X		X					X
Cadmium							X		X					X
Calcium							X		X					X
Chromium							X		X					X
Cobalt							X		X					X
Copper							X		X					X
Iron							X		X					X
Lead							X		X					X
Magnesium							X		X					X
Manganese							X		X					X
Mercury							X		X					
Nickel							X		X					X
Potassium							X		X					X
Selenium							X							
Sodium							X		X					
Thallium							X							X
Vanadium							X		X					X
Zinc							X		X					X

TABLE A-8
WILDLIFE INTAKE RATES
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

Receptor	Body Weight (kg) [1]	Trophic Level[2]	Foraging Factor[3]	Dietary Breakdown			
				Plant (kg/day)	Animal (kg/day)	Soil (kg/day)	Surface Water[3] (L/day)
Deer Mouse	0.020	3	1	0.00216	0.00216	0.000088	
Short-tailed Shrew	0.015	3	1	0.00048	0.00852		0.00330

Notes:

(1) Body weight of deer mouse based on mean body weight for female deer mouse.
Body weight of short-tailed shrew based on mean body weight of adult male short-tailed shrew during fall.

(2) Trophic level: organisms are assigned to trophic levels of 1 (producer), 2 (herbivore), 3 (1st order carnivore), and 4 (top carnivore) within the food web.

(3) Foraging factor: adjustment factor (from 0 to 1) based upon an organism's total time of exposure to unit-based contaminants. For this preliminary risk assessment stage, a foraging factor of 1 was assigned to each receptor, even though the foraging area may be greater than the size of the site.

*Source: Wildlife Exposure Factors Handbook, USEPA 1993 and USEPA 1997.

TABLE A-9
ENVIRONMENTAL FATE AND TRANSPORT PROPERTIES
FOR CHEMICALS OF POTENTIAL CONCERN
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

Constituent	Soil to Plant Transfer Factors (STP)			Trophic Level 2 BAF (invertebrates)	
	logKow [1]	STP[2]	Source	BAF	Source
Volatile Organics					
1,1,1- Trichloroethane	2.47E+00	1.45E+00	Travis & Arms 1988	nd	No data available
1,1,2,2-Tetrachloroethane	2.56E+00	1.28E+00	Travis & Arms 1988	nd	No data available
Acetone	-2.40E-01	5.33E+01	Travis & Arms 1988	3.90E-01	EPA 1995e in Sample et al., 1996
Benzene	2.11E+00	2.34E+00	Travis & Arms 1988	nd	No data available
Bromomethane	1.10E+00	8.96E+00	Travis & Arms 1988	nd	No data available
Carbon disulfide	1.84E+00	3.35E+00	Travis & Arms 1988	nd	No data available
Chlorobenzene	2.84E+00	8.84E-01	Travis & Arms 1988	nd	No data available
Chloroform	1.95E+00	2.89E+00	Travis & Arms 1988	nd	No data available
Chloromethane	9.00E-01	1.17E+01	Travis & Arms 1988	nd	No data available
Ethylbenzene	3.13E+00	6.01E-01	Travis & Arms 1988	nd	No data available
Methyl butyl ketone	1.38E+00	6.17E+00	Travis & Arms 1988	nd	No data available
Methyl ethyl ketone	2.60E-01	2.74E+01	Travis & Arms 1988	nd	No data available
Methyl isobutyl ketone	1.09E+00	9.08E+00	Travis & Arms 1988	nd	No data available
Methylene chloride	1.30E+00	6.86E+00	Travis & Arms 1988	nd	No data available
Tetrachloroethene	2.60E+00	1.22E+00	Travis & Arms 1988	nd	No data available
Toluene	2.50E+00	1.39E+00	Travis & Arms 1988	nd	No data available
Total Xylenes	3.18E+00	5.62E-01	Travis & Arms 1988	nd	No data available
Trichloroethene	2.60E+00	1.22E+00	Travis & Arms 1988	nd	No data available
Semivolatile Organics					
2,4-Dimethylphenol	2.42E+00	1.55E+00	Travis & Arms 1988	1.00E+00	Default
2,4-Dinitrotoluene	1.98E+00	2.78E+00	Travis & Arms 1988	nd	No data available
2,6-Dinitrotoluene	2.00E+00	2.70E+00	Travis & Arms 1988	nd	No data available
2-Methylnaphthalene	4.11E+00	1.63E-01	Travis & Arms 1988	3.42E-01	Beyer 1990 (BAP as surrogate)
2-Methylphenol	1.95E+00	1.00E-02	O'Conner et al. 1991	1.00E+00	Default
3,3'-Dichlorobenzidine	3.51E+00	3.62E-01	Travis & Arms 1988	nd	No data available
3-Nitroaniline	1.37E+00	6.25E+00	Travis & Arms 1988	nd	No data available
4-Chloroaniline	1.83E+00	3.39E+00	Travis & Arms 1988	nd	No data available
4-Methylphenol	1.94E+00	2.93E+00	Travis & Arms 1988	1.00E+00	Default
4-Nitroaniline	1.39E+00	6.09E+00	Travis & Arms 1988	nd	No data available
Acenaphthene	3.92E+00	2.10E-01	Travis & Arms 1988	3.42E-01	Beyer 1990
Acenaphthylene	4.07E+00	1.72E-01	Travis & Arms 1988	3.42E-01	Beyer 1990 (BAP as surrogate)
Anthracene	4.45E+00	1.04E-01	Travis & Arms 1988	5.10E-02	Beyer 1990
Benzo(a)anthracene	5.90E+00	1.51E-02	Travis & Arms 1988	1.25E-01	Beyer 1990
Benzo(a)pyrene	6.04E+00	1.02E+00	USEPA 1994	3.42E-01	Beyer 1990
Benzo(b)fluoranthene	6.57E+00	6.17E-03	Travis & Arms 1988	3.20E-01	Beyer 1990
Benzo(ghi)perylene	7.10E+00	3.05E-03	Travis & Arms 1988	2.40E-01	Beyer 1990
Benzo(k)fluoranthene	6.85E+00	4.25E-03	Travis & Arms 1988	2.53E-01	Beyer 1990
Butylbenzylphthalate		nd	No data available	nd	No data available
bis(2-Chloroisopropyl) ether	2.58E+00	1.25E+00	Travis & Arms 1988	nd	No data available
bis(2-Ethylhexyl)phthalate	4.20E+00	5.10E-03	USEPA 1994	1.20E+01	USEPA 1994
Carbazole		nd	No data available	nd	No data available
Chrysene	5.61E+00	2.22E-02	Travis & Arms 1988	1.75E-01	Beyer 1990
Dibenz(a,h)anthracene	6.36E+00	8.16E-03	Travis & Arms 1988	3.68E-01	Beyer 1990
Dibenzofuran	4.17E+00	1.51E-01	Travis & Arms 1988	1.00E+00	Default
Diethyl phthalate	2.35E+00	1.70E+00	Travis & Arms 1988	1.20E+01	USEPA 1994 (BEHP as surrogate)
Di-n-butylphthalate	4.57E+00	8.84E-02	Travis & Arms 1988	1.20E+01	USEPA 1994 (BEHP as surrogate)
Di-n-octylphthalate	9.20E+00	1.60E-04	USEPA 1994	4.90E+03	USEPA 1994
Fluoranthene	5.22E+00	3.72E-02	Travis & Arms 1988	7.92E-01	Beyer 1990
Fluorene	4.18E+00	1.49E-01	Travis & Arms 1988	3.42E-01	Beyer 1990
Hexachlorobenzene	5.15E+00	4.09E-02	Travis & Arms 1988	nd	No data available
Indeno(1,2,3-cd)pyrene	7.70E+00	1.37E-03	Travis & Arms 1988	4.19E-01	Beyer 1990
Naphthalene	3.40E+00	4.20E-01	Travis & Arms 1988	3.42E-01	Beyer 1990 (BAP as surrogate)
N-Nitroso-di-n-propylamine	1.31E+00	6.77E+00	Travis & Arms 1988	nd	No data available
N-Nitrosodiphenylamine	3.13E+00	6.01E-01	Travis & Arms 1988	nd	No data available
Pentachlorophenol	4.50E+00	3.40E-01	USEPA 1994	8.30E-02	USEPA 1994
Phenanthrene	4.46E+00	1.02E-01	Travis & Arms 1988	1.22E-01	Beyer 1990
Phenol	1.48E+00	5.40E+00	Travis & Arms 1988	8.30E-02	USEPA 1994 (PCP surrogate)
Pyrene	5.09E+00	4.43E-02	Travis & Arms 1988	9.20E-02	Beyer 1990
Pesticides/PCBs					
4,4'-DDD	5.99E+00	1.34E-02	Travis & Arms 1988	1.00E-01	USEPA 1994 (DDT as surrogate)
4,4'-DDE	5.77E+00	1.80E-02	Travis & Arms 1988	2.50E-02	Menzie et al., 1992
4,4'-DDT	5.90E+00	1.00E-02	USEPA 1994	1.00E-01	USEPA 1994
Aldrin	5.52E+00	1.00E-02	USEPA 1994	3.50E+00	USEPA 1994
Aroclor-1254	6.47E+00	7.05E-03	Travis & Arms 1988	4.50E+00	USEPA 1994 (Total PCBs as surrogate)
Aroclor-1260	6.91E+00	3.93E-03	Travis & Arms 1988	4.50E+00	USEPA 1994 (Total PCBs as surrogate)
Dieldrin	4.61E+00	1.20E-01	USEPA 1994	4.70E-02	USEPA 1994
Endosulfan I	3.55E+00	3.44E-01	Travis & Arms 1988	2.50E-01	Menzie et al., 1992
Endosulfan II	3.62E+00	3.13E-01	Travis & Arms 1988	2.50E-01	Menzie et al., 1992

TABLE A-9
ENVIRONMENTAL FATE AND TRANSPORT PROPERTIES
FOR CHEMICALS OF POTENTIAL CONCERN
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

	Soil to Plant Transfer Factors (STP)			Trophic Level 2 BAF (invertebrates)	
Constituent	logKow[1]	STP[2]	Source	BAF	Source
Endosulfan sulfate	3.66E+00	2.97E-01	Travis & Arms 1988	2.50E-01	Menzie et al., 1992
Endrin	4.56E+00	5.80E-02	USEPA 1994	1.80E-01	USEPA 1994
Endrin aldehyde	5.60E+00	2.24E-02	Travis & Arms 1988	1.80E-01	USEPA 1994 (endrin as surrogate)
Endrin ketone	5.06E+00	2.20E-02	USEPA 1995	1.80E-01	USEPA 1994 (endrin as surrogate)
Heptachlor	5.44E+00	4.90E-02	USEPA 1994	2.40E-01	USEPA 1994
Heptachlor epoxide	5.40E+00	7.00E-02	USEPA 1994	1.30E-01	USEPA 1994
Toxaphene	3.30E+00	5.00E-01	USEPA 1994	4.20E-03	USEPA 1994
alpha-BHC	3.28E+00	3.00E-01	Bell 1992	nd	No data available
alpha-Chlordane	5.93E+00	1.45E-02	Travis & Arms 1988	2.40E-01	USEPA 1994 (chlordane as surrogate)
beta-BHC	3.96E+00	1.99E-01	Travis & Arms 1988	nd	No data available
beta-Chlordane	5.93E+00	1.45E-02	Travis & Arms 1988	2.40E-01	USEPA 1994 (chlordane as surrogate)
delta-BHC	4.14E+00	3.00E-01	Bell 1992	nd	No data available
gamma-BHC (Lindane)	3.61E+00	4.00E-01	Bell 1992	nd	No data available
gamma-Chlordane	6.00E+00	2.40E-02	USEPA 1994	2.40E-01	USEPA 1994
Herbicides					
2,4,5-T	3.40E+00	4.20E-01	Travis & Arms 1988	nd	No data available
2,4,5-TP (Silvex)	3.18E+00	5.62E-01	Travis & Arms 1988	nd	No data available
2,4-D	4.88E+00	5.85E-02	Travis & Arms 1988	nd	No data available
2,4-DB	4.11E+00	1.63E-01	Travis & Arms 1988	nd	No data available
Dicamba	nd	nd	No data available	nd	No data available
Dichloroprop	nd	nd	No data available	nd	No data available
MCPA	2.83E+00	8.96E-01	Travis & Arms 1988	nd	No data available
MCPP	nd	nd	No data available	nd	No data available
Metals					
Aluminum	--	4.00E-03	Baes et al. 1984	1.50E-02	ATSDR 1992
Antimony	--	1.30E-04	NRC 1992	1.00E+00	Default
Arsenic	--	4.00E-02	NRC 1992	5.00E-02	Beyer and Cromartie 1987
Barium	--	1.50E-01	NRC 1992	1.00E+00	Default
Beryllium	--	1.00E-02	NRC 1992	1.00E-04	Venugopal and Luckey 1978
Cadmium	--	5.50E-01	NRC 1992	2.15E-02	Ash and Lee, 1980
Calcium					
Chromium	--	7.50E-03	NRC 1992	7.75E-01	Beyer and Cromartie 1987
Cobalt	--	8.10E-02	NRC 1992	1.00E+00	Default
Copper	--	4.00E-01	NRC 1992	6.82E-01	Ma et al. 1983
Cyanide	--	0.00E+00	Eisler 1991	nd	No data available
Iron	--	4.00E-03	NRC 1992	5.00E-02	Ash and Lee 1980
Lead	--	5.80E-03	NRC 1992	2.10E+00	Ma et al. 1983
Magnesium					
Manganese	--	5.60E-01	NRC 1992	1.00E+00	Default
Mercury	--	2.00E-03	USEPA 1994	2.30E+01	USEPA 1994
Nickel	--	2.80E-01	NRC 1992	1.00E+00	Default
Potassium					
Selenium	--	6.20E+00	USEPA 1992	1.40E+00	USEPA 1994
Silver	--	2.70E-04	NRC 1992	1.00E+00	Default
Sodium					
Thallium	--	4.00E-03	NRC 1992	1.00E+00	Default
Vanadium	--	5.00E-03	Baes et al. 1984	1.00E+00	Default
Zinc	--	1.40E+00	NRC 1992	9.90E+00	Beyer and Cromartie 1987

Notes:

(1) Logarithmic value of octonol-water partition coefficient. LogKow source: Montgomery, J.H. and L.M. Welkom, *Groundwater Chemicals Desk Reference*, 1989.

(2) Soil to plant uptake factor. For organic chemicals without reported STP values, the STP was estimated from the Kow as follows:
logSTP = 1.588 - 0.578 x logKow (Travis and Arms 1988)

(3) This table includes STP and BAF factor information available from Parsons ES-Tampa current database (8/99).

(4) BAF = Bioaccumulation factor.

(5) For chemicals without reported STP or BAF values, surrogate or default values were assigned based on best professional judgement.

TABLE A-10
NOAEL TOXICITY REFERENCE VALUES - MAMMALS
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

Constituent	Test Organism	Endpoint/Duration/Effect	Source	Effect Dose (mg/kg/day)	Endpoint CF[1]	Study Duration CF[1]	Total CF[1]	TRV[2] (mg/kg/day)
Volatile Organics								
1,1,1-Trichloroethane	mouse	NOAEL, oral in water, 2 gen, crit lifestage, reproduction	Sample et al. 1996	1000.00	1	1	1	1000.00
Acetone	rat	NOAEL, gavage, 90-day, liver and kidney damage	Sample et al. 1996	100.00	1	10	10	10.00
Benzene	mouse	LOAEL, oral gavage, days 6-12 gestation crit. lifestage, reproduction	Sample et al. 1996	263.60	10	1	10	26.36
Carbon disulfide	rat	LOAEL, oral gavage, 1-14 days, hepatic effects	ATSDR 1996	3.00	10	10	100	0.03
Chloroform	rat	NOAEL, oral intubation, 13 wks., systematic	Sample et al. 1996	150.00	1	10	10	15.00
Ethylbenzene	rat	LD50, gavage, 1 day, survival	ATSDR 1990	4730.00	10	10	100	47.30
Methyl ethyl ketone	rat	NOAEL, water, 2 generations, reproduction	Sample et al. 1996	1771.000	10	1	10	177.100
Methyl isobutyl ketone	rat	NOAEL, oral gavage, 13 wks, liver and kidney function	Sample et al. 1996	250.00	1	10	10	25.00
Methylene chloride	rat	NOAEL, water, 2 years, liver histology	Sample et al. 1996	5.85	1	1	1	5.85
Toluene	mouse	LOAEL, gavage, day 6-12 gestation crit. lifestage, reproduction	Sample et al. 1996	260.00	10	1	10	26.00
Total Xylenes	mouse	NOAEL, gavage, day 6-15 gestation crit. lifestage, reproduction	Sample et al. 1996	2.10	1	1	1	2.10
Semivolatile Organics								
2-Methylnaphthalene	mouse	LOAEL, diet, 81 wks., respitory (naphthalene used as surrogate)	ATSDR 1995	71.60	10	1	10	7.16
2-Methylphenol	mink	NOAEL, diet, 6 mos. crit. lifestage, reproduction	Sample et al. 1996	219.20	1	1	1	219.20
4-Methylphenol	mink	NOAEL, diet, 6 mos. crit. lifestage, reproduction (Methylphenol, 2- (o-cresol) as surrogate)	Sample et al. 1996	219.20	1	1	1	219.20
Acenaphthene	mouse	LOAEL, oral gavage, 13wk, hepatic effects	ATSDR 1995	175.00	10	10	100	1.75
Acenaphthylene	mouse	LOAEL, oral intubation, gestation days 7-16 (crit. lifestage), reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Anthracene	mouse	NOAEL, oral gavage, 13 wks., hepatic effects	ATSDR 1995	1000.00	1	10	10	100.00
Benzo(a)anthracene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Benzo(a)pyrene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction	Sample et al. 1996	10.00	10	1	10	1.00
Benzo(b)fluoranthene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00

TABLE A-10
NOAEL TOXICITY REFERENCE VALUES - MAMMALS
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

Constituent	Test Organism	Endpoint/Duration/Effect	Source	Effect Dose (mg/kg/day)	Endpoint CF[1]	Study Duration CF[1]	Total CF[1]	TRV[2] (mg/kg/day)
Benzo(ghi)perylene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Benzo(k)fluoranthene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Benzoic Acid	rat	NOAEL, diet, assume acute	US EPA (IRIS) 1996	80.00	1	10	10	8.00
bis(2-ethylhexyl)phthalate	mouse	NOAEL, diet, 105 days crit. lifestage, reproduction	Sample et al. 1996	18.33	1	1	1	18.33
Chrysene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Dibenz(a,h)anthracene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Dibenzofuran	mammal	No data available					--	no data
Diethylphthalate	mouse	NOAEL, diet, 105 day crit. lifestage, reproduction	Sample et al. 1996	4583.00	1	1	1	4583.00
Di-n-butylphthalate	mouse	NOAEL, diet, 105 days crit. lifestage, reproduction	Sample et al. 1996	550.00	1	1	1	550.00
Di-n-octylphthalate	mouse	NOAEL, diet, 105 days crit. lifestage, reproduction (BEHP as surrogate)	Sample et al. 1996	18.33	1	1	1	18.33
Fluoranthene	mouse	LOAEL, oral gavage, 13 wks., hepatic effects	ATSDR 1995	125.00	10	10	100	1.25
Fluorene	mouse	LOAEL, oral gavage, 13 wks., hepatic effects	ATSDR 1995	125.00	10	10	100	1.25
Indeno(1,2,3-cd)pyrene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Naphthalene	mouse	LOAEL, diet, 81 wks., respitory	ATSDR 1995	71.60	10	1	10	7.16
Pentachlorophenol	rat	NOAEL, diet, 75 days and through gestation and lactation crit. lifestage, reproduction	Sample et al. 1996	0.24	1	1	1	0.24
Phenanthrene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Pyrene	mouse	LOAEL, oral intubation, gestation days 7-16 crit. lifestage, reproduction (benzo(a)pyrene used as surrogate)	Sample et al. 1996	10.00	10	1	10	1.00
Pesticides/PCBs								
2,4,5-TP (Silvex)	mammal	No data available						no data
4,4'-DDD	rat	NOAEL, diet, 2 year crit. lifestage, reproduction (DDT used as surrogate)	Sample et al. 1996	0.800	1	1	1	0.800

TABLE A-10
NOAEL TOXICITY REFERENCE VALUES - MAMMALS
Decision Document - Mini Risk Assessment
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Constituent	Test Organism	Endpoint/Duration/Effect	Source	Effect Dose (mg/kg/day)	Endpoint CF[1]	Study Duration CF[1]	Total CF[1]	TRV[2] (mg/kg/day)
4,4'-DDE	rat	NOAEL, diet, 2 year crit. lifestage, reproduction (DDT used as surrogate)	Sample et al. 1996	0.800	1	1	1	0.800
4,4'-DDT	rat	NOAEL, diet, 2 year crit. lifestage, reproduction	Sample et al. 1996	0.800	1	1	1	0.800
Aldrin	rat	NOAEL, diet, 3 generations, reproduction	Sample et al. 1996	0.20	1	1	1	0.20
Aroclor-1254	oldfield mouse	LOAEL, diet, 12 mos. crit. lifestage, reproduction	Sample et al. 1996	0.68	10	1	10	0.07
Aroclor-1260	oldfield mouse	LOAEL, diet, 12 mos. crit. lifestage, reproduction (Aroclor 1254 used as surrogate)	Sample et al. 1996	0.68	10	1	10	0.07
Dieldrin	rat	LOAEL, diet, 3 yr. crit. lifestage, reproduction.	Sample et al. 1996	0.200	10	1	10	0.020
Endosulfan	rat	NOAEL, oral intubation, 30 days, reproduction	Sample et al. 1996	1.50	1	10	10	0.15
Endrin	mouse	LOAEL, diet, 120 days crit. lifestage, reproduction	Sample et al. 1996	0.92	10	1	10	0.09
Heptachlor	mink	LOAEL, diet, 181 days crit. lifestage, reproduction	Sample et al. 1996	1.00	10	1	10	0.10
Heptachlor epoxide	mink	LOAEL, diet, 181 days crit. lifestage, reproduction (heptachlor as surrogate)	Sample et al. 1996	1.00	10	1	10	0.10
Toxaphene	rat	NOAEL, diet, 3 generations, reproduction	Sample et al. 1996	8.00	1	1	1	8.00
beta-BHC	rat	NOAEL, diet, 4 generations, reproduction (BHC-mixed isomers)	Sample et al. 1996	1.60	1	1	1	1.60
delta-BHC	rat	NOAEL, diet, 4 generations, reproduction (BHC-mixed isomers)	Sample et al. 1996	1.60	1	1	1	1.60
gamma-BHC (Lindane)	rat	NOAEL, diet, 3 generations, reproduction.	Sample et al. 1996	8.00	1	1	1	8.00
gamma-Chlordane	mouse	NOAEL, diet, 6 generations, reproduction	Sample et al. 1996	4.58	1	1	1	4.58
Metals								
Aluminum	mouse	NOAEL, water, 3 generations, reproduction	Sample et al. 1996	1.93	1	1	1	1.93
Antimony	mouse	LOAEL, water, lifetime, longevity	Sample et al. 1996	1.25	10	1	10	0.13
Arsenic	mouse	LOAEL, water, 3 generations, reproduction	Sample et al. 1996	1.26	10	1	10	0.13
Barium	rat	NOAEL, oral in water, 16 mos, growth & hypertension	Sample et al. 1996	5.10	1	1	1	5.10
Beryllium	rat	NOAEL, water, lifetime, weight and longevity	Sample et al. 1996	0.66	1	1	1	0.66
Cadmium	rat	NOAEL, gavage, 6 weeks mating and gestation crit. lifestage, reproduction	Sample et al. 1996	1.00	1	1	1	1.00
Chromium	rat	NOAEL, water, 1 year, physiological	Sample et al. 1996	3.28	1	1	1	3.28
Cobalt	rat	NOAEL, diet, 69 days, behavioral	ATSDR 1992	5.00	1	10	10	0.500
Copper	rat	NOAEL, diet, 13 wks., gastrointestinal effects	ATSDR 1990	14.00	1	10	10	1.40

TABLE A-10
NOAEL TOXICITY REFERENCE VALUES - MAMMALS
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

Constituent	Test Organism	Endpoint/Duration/Effect	Source	Effect Dose (mg/kg/day)	Endpoint CF[1]	Study Duration CF[1]	Total CF[1]	TRV[2] (mg/kg/day)
Cyanide	rat	NOAEL, diet, gestation and lactation crit. lifestage, reproduction	Sample et al. 1996	68.70	1	1	1	68.70
Iron	rat	LD50, oral, survival	RTECS 1994	2550.00	10	10	100	25.50
Lead	rat	NOAEL, diet, 3 generations, reproduction	Sample et al. 1996	8.00	1	1	1	8.00
Manganese	rat	NOAEL, diet, 244 days crit. lifestage, reproduction	Sample et al. 1996	88.00	1	1	1	88.00
Mercury	mouse	NOAEL, diet, 20 mo., mortality, liver and kidney histology, reproduction	Sample et al. 1996	13.20	1	1	1	13.20
Nickel	rat	NOAEL, diet, 3 generations, reproduction	Sample et al. 1996	40.00	1	1	1	40.00
Selenium	rat	NOAEL, water, 1 yr througth 2 generations, reproduction	Sample et al. 1996	0.20	1	1	1	0.20
Silver	mouse	LOAEL, water, 125 days, decr in activity	ATSDR 1990	18.10	10	10	100	0.18
Thallium	rat	LOAEL, water, 60 days, reproduction	Sample et al. 1996	0.74	10	10	100	0.007
Vanadium	rat	LOAEL, oral intubation, 60 days crit. lifestage, reproduction	Sample et al. 1996	2.10	10	1	10	0.21
Zinc	rat	NOAEL, diet, day 1-16 of gestation crit. lifestage, reproduction	Sample et al. 1996	160.00	1	1	1	160.00

Notes:

(1) CF = conversion factor. Conversion factors - endpoint (non-NOAEL = 10) and study duration (non-chronic = 10)

(2) The toxicity reference value was derived by dividing the effect dose by the total conversion factor.

(3) This table includes TRV factor information available from Parsons ES-Tampa current database (8/99).

(4) V = Volatile (MW<200, H>1E-05); SV = Semi-Volatile; PAH = Polynuclear Aromatic Hydrocarbon; PES = Pesticide; PCB = Polychlorinated Biphenyl; ING = Inorganic

(5) Mammals: acute = <90days, subchronic = 90days - 1yr, chronic = >1yr. Birds: acute = <18days, subchronic = 18days - 10wks, chronic = >10wks. Source: Sample et al. 1996
If the study is during a critical life stage (gestation or development), the study may be considered a chronic exposure.

(6) The product of the appropriate uncertainty factors from each uncertainty category becomes the total uncertainty factor applied to develop the constituent-specific TRV.

ATTACHMENT B
Exposure Factors for Future Land Uses

TABLE B-1
EXPOSURE FACTOR ASSUMPTIONS FOR PLANNED INDUSTRIAL DEVELOPMENT LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
INDUSTRIAL WORKER	**Inhalation of Dust in Ambient Air**	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	9.6	m3/day	Average inhalation rate for moderate activity is 1.2 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
	(Air EPC Calculated from Surface Soil Only)	Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
	(Soil EPC Calculated from Surface Soil Only)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface Soil Only)	Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	1	liter/day	Standard occupational ingestion rate.	USEPA. 1991.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-1
EXPOSURE FACTOR ASSUMPTIONS FOR PLANNED INDUSTRIAL DEVELOPMENT LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
CONSTRUCTION WORKER	**Inhalation of Dust in Ambient Air**	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	10.4	m3/day	Average inhalation rate for outdoor worker is 1.3 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
	(Air EPC Calculated	Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
	from Surface and	Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
	Subsurface Soils)	Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	480	mg soil/day	Assumed IR for intensive construction work.	USEPA, 1991, 1993.
	(Soil EPC Calculated	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
	from Surface and	Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
	Subsurface Soils)	Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated	Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1989.
	from Surface and	Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
	Subsurface Soils)	Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
		Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-1
EXPOSURE FACTOR ASSUMPTIONS FOR PLANNED INDUSTRIAL DEVELOPMENT LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
WORKER AT ON-SITE DAY CARE CENTER	Inhalation of Dust in Ambient Air (Air EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	8	m3/day	Average inhalation rate for light activity is 1 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
		Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	1	liter/day	Standard occupational ingestion rate.	USEPA, 1991.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-1
EXPOSURE FACTOR ASSUMPTIONS FOR PLANNED INDUSTRIAL DEVELOPMENT LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
CHILD AT ON-SITE DAY CARE CENTER	**Inhalation of Dust in Ambient Air**	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Inhalation Rate	4	m3/day	Average inhalation rate for children doing light activity is 0.4 m3/hr, exposure time 10 hr/day.	USEPA, 1997.
	(Air EPC Calculated from Surface Soil Only)	Exposure Frequency	250	days/yr	Attends 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Ingestion Rate	200	mg soil/day	Maximum IR for a child.	USEPA, 1993.
	(Soil EPC Calculated from Surface Soil Only)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	250	days/yr	Attends 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface Soil Only)	Skin Contact Surface Area	2,190	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Attends 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Groundwater	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Ingestion Rate	1	liter/day	Representative upper bound estimate for 0-6 year olds.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Attends 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

Notes:
RME = Reasonable Maximum Exposure
Car = Carcinogenic
Nc = Non-carcinogenic

Source References:

BPJ: Best Professional Judgement.
USEPA, 1988: Superfund Exposure Assessment Manual
USEPA, 1989: Risk Assessment Guidance for Superfund, Volume I (RAGS)
USEPA, 1991: Supplemental Guidance, Standard Default Exposure Factors
USEPA, 1992: Dermal Exposure Assessment, Principles and Applications
USEPA, 1993: Superfund's Standard Default Exposure for the Central Tendency and Reasonable Maximum Exposure
USEPA, 1997: Exposure Factors Handbook, Update to 1990 handbook

TABLE B-2
EXPOSURE FACTOR ASSUMPTIONS FOR INSTITUTIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
INSTITUTION WORKER (No Detects in GW)	**Inhalation of Dust in Ambient Air** (Air EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	8	m3/day	Average inhalation rate for light activity is 1.0 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
		Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-2
EXPOSURE FACTOR ASSUMPTIONS FOR INSTITUTIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
INSTITUTION STUDENT (No Detects in GW)	**Inhalation of Dust in Ambient Air** (Air EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	16.0	m3/day	Average inhalation rate for males ages 12-18.	USEPA, 1997.
		Exposure Frequency	36.5	days/yr	Resident for 365 days/yr. Exposed to SEAD of concern 10% of time.	BPJ.
		Exposure Duration	2	years	Assumes 2 years for resident period.	BPJ.
		Averaging Time - Nc	710	days	2 years.	BPJ.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	200	mg soil/day	Maximum IR for child (may be conservative for adolescent.	USEPA, 1993.
		Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	36.5	days/yr	Resident for 365 days/yr. Exposed to SEAD of concern 10% of time.	BPJ.
		Exposure Duration	2	years	Assumes 2 years for resident period.	BPJ.
		Averaging Time - Nc	710	days	2 years.	BPJ.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	4,625	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	36.5	days/yr	Resident for 365 days/yr. Exposed to SEAD of concern 10% of time.	BPJ.
		Exposure Duration	2	years	Assumes 2 years for resident period.	BPJ.
		Averaging Time - Nc	710	days	2 years.	BPJ.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-2
EXPOSURE FACTOR ASSUMPTIONS FOR INSTITUTIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
CONSTRUCTION WORKER (No Detects in GW)	**Inhalation of Dust in Ambient Air** (Air EPC Calculated from Surface and Subsurface Soils)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	10.4	m3/day	Average inhalation rate for outdoor worker is 1.3 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil (Soil EPC Calculated from Surface and Subsurface Soils)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	480	mg soil/day	Assumed IR for intensive construction work.	USEPA, 1991, 1993.
		Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil (Soil EPC Calculated from Surface and Subsurface Soils)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1989.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-2
EXPOSURE FACTOR ASSUMPTIONS FOR INSTITUTIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
WORKER AT ON-SITE DAY CARE CENTER (No Detects in GW)	**Inhalation of Dust in Ambient Air** (Air EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	8	m3/day	Average inhalation rate for light activity is 1 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
		Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	25	days/yr	Works 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-2
EXPOSURE FACTOR ASSUMPTIONS FOR INSTITUTIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
CHILD AT ON-SITE DAY CARE CENTER (No Detects in GW)	**Inhalation of Dust in Ambient Air**	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Inhalation Rate	4	m3/day	Average inhalation rate for children doing light activity is 0.4 m3/hr, exposure time 10 hr/day.	USEPA, 1997.
	(Air EPC Calculated from Surface Soil Only)	Exposure Frequency	25	days/yr	Attends 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Ingestion Rate	200	mg soil/day	Maximum IR for a child.	USEPA, 1993.
	(Soil EPC Calculated from Surface Soil Only)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	25	days/yr	Attends 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface Soil Only)	Skin Contact Surface Area	2,190	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	25	days/yr	Attends 5 days/wk and 10 days/yr vacation. Exposed to SEAD of concern 10% of time.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

Notes:
RME = Reasonable Maximum Exposure
Car = Carcinogenic
Nc = Non-carcinogenic

Source References:
BPJ: Best Professional Judgement.
USEPA, 1988: Superfund Exposure Assessment Manual
USEPA, 1989: Risk Assessment Guidance for Superfund, Volume I (RAGS)
USEPA, 1991: Supplemental Guidance, Standard Default Exposure Factors
USEPA, 1992: Dermal Exposure Assessment, Principles and Applications
USEPA, 1993: Superfund's Standard Default Exposure for the Central Tendency and Reasonable Maximum Exposure
USEPA, 1997: Exposure Factors Handbook, Update to 1990 handbook

TABLE B-3
EXPOSURE FACTOR ASSUMPTIONS FOR CONSERVATION/RECREATIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
PARK WORKER	Inhalation of Dust in Ambient Air	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	8	m3/day	Average inhalation rate for light activity is 1.0 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	175	days/yr	Works on-site 5 days/wk, 8 months/yr (35 weeks).	BPJ.
	(Air EPC Calculated from Surface Soil Only)	Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
	(Soil EPC Calculated from Surface Soil Only)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	175	days/yr	Works on-site 5 days/wk, 8 months/yr (35 weeks).	BPJ.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface Soil Only)	Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	175	days/yr	Works on-site 5 days/wk, 8 months/yr (35 weeks).	BPJ.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	1	liter/day	Standard occupational ingestion rate.	USEPA. 1991.
		Exposure Frequency	175	days/yr	Works on-site 5 days/wk, 8 months/yr (35 weeks).	BPJ.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Surface Water	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Skin Contact Surface Area	1,980	cm2	Adult male hands and forearms.	USEPA, 1992.
		Exposure Time	1	hour/day	Contact time during occasional site maintenance work.	BPJ.
		Exposure Frequency	18	days/yr	Assumes activity occurs 10% of work days.	BPJ.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Sediment	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	1,980	cm2	Adult male hands and forearms.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	18	days/yr	Assumes activity occurs 10% of work days.	BPJ.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-3
EXPOSURE FACTOR ASSUMPTIONS FOR CONSERVATION/RECREATIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
RECREATIONAL VISITOR (CHILD)	Inhalation of Dust in Ambient Air (Air EPC Calculated from Surface Soil Only)	Body Weight	15	kg	Standard reference weight for children less than 6 years old.	USEPA, 1991 1993.
		Inhalation Rate	8.7	m3/day	Average inhalation rate for a child 1-12 years old.	USEPA, 1997.
		Exposure Frequency	14	days/yr	Assumes 2 weeks.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	15	kg	Standard reference weight for children less than 6 years old.	USEPA, 1991, 1993.
		Ingestion Rate	200	mg soil/day	Maximum IR for a child.	USEPA, 1993.
		Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	14	days/yr	Assumes 2 weeks.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	15	kg	Standard reference weight for children less than 6 years old.	USEPA, 1991, 1993.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	2,300	cm2	Upper bound skin surface exposed to soil.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	14	days/yr	Assumes 2 weeks.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Inhalation of Groundwater	Body Weight	15	kg	Standard reference weight for children less than 6 years old.	USEPA, 1991, 1993.
		Inhalation Rate	0.08	m3/day	Inhalation rate for sedentary children ages 3-10, 0.3 m3/hr for 15 minutes.	USEPA, 1997.
		Exposure Frequency	14	days/yr	Assumes 2 weeks.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA. 1989.
	Ingestion of Groundwater	Body Weight	15	kg	Standard reference weight for children less than 6 years old.	USEPA, 1991, 1993.
		Ingestion Rate	1	liter/day	Approximate 90th percentile value for children 1-11 years old.	USEPA. 1997.
		Exposure Frequency	14	days/yr	Assumes 2 weeks.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Groundwater	Body Weight	15	kg	Standard reference weight for children less than 6 years old.	USEPA, 1991, 1993.
		Skin Contact Surface Area	9,180	cm2	Upper bound skin surface area for children.	USEPA. 1992.
		Exposure Time	0.25	hours/day	Upper bound bathing duration.	USEPA, 1992.
		Exposure Frequency	14	days/yr	Assumes 2 weeks.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ..
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-3
EXPOSURE FACTOR ASSUMPTIONS FOR CONSERVATION/RECREATIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
RECREATIONAL VISITOR (CHILD - CONTINUED)	**Dermal Contact of Surface Water**	Body Weight	15	kg	Standard reference weight for children less than 6 years old.	USEPA, 1991.
		Skin Contact Surface Area	4,625	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Exposure Time	1	hour/day	Upper bound water contact period.	USEPA, 1992.
		Exposure Frequency	7	days/yr	Assumes contact occurs every second day.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Sediment	Body Weight	15	kg	Standard reference weight for children less than 6 years old.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	4,625	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound water contact period.	USEPA, 1992.
		Exposure Frequency	7	days/yr	Assumes contact occurs every second day.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-3
EXPOSURE FACTOR ASSUMPTIONS FOR CONSERVATION/RECREATIONAL LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	10.4	m3/day	Average inhalation rate for outdoor worker is 1.3 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
	(Air EPC Calculated from Surface and Subsurface Soils)	Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	480	mg soil/day	Assumed IR for intensive construction work.	USEPA, 1991, 1993.
	(Soil EPC Calculated from Surface and Subsurface Soils)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
		Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface and Subsurface Soils)	Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1989.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
		Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

Notes:
RME = Reasonable Maximum Exposure
Car = Carcinogenic
Nc = Non-carcinogenic

Source References:

BPJ: Best Professional Judgement.
USEPA, 1988: Superfund Exposure Assessment Manual
USEPA, 1989: Risk Assessment Guidance for Superfund, Volume I (RAGS)
USEPA, 1991: Supplemental Guidance, Standard Default Exposure Factors
USEPA, 1992: Dermal Exposure Assessment, Principles and Applications
USEPA, 1993: Superfund's Standard Default Exposure for the Central Tendency and Reasonable Maximum Exposure
USEPA, 1997: Exposure Factors Handbook, Update to 1990 handbook

TABLE B-4
EXPOSURE FACTOR ASSUMPTIONS FOR WAREHOUSE LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
WAREHOUSE WORKER	Inhalation of Dust in Ambient Air (Air EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	8	m3/day	Average inhalation rate for light activity is 1.0 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
		Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	1	liter/day	Standard occupational ingestion rate.	USEPA. 1991.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-4
EXPOSURE FACTOR ASSUMPTIONS FOR WAREHOUSE LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	10.4	m3/day	Average inhalation rate for outdoor worker is 1.3 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
	(Air EPC Calculated	Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
	from Surface and	Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
	Subsurface Soils)	Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	480	mg soil/day	Assumed IR for intensive construction work.	USEPA, 1991, 1993.
	(Soil EPC Calculated	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
	from Surface and	Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
	Subsurface Soils)	Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated	Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1989.
	from Surface and	Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
	Subsurface Soils)	Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
		Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-4
EXPOSURE FACTOR ASSUMPTIONS FOR WAREHOUSE LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
TRESPASSER (CHILD)	Inhalation of Dust in Ambient Air	Body Weight	50	kg	Mean weight for 13 year old.	USEPA, 1997.
		Inhalation Rate	1.2	m3/day	Average inhalation rate for moderate activity is 1.2 m3/hr, exp. time 1 hr/day.	USEPA, 1997.
		Exposure Frequency	50	days/yr	Assumes 2 days/wk, 25 wk/yr.	BPJ.
	(Air EPC Calculated from Surface Soil Only)	Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	50	kg	Mean weight for 13 year old.	USEPA, 1997.
		Ingestion Rate	200	mg soil/day	Maximum IR for a child.	USEPA, 1993.
	(Soil EPC Calculated from Surface Soil Only)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	50	days/yr	Assumes 2 days/wk, 25 wk/yr.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	50	kg	Mean weight for 13 year old.	USEPA, 1997.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface Soil Only)	Skin Contact Surface Area	4,625	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	50	days/yr	Assumes 2 days/wk, 25 wk/yr.	BPJ.
		Exposure Duration	5	years	Assumed.	BPJ.
		Averaging Time - Nc	1,825	days	5 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

Notes:
RME = Reasonable Maximum Exposure
Car = Carcinogenic
Nc = Non-carcinogenic

Source References:
BPJ: Best Professional Judgement.
USEPA, 1988: Superfund Exposure Assessment Manual
USEPA, 1989: Risk Assessment Guidance for Superfund, Volume I (RAGS)
USEPA, 1991: Supplemental Guidance, Standard Default Exposure Factors
USEPA, 1992: Dermal Exposure Assessment, Principles and Applications
USEPA, 1993: Superfund's Standard Default Exposure for the Central Tendency and Reasonable Maximum Exposure
USEPA, 1997: Exposure Factors Handbook, Update to 1990 handbook

TABLE B-5
EXPOSURE FACTOR ASSUMPTIONS FOR PRISON LAND
Decision Document - Mini Risk Assessment
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RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
PRISON WORKER	Inhalation of Dust in Ambient Air	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	8	m3/day	Average inhalation rate for light activity is 1.0 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
	(Air EPC Calculated from Surface Soil Only)	Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
	(Soil EPC Calculated from Surface Soil Only)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface Soil Only)	Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Inhalation of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	0.5	m3/day	Inhalation rate for sedentary activity for adults.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA. 1989.
	Ingestion of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	1	liter/day	Standard occupational ingestion rate.	USEPA. 1991.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Skin Contact Surface Area	23,000	cm2	Entire adult body skin area.	USEPA. 1992.
		Exposure Time	0.25	hours/day	Upper bound bathing duration.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time for employment at a job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

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EXPOSURE FACTOR ASSUMPTIONS FOR PRISON LAND
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RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
PRISON INMATE	**Inhalation of Dust in Ambient Air** (Air EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	15.2	m3/day	Average inhalation rate for adults with long term exposure.	USEPA, 1997.
		Exposure Frequency	365	days/yr	Assumed.	BPJ.
		Exposure Duration	24	years	Standard adults residential duration.	USEPA, 1991, 1993.
		Averaging Time - Nc	8,760	days	24 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
		Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	365	days/yr	Assumed.	BPJ.
		Exposure Duration	24	years	Standard adult residential duration.	USEPA, 1991, 1993.
		Averaging Time - Nc	8,760	days	24 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil (Soil EPC Calculated from Surface Soil Only)	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
		Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	365	days/yr	Assumed.	BPJ.
		Exposure Duration	24	years	Standard adult residential duration.	USEPA, 1991, 1993.
		Averaging Time - Nc	8,760	days	24 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Inhalation of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	0.5	m3/day	Inhalation rate for sedentary activity for adults.	USEPA, 1997.
		Exposure Frequency	365	days/yr	Assumed.	BPJ.
		Exposure Duration	24	years	Standard adult residential duration.	USEPA, 1991, 1993.
		Averaging Time - Nc	8,760	days	24 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA. 1989.
	Ingestion of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	2	liters/day	Standard adult ingestion rate.	USEPA. 1993.
		Exposure Frequency	365	days/yr	Assumed.	BPJ.
		Exposure Duration	24	years	Standard adult residential duration.	USEPA, 1991, 1993.
		Averaging Time - Nc	8,760	days	24 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Skin Contact Surface Area	23,000	cm2	Entire adult body skin area.	USEPA. 1992.
		Exposure Time	0.25	hours/day	Upper bound bathing duration.	USEPA, 1992.
		Exposure Frequency	365	days/yr	Assumed.	BPJ.
		Exposure Duration	24	years	Standard adult residential duration.	USEPA, 1991, 1993.
		Averaging Time - Nc	8,760	days	24 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-5
EXPOSURE FACTOR ASSUMPTIONS FOR PRISON LAND
Decision Document - Mini Risk Assessment
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RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	10.4	m3/day	Average inhalation rate for outdoor worker is 1.3 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
	(Air EPC Calculated	Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
	from Surface and	Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
	Subsurface Soils)	Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	480	mg soil/day	Assumed IR for intensive construction work.	USEPA, 1991, 1993.
	(Soil EPC Calculated	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
	from Surface and	Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
	Subsurface Soils)	Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated	Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1989.
	from Surface and	Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
	Subsurface Soils)	Exposure Frequency	250	days/yr	Site specific based on land area.	USEPA, 1991.
		Exposure Duration	1	year	Upper bound time of employment for construction worker.	USEPA, 1991.
		Averaging Time - Nc	365	days	1 year.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

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EXPOSURE FACTOR ASSUMPTIONS FOR PRISON LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
WORKER AT ON-SITE DAY CARE CENTER	**Inhalation of Dust in Ambient Air**	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Inhalation Rate	8	m3/day	Average inhalation rate for light activity is 1 m3/hr, 8 hr work day.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
	(Air EPC Calculated from Surface Soil Only)	Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	100	mg soil/day	Upper bound worker exposure to dirt and dust.	USEPA, 1993.
	(Soil EPC Calculated from Surface Soil Only)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface Soil Only)	Skin Contact Surface Area	5,800	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Groundwater	Body Weight	70	kg	Standard reference weight for adults males.	USEPA, 1991.
		Ingestion Rate	1	liter/day	Standard occupational ingestion rate.	USEPA, 1991.
		Exposure Frequency	250	days/yr	Works 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	25	years	Upper bound time of employment at job.	USEPA, 1991, 1993.
		Averaging Time - Nc	9,125	days	25 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

TABLE B-5
EXPOSURE FACTOR ASSUMPTIONS FOR PRISON LAND
Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	PARAMETER	RME		BASIS	SOURCE
			VALUE	UNITS		
CHILD AT ON-SITE DAY CARE CENTER	**Inhalation of Dust in Ambient Air**	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Inhalation Rate	4	m3/day	Average inhalation rate for children doing light activity is 0.4 m3/hr, exposure time 10 hr/day.	USEPA, 1997.
	(Air EPC Calculated from Surface Soil Only)	Exposure Frequency	250	days/yr	Attends 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Soil	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Ingestion Rate	200	mg soil/day	Maximum IR for a child.	USEPA, 1993.
	(Soil EPC Calculated from Surface Soil Only)	Fraction Ingested	1	(unitless)	100% ingestion, conservative assumption.	BPJ.
		Exposure Frequency	250	days/yr	Attends 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Dermal Contact of Soil	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Absorption Factor	Compound	Specific		
	(Soil EPC Calculated from Surface Soil Only)	Skin Contact Surface Area	2,190	cm2	Hands, legs, arms, neck and head exposed, 25% of upper body.	USEPA, 1992.
		Soil to Skin Adherence Factor	1	mg/cm2	Upper bound soil to skin adherence factor.	USEPA, 1992.
		Exposure Frequency	250	days/yr	Attends 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.
	Ingestion of Groundwater	Body Weight	15	kg	Mean weight for 0-6 year olds.	USEPA, 1993.
		Ingestion Rate	1	liter/day	Representative upper bound estimate for 0-6 year olds.	USEPA, 1997.
		Exposure Frequency	250	days/yr	Attends 5 days/wk and 10 days/yr vacation.	USEPA, 1991.
		Exposure Duration	6	years	Assumes attends from 0-6 years old.	BPJ.
		Averaging Time - Nc	2,190	days	6 years.	USEPA, 1989.
		Averaging Time - Car	25,550	days	70 years, conventional human life span.	USEPA, 1989.

Notes:
RME = Reasonable Maximum Exposure
Car = Carcinogenic
Nc = Non-carcinogenic

Source References:
BPJ: Best Professional Judgement.
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