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U.S. ARMY ENGINEER DIVISION

HUNTSVILLE, ALABAMA

~~DRAFT~~ FINAL

REMEDIAL INVESTIGATION REPORT AT THE ASH LANDFILL SITE APPENDICES VOLUME II

OCTOBER 1993

APPENDIX J

ANALYTICAL RESULTS

- SOIL
- GROUNDWATER
- SURFACE WATER AND SEDIMENT
- DUST WIPES
- FARMHOUSE WELLS

TENTATIVELY IDENTIFIED COMPOUNDS

- GROUNDWATER
- SOIL/SEDIMENT
- SURFACE WATER
- QA/QC

DATA QUALIFIERS

EPA - defined qualifiers for Organic Analyses are as follows:

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

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

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

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

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

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

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

U - Indicates compound was analyzed for but not detected.

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

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

EPA - qualifiers for Inorganic Analyses are as follows:

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

U - The analyte was analyzed for but not detected.

SOIL

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-1	B-1	B-1	B-2	B-2	B-2	B-2	B-2
	DEPTH	0-2	2-4	4-6	0-2	0-2	2-4	2-4	6-8
	DATE	10/30/91	10/30/91	10/30/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1030-1	S1030-2	S1030-3	S1031-4	S1031-4DL(5)	S1031-5	S1031-5RE(4)	S1031-6
	LAB ID	147824	147825	147826	147827	147827	147828	147828	147829
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Bromomethane	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Vinyl Chloride	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	920 J
Chloroethane	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Methylene Chloride	ug/Kg	6 U	6 U		740 U J	5000 U R	7300 U R	730 U	780 U
Acetone	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Carbon Disulfide	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,1-Dichloroethene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,1-Dichloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,2-Dichloroethene (total)	ug/Kg	6 U	6 U		12000 J	10000 U R	73000 U R	1900	21000
Chloroform	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,2-Dichloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
2-Butanone	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
1,1,1-Trichloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Carbon Tetrachloride	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Vinyl Acetate	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Bromodichloromethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,2-Dichloropropane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
cis-1,3-Dichloropropene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Trichloroethene	ug/Kg	6 U	6 U		3900 R	28000	73000 U R	4400	17000 R
Dibromochloromethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,1,2-Trichloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Benzene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
trans-1,3-Dichloropropene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Bromoform	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
4-Methyl-2-Pentanone	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
2-Hexanone	ug/Kg	12 U	12 U		1500 U J	9900 U R	150000 U R	1500 U	1600 U
Tetrachloroethene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Toluene	ug/Kg	6 U	6 U		560 J	5000 U R	73000 U R	220 J	280 J
Chlorobenzene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Ethylbenzene	ug/Kg	6 U	6 U		580 J	5000 U R	73000 U R	250 J	780 U
Styrene	ug/Kg	6 U	6 U		740 U J	5000 U R	73000 U R	730 U	780 U
Xylene (total)	ug/Kg	6 U	6 U		2900 J	1300 U R	73000 U R	1200	400 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-1	B-1	B-1	B-2	B-2	B-2	B-2	B-2
	DEPTH	0-2	2-4	4-6	0-2	0-2	2-4	2-4	6-8
	DATE	10/30/91	10/30/91	10/30/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1030-1	S1030-2	S1030-3	S1031-4	S1031-4DL(5)	S1031-5	S1031-5RE(4)	S1031-6
	LAB ID	147824	147825	147826	147827	147827	147828	147828	147829
	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
bis(2-Chloroethyl) ether	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Chlorophenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
1,3-Dichlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
1,4-Dichlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzyl Alcohol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
1,2-Dichlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Methylphenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
bis(2-Chloroisopropyl) ether	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Methylphenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
N-Nitroso-di-n-propylamine	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Hexachloroethane	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Nitrobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Isophorone	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Nitrophenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4-Dimethylphenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzoic acid	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
bis(2-Chloroethoxy) methane	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4-Dichlorophenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
1,2,4-Trichlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Naphthalene	ug/Kg	720 U	730 U	690 U	270 J		210 J		360 J
4-Chloroaniline	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Hexachlorobutadiene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Chloro-3-methylphenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Methylnaphthalene	ug/Kg	720 U	730 U	690 U	280 J		730 U		240 J
Hexachlorocyclopentadiene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4,6-Trichlorophenol	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4,5-Trichlorophenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
2-Chloronaphthalene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2-Nitroaniline	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
Dimethylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Acenaphthylene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,6-Dinitrotoluene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
3-Nitroaniline	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
Acenaphthene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4-Dinitrophenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
4-Nitrophenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
Dibenzofuran	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
2,4-Dinitrotoluene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Diethylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Chlorophenyl-phenylether	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Fluorene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Nitroaniline	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
4,6-Dinitro-2-methylphenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
N-Nitrosodiphenylamine (1)	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
4-Bromophenyl-phenylether	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Hexachlorobenzene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Pentachlorophenol	ug/Kg	3500 U	3500 U	3300 U	3400 U		3600 U		3500 U
Phenanthrene	ug/Kg	720 U	730 U	690 U	170 J		82 J		720 U
Anthracene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Carbazole									
Di-n-butylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Fluoranthene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Pyrene	ug/Kg	720 U	730 U	690 U	130 J		730 U		720 U
Butylbenzylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
3,3'-Dichlorobenzidine	ug/Kg	1400 U	1500 U	1400 U	1400 U		1500 U		1400 U
Benzo(a)anthracene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Chrysene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
bis(2-Ethylhexyl)phthalate	ug/Kg	720 U	730 U	530 J	710 U		730 U		720 U
Di-n-octylphthalate	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzo(b)fluoranthene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
benzo(k)fluoranthene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzo(a)pyrene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Indeno(1,2,3-cd)pyrene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Dibenz(a,h)anthracene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U
Benzo(g,h,i)perylene	ug/Kg	720 U	730 U	690 U	710 U		730 U		720 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-1	B-1	B-1	B-2	B-2	B-2	B-2	B-2
	DEPTH	0-2	2-4	4-6	0-2	0-2	2-4	2-4	6-8
	DATE	10/30/91	10/30/91	10/30/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1030-1	S1030-2	S1030-3	S1031-4	S1031-4DL(5)	S1031-5	S1031-5RE(4)	S1031-6
	LAB ID	147824	147825	147826	147827	147827	147828	147828	147829
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
beta-BHC	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
delta-BHC	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
gamma-BHC (Lindane)	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Heptachlor	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Aldrin	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Heptachlor epoxide	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Endosulfan I	ug/Kg	17 U	18 U	17 U	17 U		18 U		17 U
Dieldrin	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
4,4'-DDE	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Endrin	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Endosulfan II	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
4,4'-DDD	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Endosulfan sulfate	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
4,4'-DDT	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Methoxychlor	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Endrin ketone	ug/Kg	35 U	35 U	33 U	34 U		36 U		35 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
gamma-Chlordane	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Toxaphene	ug/Kg	350 U	350 U	330 U	340 U		360 U		350 U
Aroclor-1016	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1221	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1232	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1242	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1248	ug/Kg	170 U	180 U	170 U	170 U		180 U		170 U
Aroclor-1254	ug/Kg	350 U	350 U	330 U	340 U		360 U		350 U
Aroclor-1260	ug/Kg	350 U	350 U	330 U	340		190 J		390
HERBICIDES									
2,4-D	ug/Kg	54 U J	55 U J	53 U J	54 U J		56 U J		55 U J
2,4-DB	ug/Kg	54 U J	350 J	53 U J	250 J		56 U J		55 U J
2,4,5-T	ug/Kg	5.4 U J	5.5 U J	5.3 U J	5.4 U J		5.6 U J		5.5 U J
2,4,5-TP (Silvex)	ug/Kg	5.4 U J	5.5 U J	5.3 U J	5.4 U J		5.6 U J		5.5 U J
Dalapon	ug/Kg	130 U J	130 U J	130 U J	130 U J		130 U J		130 U J
Dicamba	ug/Kg	5.4 U J	5.5 U J	5.3 U J	5.4 U J		5.6 U J		5.5 U J
Dichloroprop	ug/Kg	54 U J	55 U J	53 U J	54 U J		56 U J		55 U J
Dinoseb	ug/Kg	27 U J	27 U J	26 U J	27 U J		26 U J		27 U J
MCPA	ug/Kg	5400 U J	5500 U J	5300 U J	5400 U J		5600 U J		5500 U J
MCPP	ug/Kg	5400 U J	5500 U J	5300 U J	5400 U J		5600 U J		5500 U J
METALS									
Aluminum	mg/kg	17600	17600	13200	15800		17400		18100
Antimony	mg/kg	10 U J	9.5 U J	8 U J	11.1 U J		7.9 U J		8.1 U J
Arsenic	mg/kg	6.1	4.4	3.7	4.9		4.1		4
Barium	mg/kg	102	64.8	42.2	58		72.3		58.7
Beryllium	mg/kg	0.9 J	0.93	0.67 J	0.84 J		0.79		0.83
Cadmium	mg/kg	2.4	2.8	1.9	2.3		2.3		2.9
Calcium	mg/kg	22900	55200	71000	31500		32500		22300
Chromium	mg/kg	27.8	27.5	22	26.1		27.8		28.4
Cobalt	mg/kg	12.7	11.7	11.9	12.1		11.3		14.6
Copper	mg/kg	36.3 J	21.9 J	13.9 J	33.1 J		24.7 J		18.9 J
Iron	mg/kg	37500	34400	27800	35000		32900		36500
Lead	mg/kg	26.7	7.5	6.9	52.4		23		11.9 J
Magnesium	mg/kg	6870	7690	6900	7510		8440		8130
Manganese	mg/kg	746	943	602	403		673		505
Mercury	mg/kg	0.06 J	0.04 U	0.04 U	0.04 J		0.06 J		0.04 U
Nickel	mg/kg	44.6	42.4	33.3	43.1		40.3		46.9
Potassium	mg/kg	2420	1810	1410	1950		2260		2150
Selenium	mg/kg	0.93 U	0.59 U	0.9 U	0.21 U		0.17 U		0.18 U
Silver	mg/kg	1.5 U	1.4 U	1.2 U	1.7 U		1.2 U		1.2 U
Sodium	mg/kg	424 J	72.6 U J	151 J	84.9 U J		60.4 U J		62.2 U J
Thallium	mg/kg	0.52 U	0.33 U	0.5 U	0.6 U		0.48 U		0.5 U
Vanadium	mg/kg	23.9	22.8	15.6	17.8		22.1		20.3
Zinc	mg/kg	104	77.6	60.2	56.6		65.5		68.1
Cyanide	mg/kg	0.6 U	0.6 U	0.59 U	0.62 U		0.67 U		0.66 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-2 6-8 10/31/91 S1031-6DL(5) 147829	SOIL B-2 8-10 10/31/91 S1031-7 147830	SOIL B-2 8-10 10/31/91 S1031-7DL(5) 147830	SOIL B-3 0-2 10/31/91 S1031-8 147831	SOIL B-3 0-2 10/31/91 S1031-8RE(4) 147831	SOIL B-3 2-4 10/31/91 S1031-9 147832	SOIL B-3 4-6 10/31/91 S1031-10 147833	SOIL B-3 6-8 10/31/91 S1031-11 147834
VOCs									
Chloromethane	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Bromomethane	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Vinyl Chloride	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Chloroethane	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Methylene Chloride	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Acetone	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Carbon Disulfide	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,1-Dichloroethene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,1-Dichloroethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,2-Dichloroethene (total)	ug/Kg	20000 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Chloroform	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,2-Dichloroethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
2-Butanone	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
1,1,1-Trichloroethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Carbon Tetrachloride	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Vinyl Acetate	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Bromodichloromethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,2-Dichloropropane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
cis-1,3-Dichloropropene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Trichloroethene	ug/Kg	120000	83000 R	69000	23 J	11 J	6 U	6 U	5 J
Dibromochloromethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,1,2-Trichloroethene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Benzene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
trans-1,3-Dichloropropene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Bromoform	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
4-Methyl-2-Pentanone	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
2-Hexanone	ug/Kg	6200 U R	2800 U	5500 U R	13 U J	13 U J	12 U	11 U	10 U J
Tetrachloroethene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
1,1,2,2-Tetrachloroethane	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Toluene	ug/Kg	3100 U R	1400 U	2800 U R	4 J	3 J	2 J	1 J	4 J
Chlorobenzene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Ethylbenzene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Styrene	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J
Xylene (total)	ug/Kg	3100 U R	1400 U	2800 U R	6 U J	6 U J	6 U	6 U	5 U J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-3
	DEPTH	6-8	8-10	8-10	0-2	0-2	2-4	4-6	6-8
	DATE	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1031-6DL(5)	S1031-7	S1031-7DL(5)	S1031-8	S1031-8RE(4)	S1031-9	S1031-10	S1031-11
	LAB ID	147829	147830	147830	147831	147831	147832	147833	147834
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg				890 U			730 U	
bis(2-Chloroethyl) ether	ug/Kg				890 U			730 U	
2-Chlorophenol	ug/Kg				890 U			730 U	
1,3-Dichlorobenzene	ug/Kg				890 U			730 U	
1,4-Dichlorobenzene	ug/Kg				890 U			730 U	
Benzyl Alcohol	ug/Kg				890 U			730 U	
1,2-Dichlorobenzene	ug/Kg				890 U			730 U	
2-Methylphenol	ug/Kg				890 U			730 U	
bis(2-Chloroisopropyl) ether	ug/Kg				890 U			730 U	
4-Methylphenol	ug/Kg				890 U			730 U	
N-Nitroso-di-n-propylamine	ug/Kg				890 U			730 U	
Hexachloroethane	ug/Kg				890 U			730 U	
Nitrobenzene	ug/Kg				890 U			730 U	
Isophorone	ug/Kg				890 U			730 U	
2-Nitrophenol	ug/Kg				890 U			730 U	
2,4-Dimethylphenol	ug/Kg				890 U			730 U	
Benzoic acid	ug/Kg				4300 U			3500 U	
bis(2-Chloroethoxy) methane	ug/Kg				890 U			730 U	
2,4-Dichlorophenol	ug/Kg				890 U			730 U	
1,2,4-Trichlorobenzene	ug/Kg				890 U			730 U	
Naphthalene	ug/Kg				890 U			730 U	
4-Chloroaniline	ug/Kg				890 U			730 U	
Hexachlorobutadiene	ug/Kg				890 U			730 U	
4-Chloro-3-methylphenol	ug/Kg				890 U			730 U	
2-Methylnaphthalene	ug/Kg				890 U			730 U	
Hexachlorocyclopentadiene	ug/Kg				890 U			730 U	
2,4,6-Trichlorophenol	ug/Kg				890 U			730 U	
2,4,5-Trichlorophenol	ug/Kg				4300 U			3500 U	
2-Chloronaphthalene	ug/Kg				890 U			730 U	
2-Nitroaniline	ug/Kg				4300 U			3500 U	
Dimethylphthalate	ug/Kg				890 U			730 U	
Acenaphthylene	ug/Kg				890 U			730 U	
2,6-Dinitrotoluene	ug/Kg				890 U			730 U	
3-Nitroaniline	ug/Kg				4300 U			3500 U	
Acenaphthene	ug/Kg				890 U			730 U	
2,4-Dinitrophenol	ug/Kg				4300 U			3500 U	
4-Nitrophenol	ug/Kg				4300 U			3500 U	
Dibenzofuran	ug/Kg				890 U			730 U	
2,4-Dinitrotoluene	ug/Kg				890 U			730 U	
Diethylphthalate	ug/Kg				890 U			730 U	
4-Chlorophenyl-phenylether	ug/Kg				890 U			730 U	
Fluorene	ug/Kg				890 U			730 U	
4-Nitroaniline	ug/Kg				4300 U			3500 U	
4,6-Dinitro-2-methylphenol	ug/Kg				4300 U			3500 U	
N-Nitrosodiphenylamine (1)	ug/Kg				890 U			730 U	
4-Bromophenyl-phenylether	ug/Kg				890 U			730 U	
Hexachlorobenzene	ug/Kg				890 U			730 U	
Pentachlorophenol	ug/Kg				4300 U			3500 U	
Phenanthrene	ug/Kg				420 J			730 U	
Anthracene	ug/Kg				890 U			730 U	
Carbazole									
Di-n-butylphthalate	ug/Kg				890 U			730 U	
Fluoranthene	ug/Kg				750 J			730 U	
Pyrene	ug/Kg				550 J			730 U	
Butylbenzylphthalate	ug/Kg				890 U			730 U	
3,3'-Dichlorobenzidine	ug/Kg				1800 U			1500 U	
Benzo(a)anthracene	ug/Kg				290 J			730 U	
Chrysene	ug/Kg				350 J			730 U	
bis(2-Ethylhexyl)phthalate	ug/Kg				890 U			730 U	
Di-n-octylphthalate	ug/Kg				890 U			730 U	
Benzo(b)fluoranthene	ug/Kg				220 J			730 U	
benzo(k)fluoranthene	ug/Kg				180 J			730 U	
Benzo(a)pyrene	ug/Kg				890 U			730 U	
Indeno(1,2,3-cd)pyrene	ug/Kg				890 U			730 U	
Dibenz(a,h)anthracene	ug/Kg				890 U			730 U	
Benzo(g,h,i)perylene	ug/Kg				890 U			730 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-3
	DEPTH	6-8	8-10	8-10	0-2	0-2	2-4	4-6	6-8
	DATE	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91	10/31/91
	MAIN ID	S1031-6DL(5)	S1031-7	S1031-7DL(5)	S1031-8	S1031-8RE(4)	S1031-9	S1031-10	S1031-11
	LAB ID	147829	147830	147830	147831	147831	147832	147833	147834
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg				22 U			18 U	
beta-BHC	ug/Kg				22 U			18 U	
delta-BHC	ug/Kg				22 U			18 U	
gamma-BHC (Lindane)	ug/Kg				22 U			18 U	
Heptachlor	ug/Kg				22 U			18 U	
Aldrin	ug/Kg				22 U			18 U	
Heptachlor epoxide	ug/Kg				22 U			18 U	
Endosulfan I	ug/Kg				22 U			18 U	
Dieldrin	ug/Kg				43 U			35 U	
4,4'-DDE	ug/Kg				43 U			35 U	
Endrin	ug/Kg				43 U			35 U	
Endosulfan II	ug/Kg				43 U			35 U	
4,4'-DDD	ug/Kg				43 U			35 U	
Endosulfan sulfate	ug/Kg				43 U			35 U	
4,4'-DDT	ug/Kg				43 U			35 U	
Methoxychlor	ug/Kg				220 U			180 U	
Endrin ketone	ug/Kg				43 U			35 U	
Endrin aldehyde									
alpha-Chlordane	ug/Kg				220 U			180 U	
gamma-Chlordane	ug/Kg				220 U			180 U	
Toxaphene	ug/Kg				430 U			350 U	
Aroclor-1016	ug/Kg				220 U			180 U	
Aroclor-1221	ug/Kg				220 U			180 U	
Aroclor-1232	ug/Kg				220 U			180 U	
Aroclor-1242	ug/Kg				220 U			180 U	
Aroclor-1248	ug/Kg				220 U			180 U	
Aroclor-1254	ug/Kg				430 U			350 U	
Aroclor-1260	ug/Kg				430 U			350 U	
HERBICIDES									
2,4-D	ug/Kg				68 U J			56 U J	
2,4-DB	ug/Kg				68 U J			100 J	
2,4,5-T	ug/Kg				6.8 U J			5.6 U J	
2,4,5-TP (Silvex)	ug/Kg				6.8 U J			5.6 U J	
Dalapon	ug/Kg				160 U J			130 U J	
Dicamba	ug/Kg				6.8 U J			5.6 U J	
Dichloroprop	ug/Kg				68 U J			56 U J	
Dinoseb	ug/Kg				34 U J			28 U J	
MCPA	ug/Kg				6800 U J			5600 U J	
MCPP	ug/Kg				7500 J			5600 U J	
METALS									
Aluminum	mg/kg				11700			15100	
Antimony	mg/kg				78.3 J			6.5 U J	
Arsenic	mg/kg				68.3			3.8	
Barium	mg/kg				1010			56.9	
Beryllium	mg/kg				0.78 U			0.69	
Cadmium	mg/kg				43.1			2.2	
Calcium	mg/kg				15800			65800	
Chromium	mg/kg				57.9			22.5	
Cobalt	mg/kg				13.6			11	
Copper	mg/kg				836			14.8 J	
Iron	mg/kg				55600			30000	
Lead	mg/kg				1630			8.4	
Magnesium	mg/kg				3930			8120	
Manganese	mg/kg				615			547	
Mercury	mg/kg				0.86			0.04 U	
Nickel	mg/kg				65.4			34.5	
Potassium	mg/kg				1360			1490	
Selenium	mg/kg				1.1 U			0.17 U	
Silver	mg/kg				1.8 U			0.98 U	
Sodium	mg/kg				143 J			79.1 J	
Thallium	mg/kg				0.59 U			0.47 U	
Vanadium	mg/kg				18.1			17.6	
Zinc	mg/kg				55700			213	
Cyanide	mg/kg				1.6			0.66 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-3	B-4	B-4	B-4	B-5	B-5	B-5	B-5
	DEPTH	6-8	0-2	2-4	4-6	0-2	0-2	2-4	4-6
	DATE	10/31/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91
	MAIN ID	S1031-11RE(4)	S1101-12	S1101-13	S1101-14	S1101-15	S1101-15RE(4)	S1101-16	S1101-17
	LAB ID	147834	147885	147886	147887	147888	147888	147889	147890
	UNITS								
VOCs									
Chloromethane	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Bromomethane	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Vinyl Chloride	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Chloroethane	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Methylene Chloride	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Acetone	ug/Kg	12 U	13 U	11 U	11 U	15 U J	16 U J	11 U	11 U
Carbon Disulfide	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,1-Dichloroethene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,1-Dichloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,2-Dichloroethene (total)	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Chloroform	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,2-Dichloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
2-Butanone	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
1,1,1-Trichloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Carbon Tetrachloride	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Vinyl Acetate	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Bromodichloromethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,2-Dichloropropane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
cis-1,3-Dichloropropene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Trichloroethene	ug/Kg	4 J	130	6 U	2 J	7 U J	7 U J	5 U	6 U
Dibromochloromethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,1,2-Trichloroethene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Benzene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
trans-1,3-Dichloropropene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Bromoform	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
4-Methyl-2-Pentanone	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
2-Hexanone	ug/Kg	10 U	13 U	11 U	11 U	15 U J	14 U J	11 U	11 U
Tetrachloroethene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Toluene	ug/Kg	3 J	6 U	2 J	2 J	3 J	9 J	1 J	2 J
Chlorobenzene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Ethylbenzene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Styrene	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U
Xylene (total)	ug/Kg	5 U	6 U	6 U	5 U	7 U J	7 U J	5 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-3	B-4	B-4	B-4	B-5	B-5	B-5	B-5
	DEPTH	6-8	0-2	2-4	4-6	0-2	0-2	2-4	4-6
	DATE	10/31/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91
	MAIN ID	S1031-11RE(4)	S1101-12	S1101-13	S1101-14	S1101-15	S1101-15RE(4)	S1101-16	S1101-17
	LAB ID	147834	147885	147886	147887	147888	147888	147889	147890
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
bis(2-Chloroethyl) ether	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Chlorophenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
1,3-Dichlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
1,4-Dichlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Benzyl Alcohol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
1,2-Dichlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Methylphenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
bis(2-Chloroisopropyl) ether	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
4-Methylphenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
N-Nitroso-di-n-propylamine	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Hexachloroethane	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Nitrobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Isophorone	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Nitrophenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2,4-Dimethylphenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Benzoic acid	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
bis(2-Chloroethoxy) methane	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2,4-Dichlorophenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
1,2,4-Trichlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Naphthalene	ug/Kg		2400	720 U	710 U	210 J		730 U	760 U
4-Chloroaniline	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Hexachlorobutadiene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
4-Chloro-3-methylphenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Methylnaphthalene	ug/Kg		610 J	720 U	710 U	120 J		730 U	760 U
Hexachlorocyclopentadiene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2,4,6-Trichlorophenol	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2,4,5-Trichlorophenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
2-Chloronaphthalene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
2-Nitroaniline	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
Dimethylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Acenaphthylene	ug/Kg		1300 U	720 U	710 U	310 J		730 U	760 U
2,6-Dinitrotoluene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
3-Nitroaniline	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
Acenaphthene	ug/Kg		2200	720 U	710 U	190 J		730 U	760 U
2,4-Dinitrophenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
4-Nitrophenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
Dibenzofuran	ug/Kg		1400	720 U	710 U	160 J		730 U	760 U
2,4-Dinitrotoluene	ug/Kg		2000	720 U	710 U	320 J		730 U	760 U
Diethylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
4-Chlorophenyl-phenylether	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Fluorene	ug/Kg		2000	720 U	710 U	310 J		730 U	760 U
4-Nitroaniline	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
4,6-Dinitro-2-methylphenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
N-Nitrosodiphenylamine (1)	ug/Kg		450 J	720 U	710 U	840 U		730 U	760 U
4-Bromophenyl-phenylether	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Hexachlorobenzene	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Pentachlorophenol	ug/Kg		6300 U	3500 U	3400 U	4100 U		3500 U	3700 U
Phenanthrene	ug/Kg		13000	130 J	120 J	3900		730 U	760 U
Anthracene	ug/Kg		4200	720 U	710 U	790 J		730 U	760 U
Carbazole									
Di-n-butylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
Fluoranthene	ug/Kg		14000	160 J	150 J	6200		73 J	89 J
Pyrene	ug/Kg		12000	140 J	120 J	5100		69 J	73 J
Butylbenzylphthalate	ug/Kg		1300 U	720 U	710 U	840 U		730 U	760 U
3,3'-Dichlorobenzidine	ug/Kg		2600 U	1400 U	1400 U	1700 U		1500 U	1500 U
Benzo(a)anthracene	ug/Kg		8800	110 J	86 J	3000		730 U	75 J
Chrysene	ug/Kg		8000	110 J	90 J	3100		730 U	76 J
bis(2-Ethylhexyl)phthalate	ug/Kg		160 J	720 U	710 U	840 U		3600	760 U
Di-n-octylphthalate	ug/Kg		1300 U	720 U	710 U	640 U		730 U	760 U
Benzo(b)fluoranthene	ug/Kg		6800	91 J	710 U	2600		730 U	74 J
benzo(k)fluoranthene	ug/Kg		6700	85 J	710 U	2300		730 U	70 J
Benzo(a)pyrene	ug/Kg		9000	110 J	78 J	2100		730 U	81 J
Indeno(1,2,3-cd)pyrene	ug/Kg		4800	720 U	710 U	1300		730 U	760 U
Dibenz(a,h)anthracene	ug/Kg		2000	720 U	710 U	640 J		730 U	760 U
Benzo(g,h,i)perylene	ug/Kg		5000	720 U	710 U	1400		730 U	760 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-3	B-4	B-4	B-4	B-5	B-5	B-5	B-5
	DEPTH	6-8	0-2	2-4	4-6	0-2	0-2	2-4	4-6
	DATE	10/31/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91	11/01/91
	MAIN ID	S1031-11RE(4)	S1101-12	S1101-13	S1101-14	S1101-15	S1101-15RE(4)	S1101-16	S1101-17
	LAB ID	147834	147885	147886	147887	147888	147888	147889	147890
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
beta-BHC	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
delta-BHC	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
gamma-BHC (Lindane)	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Heptachlor	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Aldrin	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Heptachlor epoxide	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Endosulfan I	ug/Kg		19 U	17 U	17 U	20 U		18 U	18 U
Dieldrin	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
4,4'-DDE	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Endrin	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Endosulfan II	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
4,4'-DDD	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Endosulfan sulfate	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
4,4'-DDT	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Methoxychlor	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Endrin ketone	ug/Kg		38 U	35 U	34 U	41 U		35 U	37 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
gamma-Chlordane	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Toxaphene	ug/Kg		380 U	350 U	340 U	410 U		350 U	370 U
Aroclor-1016	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1221	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1232	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1242	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1248	ug/Kg		190 U	170 U	170 U	200 U		180 U	180 U
Aroclor-1254	ug/Kg		380 U	350 U	340 U	410 U		350 U	370 U
Aroclor-1260	ug/Kg		380 U	350 U	340 U	410 U		350 U	370 U
HERBICIDES									
2,4-D	ug/Kg		59 U J	55 U J	54 U J	64 U J		55 U J	58 U J
2,4-DB	ug/Kg		59 U J	140 J	230 J	64 U J		55 U J	180 J
2,4,5-T	ug/Kg		5.9 U J	5.5 U J	5.4 U J	6.4 U J		5.5 U J	5.8 U J
2,4,5-TP (Silvex)	ug/Kg		5.9 U J	5.5 U J	5.4 U J	6.4 U J		5.5 U J	5.8 U J
Dalapon	ug/Kg		140 U J	130 U J	130 U J	150 U J		130 U J	140 U J
Dicamba	ug/Kg		5.9 U J	5.5 U J	5.4 U J	6.4 U J		5.5 U J	5.8 U J
Dichloroprop	ug/Kg		59 U J	55 U J	54 U J	64 U J		55 U J	58 U J
Dinoseb	ug/Kg		30 U J	27 U J	27 U J	32 U J		27 U J	29 U J
MCPA	ug/Kg		5900 U J	5500 U J	5400 U J	6400 U J		5500 U J	5800 U J
MCPP	ug/Kg		5900 U J	5500 U J	5400 U J	6400 U J		5500 U J	5800 U J
METALS									
Aluminum	mg/kg		16400	11500	16100	8610		14000	14900
Antimony	mg/kg		18.3 J	8.3 J	10.4 U J	12 U J		8.5 U J	8.7 U J
Arsenic	mg/kg		11.4	5.6	6.5	17.3		5.1	5.3
Barium	mg/kg		455	82.9	58.5	399		61.3	78.7
Beryllium	mg/kg		0.75 U	0.59 J	0.87 J	0.79 U		0.7 J	0.82
Cadmium	mg/kg		7.9	1.7	2.4	10.4		2	2.4
Calcium	mg/kg		27500	134000	42200	104000		89100	29700
Chromium	mg/kg		62	16.8	24.2	57		20.2	21.6
Cobalt	mg/kg		15.7	8.2	14.5	10.9 J		12.5	17.3
Copper	mg/kg		311	19.6 J	21.5 J	498		26.5 J	27.7 J
Iron	mg/kg		83800	23200	37200	81400		30900	642000
Lead	mg/kg		2690	10.1	10.5	1750		248	16.2 J
Magnesium	mg/kg		6990	13100	9050	4090		8450	5460
Manganese	mg/kg		806	485	549	964		798	1000
Mercury	mg/kg		1.1	0.04 U	0.04 J	1		0.07 J	0.06 J
Nickel	mg/kg		67.2	26.1	39	74.8		32	39.8
Potassium	mg/kg		2350	1720	1740	1380		1750	1780
Selenium	mg/kg		0.19 U	0.7 U	0.2 U	0.25 U		0.17 U	0.91 U
Silver	mg/kg		2.8	1.1 U	1.6 U	1.8 U		1.3 U	1.3 U
Sodium	mg/kg		265 J	83 J	79.6 U J	198 J		65.4 U J	68.2 U J
Thallium	mg/kg		0.54 U	0.39 U	0.57 U	0.7 U		0.47 U	0.51 U
Vanadium	mg/kg		24.9	15.3	18.1	14.5		20.2	20.1
Zinc	mg/kg		3050	74.4	92.7	27600		513	841
Cyanide	mg/kg		0.69 U	0.63 U	0.6 U	0.61 U		0.64 U	0.68 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-5	B-5	B-6	B-6	B-7	B-7	B-7	B-8
	DEPTH	8-10	8-10	0-2	2-4	0-2	2-4	10-12	0-2
	DATE	11/01/91	11/01/91	11/04/91	11/04/91	11/04/91	11/04/91	11/04/91	11/05/91
	MAIN ID	S1101-18	S1101-18RE(4)	S1104-19	S1104-20	S1104-21	S1104-22	S1104-23	S1105-24
	LAB ID	147891	147891	148021	148022	148023	148024	148025	148026
	UNITS								
VOCs									
Chloromethane	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Bromomethane	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Vinyl Chloride	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Chloroethane	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Methylene Chloride	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Acetone	ug/Kg	24 U J	29 U J	12 U	11 U	13 U	11 U	29 U	13 U
Carbon Disulfide	ug/Kg	3 U J	3 J	6 U	6 U	6 U	5 U	7 U	6 U
1,1-Dichloroethene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,1-Dichloroethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,2-Dichloroethene (total)	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	12	8	6 U
Chloroform	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	2 J
1,2-Dichloroethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
2-Butanone	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
1,1,1-Trichloroethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Carbon Tetrachloride	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Vinyl Acetate	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Bromodichloromethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,2-Dichloropropane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
cis-1,3-Dichloropropene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Trichloroethene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 J	4 J	6 U
Dibromochloromethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,1,2-Trichloroethene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Benzene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
trans-1,3-Dichloropropene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Bromoform	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
4-Methyl-2-Pentanone	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
2-Hexanone	ug/Kg	10 U J	10 U J	12 U	11 U	11 U	11 U	13 U	12 U
Tetrachloroethene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Toluene	ug/Kg	8 J	6 J	6 U	6 U	6 U	5 J	7 U	2 J
Chlorobenzene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Ethylbenzene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	2 J	7 U	6 U
Styrene	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	5 U	7 U	6 U
Xylene (total)	ug/Kg	5 U J	5 U J	6 U	6 U	6 U	8	7 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-5	B-5	B-6	B-6	B-7	B-7	B-7	B-8
	DEPTH	8-10	8-10	0-2	2-4	0-2	2-4	10-12	0-2
	DATE	11/01/91	11/01/91	11/04/91	11/04/91	11/04/91	11/04/91	11/04/91	11/05/91
	MAIN ID	S1101-18	S1101-18RE(4)	S1104-19	S1104-20	S1104-21	S1104-22	S1104-23	S1105-24
	LAB ID	147891	147891	148021	148022	148023	148024	148025	148026
COMPOUND	UNITS								
SEMIVOLATLES									
Phenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
bis(2-Chloroethyl) ether	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Chlorophenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
1,3-Dichlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
1,4-Dichlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Benzyl Alcohol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
1,2-Dichlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Methylphenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
bis(2-Chloroisopropyl) ether	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
4-Methylphenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
N-Nitroso-di-n-propylamine	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Hexachloroethane	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Nitrobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Isophorone	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Nitrophenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,4-Dimethylphenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Benzoic acid	ug/Kg			3800 U	3600 U	9000 U	500 J	4200 U	3700 U
bis(2-Chloroethoxy) methane	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,4-Dichlorophenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
1,2,4-Trichlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Naphthalene	ug/Kg			780 U	740 U	830 J	440 J	870 U	760 U
4-Chloroaniline	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Hexachlorobutadiene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
4-Chloro-3-methylphenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Methylnaphthalene	ug/Kg			780 U	740 U	430 J	360 J	870 U	760 U
Hexachlorocyclopentadiene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,4,6-Trichlorophenol	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,4,5-Trichlorophenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
2-Chloronaphthalene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2-Nitroaniline	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
Dimethylphthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Acenaphthylene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
2,6-Dinitrotoluene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
3-Nitroaniline	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
Acenaphthene	ug/Kg			780 U	740 U	2200	1000	870 U	760 U
2,4-Dinitrophenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
4-Nitrophenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
Dibenzofuran	ug/Kg			780 U	740 U	960 J	400 J	870 U	760 U
2,4-Dinitrotoluene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Diethylphthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
4-Chlorophenyl-phenylether	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Fluorene	ug/Kg			780 U	740 U	2000	880	870 U	760 U
4-Nitroaniline	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
4,6-Dinitro-2-methylphenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
N-Nitrosodiphenylamine (1)	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
4-Bromophenyl-phenylether	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Hexachlorobenzene	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Pentachlorophenol	ug/Kg			3800 U	3600 U	9000 U	3500 U	4200 U	3700 U
Phenanthrene	ug/Kg			780 U	740 U	15000	5200	870 U	760 U
Anthracene	ug/Kg			780 U	740 U	3500	1300	870 U	760 U
Carbazole									
Di-n-butylphthalate	ug/Kg			780 U	740 U	1900 U	630 J	870 U	760 U
Fluoranthene	ug/Kg			780 U	740 U	22000	6700	870 U	760 U
Pyrene	ug/Kg			780 U	740 U	16000	4800	870 U	760 U
Butylbenzylphthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
3,3'-Dichlorobenzidine	ug/Kg			1600 U	1500 U	3700 U	1400 U	1700 U	1500 U
Benzo(a)anthracene	ug/Kg			780 U	740 U	9600	3000	870 U	760 U
Chrysene	ug/Kg			780 U	740 U	9900	3200	870 U	760 U
bis(2-Ethylhexyl)phthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Di-n-octylphthalate	ug/Kg			780 U	740 U	1900 U	720 U	870 U	760 U
Benzo(b)fluoranthene	ug/Kg			780 U	740 U	9500	2900	870 U	760 U
benzo(k)fluoranthene	ug/Kg			780 U	740 U	6100	1700	870 U	760 U
Benzo(a)pyrene	ug/Kg			780 U	740 U	8400	2500	870 U	760 U
Indeno(1,2,3-cd)pyrene	ug/Kg			780 U	740 U	4600	1200	870 U	760 U
Dibenz(a,h)anthracene	ug/Kg			780 U	740 U	1800 J	620 J	870 U	760 U
Benzo(g,h,i)perylene	ug/Kg			780 U	740 U	4000	1200	870 U	760 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL
	LOCATION	B-5	B-5	B-6	B-6	B-7	B-7	B-7	B-8
	DEPTH	8-10	8-10	0-2	2-4	0-2	2-4	10-12	0-2
	DATE	11/01/91	11/01/91	11/04/91	11/04/91	11/04/91	11/04/91	11/04/91	11/05/91
	MAIN ID	S1101-18	S1101-18RE(4)	S1104-19	S1104-20	S1104-21	S1104-22	S1104-23	S1105-24
	LAB ID	147891	147891	148021	148022	148023	148024	148025	148026
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
beta-BHC	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
delta-BHC	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
gamma-BHC (Lindane)	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Heptachlor	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Aldrin	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Heptachlor epoxide	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Endosulfan I	ug/Kg			19 U	18 U	18 U	17 U	21 U	18 U
Dieldrin	ug/Kg			38 U	36 U	36 U	35 U	42 U	37 U
4,4'-DDE	ug/Kg			38 U	36 U	27 J	18 J	42 U	37 U
Endrin	ug/Kg			38 U	36 U	36 U	35 U	42 U	37 U
Endosulfan II	ug/Kg			36 U	36 U	36 U	35 U	42 U	37 U
4,4'-DDD	ug/Kg			38 U	36 U	27 J	29 J	42 U	37 U
Endosulfan sulfate	ug/Kg			38 U	36 U	36 U	35 U	42 U	37 U
4,4'-DDT	ug/Kg			36 U	36 U	36	19 J	42 U	37 U
Methoxychlor	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Endrin ketone	ug/Kg			38 U	36 U	36 U	35 U	42 U	37 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
gamma-Chlordane	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Toxaphene	ug/Kg			380 U	360 U	360 U	350 U	420 U	370 U
Aroclor-1016	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1221	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1232	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1242	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1248	ug/Kg			190 U	180 U	180 U	170 U	210 U	180 U
Aroclor-1254	ug/Kg			380 U	360 U	360 U	350 U	420 U	370 U
Aroclor-1260	ug/Kg			380 U	360 U	360 U	350 U	420 U	370 U
HERBICIDES									
2,4-D	ug/Kg			59 U J	56 U J	56 U J	54 U J	66 U J	58 U J
2,4-DB	ug/Kg			91 U	56 U J	56 U J	54 U J	66 U J	58 U J
2,4,5-T	ug/Kg			5.9 U J	5.6 U J	6 U J	5 U J	7 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg			5.9 U J	5.6 U J	6 U J	5 U J	7 U J	6 U J
Dalapon	ug/Kg			140 U J	130 U J	130 U J	130 U J	160 U J	140 U J
Dicamba	ug/Kg			5.9 U J	5.6 U J	6 U J	5 U J	7 U J	6 U J
Dichloroprop	ug/Kg			59 U J	56 U J	56 U J	54 U J	66 U J	58 U J
Dinoseb	ug/Kg			29 U J	28 U J	28 U J	27 U J	33 U J	29 U J
MCPA	ug/Kg			5900 U J	5600 U J	5600 U J	5400 U J	6600 U J	5800 U J
MCPP	ug/Kg			5900 U J	5600 U J	5600 U J	5400 U J	6600 U J	5800 U J
METALS									
Aluminum	mg/kg			20800	22500	15200		21600	19200
Antimony	mg/kg			7.7 U J	11.2 J	11.8 U J		10.8 U J	10.3 U J
Arsenic	mg/kg			6.7	8.1	7.1 J		6.1 J	5.1 J
Barium	mg/kg			123	108	181 J		119 J	136 J
Beryllium	mg/kg			1.2	1.4	1.2		1.4	1.4
Cadmium	mg/kg			2.5	2.7	3.2		3.1	2.6
Calcium	mg/kg			2710	9730	47000		4760	5390
Chromium	mg/kg			27.9	31.5	33.7 J		29.3 J	27.4 J
Cobalt	mg/kg			14.5	18.7	12.9		17.3	13.8
Copper	mg/kg			33.7 J	33.5 J	46.4		23.9	22.3
Iron	mg/kg			31000	37900	34100		38500	37200
Lead	mg/kg			12	10.8	85.9		14.3	14.5
Magnesium	mg/kg			5380	8910	9900		5620	5850
Manganese	mg/kg			817	739	688		1240	1130
Mercury	mg/kg			0.05 J	0.08 J	0.29		0.09 J	0.09
Nickel	mg/kg			37.4	50.4	43		33.9	42.3
Potassium	mg/kg			2060	3030	2300		2270	1910
Selenium	mg/kg			0.18 J	0.13 U	0.18 U J		0.22 U J	0.17 U J
Silver	mg/kg			1.2 U	1.7 U	2.2		2.2	1.6 U
Sodium	mg/kg			56.9 U J	85.5 U J	127 J		83.6 J	79.2 U
Thallium	mg/kg			0.43 U	0.37 U	0.5 U		0.61 U	0.47 U
Vanadium	mg/kg			32.7	31.3	36.8		29.2	32.2
Zinc	mg/kg			89.6	108	252 J		94.9 J	85.1 J
Cyanide	mg/kg			0.68 U	0.68 U	0.67 U		0.77 U	0.6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-8	B-8	B-8	B-9	B-9	B-9	B-9	B-10
	DEPTH	2-4	2-4	6-8	0-2	2-4	6-8	6-8	0-2
	DATE	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/06/91
	MAIN ID	S1105-25	S1105-26(1)	S1105-27	S1105-28	S1105-29	S1105-30	S1105-30RE(4)	S1106-31
	LAB ID	148027	148028	148029	148030	148031	148032	148032RI	148457
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Bromomethane	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Vinyl Chloride	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Chloroethane	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Methylene Chloride	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Acetone	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Carbon Disulfide	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,1-Dichloroethene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,1-Dichloroethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,2-Dichloroethene (total)	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Chloroform	ug/Kg	5 U	4 J	5 U	6 U	4 J	1 J		
1,2-Dichloroethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
2-Butanone	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
1,1,1-Trichloroethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Carbon Tetrachloride	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Vinyl Acetate	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Bromodichloromethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,2-Dichloropropane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
cis-1,3-Dichloropropene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Trichloroethene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Dibromochloromethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,1,2-Trichloroethene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Benzene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
trans-1,3-Dichloropropene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Bromoform	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
2-Hexanone	ug/Kg	11 U	11 U	11 U	11 U	11 U	11 U		
Tetrachloroethene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Toluene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Chlorobenzene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Ethylbenzene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Styrene	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		
Xylene (total)	ug/Kg	5 U	6 U	5 U	6 U	6 U	5 U		

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-8	B-8	B-8	B-9	B-9	B-9	B-9	B-10
	DEPTH	2-4	2-4	6-8	0-2	2-4	6-8	6-8	0-2
	DATE	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/06/91
	MAIN ID	S1105-25	S1105-26(1)	S1105-27	S1105-28	S1105-29	S1105-30	S1105-30RE(4)	S1106-31
	LAB ID	148027	148028	148029	148030	148031	148032	148032RI	148457
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
bis(2-Chloroethyl) ether	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Chlorophenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
1,3-Dichlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
1,4-Dichlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Benzyl Alcohol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
1,2-Dichlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Methylphenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
bis(2-Chloroisopropyl) ether	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
4-Methylphenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
N-Nitroso-di-n-propylamine	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Hexachloroethane	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Nitrobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Isophorone	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Nitrophenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,4-Dimethylphenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Benzoic acid	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
bis(2-Chloroethoxy) methane	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,4-Dichlorophenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
1,2,4-Trichlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Naphthalene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		310 J
4-Chloroaniline	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Hexachlorobutadiene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
4-Chloro-3-methylphenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Methylnaphthalene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		140 J
Hexachlorocyclopentadiene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,4,6-Trichlorophenol	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,4,5-Trichlorophenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
2-Chloronaphthalene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2-Nitroaniline	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
Dimethylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Acenaphthylene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
2,6-Dinitrotoluene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
3-Nitroaniline	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
Acenaphthene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		640 J
2,4-Dinitrophenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
4-Nitrophenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
Dibenzofuran	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		310 J
2,4-Dinitrotoluene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		640 U
Diethylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
4-Chlorophenyl-phenylether	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Fluorene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		570 J
4-Nitroaniline	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
4,6-Dinitro-2-methylphenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
N-Nitrosodiphenylamine (1)	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
4-Bromophenyl-phenylether	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Hexachlorobenzene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Pentachlorophenol	ug/Kg	3600 U	3500 U	3400 U	3800 U	3500 U J	3400 U		3600 U
Phenanthrene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		4400
Anthracene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		1200
Carbazole									
Di-n-butylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Fluoranthene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		5400
Pyrene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		5000
Butylbenzylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
3,3'-Dichlorobenzidine	ug/Kg	1500 U	1400 U	1400 U	1600 U	1500 U J	1400 U		1500 U
Benzo(a)anthracene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		2700
Chrysene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		2200
bis(2-Ethylhexyl)phthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		600 J
Di-n-octylphthalate	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		740 U
Benzo(b)fluoranthene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		2500
benzo(k)fluoranthene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		1400
Benzo(a)pyrene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		2200
Indeno(1,2,3-cd)pyrene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		1200
Dibenz(a,h)anthracene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		630 J
Benzo(g,h,i)perylene	ug/Kg	750 U	720 U	700 U	780 U	730 U J	710 U		1200

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-8	B-8	B-8	B-9	B-9	B-9	B-9	B-10
	DEPTH	2-4	2-4	6-8	0-2	2-4	6-8	6-8	0-2
	DATE	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/05/91	11/06/91
	MAIN ID	S1105-25	S1105-26(1)	S1105-27	S1105-28	S1105-29	S1105-30	S1105-30RE(4)	S1106-31
	LAB ID	148027	148028	148029	148030	148031	148032	148032RI	148457
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
beta-BHC	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
delta-BHC	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
gamma-BHC (Lindane)	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Heptachlor	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Aldrin	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Heptachlor epoxide	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Endosulfan I	ug/Kg	18 U	18 U	17 U	19 U	17 U J	17 U J		18 U
Dieldrin	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
4,4'-DDE	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		30 J
Endrin	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
Endosulfan II	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
4,4'-DDD	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		23 J
Endosulfan sulfate	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
4,4'-DDT	ug/Kg	36 U	35 U	34 U	38 U	35 U J	34 U J		36 U
Methoxychlor	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Endrin ketone	ug/Kg	36 U	38 U	34 U	38 U	35 U J	34 U J		36 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
gamma-Chlordane	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Toxaphene	ug/Kg	360 U	350 U	340 U	380 U	350 U J	340 U J		360 U
Aroclor-1016	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1221	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1232	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1242	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1248	ug/Kg	180 U	180 U	170 U	190 U	170 U J	170 U J		180 U
Aroclor-1254	ug/Kg	360 U	350 U	340 U	380 U	350 U J	340 U J		360 U
Aroclor-1260	ug/Kg	360 U	350 U	340 U	380 U	350 U J	340 U J		360 U
HERBICIDES									
2,4-D	ug/Kg	56 U J	56 U J	53 U J	60 U J	56 U J		54 U J	57 U J
2,4-DB	ug/Kg	56 U J	56 U J	53 U J	60 U J	56 U J		54 U J	57 U J
2,4,5-T	ug/Kg	6 U J	6 U J	5 U J	6 U J	6 U J		5 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J	6 U J	5 U J	6 U J	6 U J		5 U J	10 J
Dalapon	ug/Kg	130 U J	130 U J	130 U J	140 U J	130 U J		130 U J	140 U J
Dicamba	ug/Kg	6 U J	6 U J	5 U J	6 U J	6 U J		5 U J	6 U J
Dichloroprop	ug/Kg	56 U J	56 U J	53 U J	60 U J	56 U J		54 U J	57 U J
Dinoseb	ug/Kg	28 U J	26 U J	27 U J	30 U J	28 U J		27 U J	29 U J
MCPA	ug/Kg	5600 U J	5600 U J	5300 U J	6000 U J	5600 U J		5400 U J	5700 U J
MCPP	ug/Kg	5600 U J	5600 U J	5300 U J	6000 U J	5600 U J		5400 U J	13000 J
METALS									
Aluminum	mg/kg	20500	17700	12700	14800	8880	7160		16600
Antimony	mg/kg	8.8 U J	8.2 U J	8.4 U J	9.9 U J	9.9 U J	7 U J		8 U J
Arsenic	mg/kg	6.1 J	6 J	4.2 J	4.3 J	3.8 J	4.4 J		9.8 J
Barium	mg/kg	98.9 J	86.7 J	56.2 J	101 J	110 J	39.9 J		170 J
Beryllium	mg/kg	1.2	1	0.78 J	1.1	0.78	0.52 J		0.67 J
Cadmium	mg/kg	2.9	2.4	1.9	2.3	1.7	1.5		5.6
Calcium	mg/kg	4870	3560	85900	45800	104000	101000		48500
Chromium	mg/kg	30.1 J	26.9 J	19.8 J	22.5 J	13.8 J	11.2 J		38.5 J
Cobalt	mg/kg	18.4	14	14.2	13.7	10.7	8.1		14.7
Copper	mg/kg	27.8	26	18.2	22.8	21.6	19.3		105
Iron	mg/kg	36100	32500	27400	31000	19600	17300		71100
Lead	mg/kg	11.4	13.6	10.1	10.8	10.1	7.8		191
Magnesium	mg/kg	7300	6490	6720	8860	17000	12600		13300
Manganese	mg/kg	956	632	926	903	532	514		670
Mercury	mg/kg	0.06 J	0.06 J	0.05 J	0.08 J	0.04 J	0.05 J		0.24
Nickel	mg/kg	46.7	44.4	30.4	38.4	23.8	19		43.3
Potassium	mg/kg	2110	1760	1430	1320	1060	1050		1730
Selenium	mg/kg	0.21 U J	0.2 U J	0.61 U J	0.21 U J	0.65 U J	0.21 U J		0.17 U J
Silver	mg/kg	1.3 U	1.2 U	1.3 U	1.5 U	1.5 U	1.1 U		1.8
Sodium	mg/kg	67.5 U	62.8 U	75.3 J	84.2 J	112 J	116 J		708 R
Thallium	mg/kg	0.56 U	0.57 U	0.34 U	0.59 U	0.36 U	0.6 U		4.7 U
Vanadium	mg/kg	25.4	26.4	15.7	19.7	19.5	12.9		22.1
Zinc	mg/kg	84.2 J	85 J	75 J	126 J	84.3 J	74.8 J		1940 U
Cyanide	mg/kg	0.63 U	0.67 U	0.58 U	0.7 U	0.63 U	0.62 U		0.66

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-10	B-10	B-10	B-10	B-11	B-11	B-11	B-12
	DEPTH	2-4	2-4	6-8	6-8	0-2	2-4	6-8	0-2
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/07/91
	MAIN ID	S1106-32	S1106-33 (1)	S1106-34	S1106-34DL(5)	S1106-36	S1106-37	S1106-38	S1107-39
	LAB ID	148458	148459	148460	148460	148462	148463	148464	148704
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
Bromomethane	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
Vinyl Chloride	ug/Kg	12 U	11 U	92	71 R	11 U	10 U	11 U	12 U
Chloroethane	ug/Kg	12 U	11 U	3 J	52 U R	11 U	10 U	11 U	12 U
Methylene Chloride	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Acetone	ug/Kg	43	11 U	11 U	52 U R	11 U	10 U	36 U	12 U
Carbon Disulfide	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,1-Dichloroethene	ug/Kg	6 U	6 U	1 J	26 U R	6 U	5 U	6 U	6 U
1,1-Dichloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,2-Dichloroethene (total)	ug/Kg	6 U	6 U	1400 R	1300	6 U	5 U	6 U	6 U
Chloroform	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,2-Dichloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
2-Butanone	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	6 J	12 U
1,1,1-Trichloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Carbon Tetrachloride	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Vinyl Acetate	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
Bromodichloromethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,2-Dichloropropene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
cis-1,3-Dichloropropene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Trichloroethene	ug/Kg	4 J	6 U	220	230 R	6 U	5 U	6 U	6 U
Dibromochloromethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,1,2-Trichloroethene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Benzene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
trans-1,3-Dichloropropene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Bromoform	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
2-Hexanone	ug/Kg	12 U	11 U	11 U	52 U R	11 U	10 U	11 U	12 U
Tetrachloroethene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Toluene	ug/Kg	2 J	2 J	6 U	26 U R	6 U	5 U	6 U	6 U
Chlorobenzene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Ethylbenzene	ug/Kg	6 U	3 J	6 U	26 U R	6 U	5 U	6 U	6 U
Styrene	ug/Kg	6 U	6 U	6 U	26 U R	6 U	5 U	6 U	6 U
Xylene (total)	ug/Kg	5 J	20 J	6 U	26 U R	6 U	5 U	6 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-10	B-10	B-10	B-10	B-11	B-11	B-11	B-12
	DEPTH	2-4	2-4	6-8	6-8	0-2	2-4	6-8	0-2
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/07/91
	MAIN ID	S1106-32	S1106-33 (1)	S1106-34	S1106-34DL(5)	S1106-36	S1106-37	S1106-38	S1107-39
	LAB ID	148458	148459	148460	148460	148462	148463	148464	148704
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
bis(2-Chloroethyl) ether	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2-Chlorophenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
1,3-Dichlorobenzene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
1,4-Dichlorobenzene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Benzyl Alcohol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
1,2-Dichlorobenzene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2-Methylphenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
bis(2-Chloroisopropyl) ether	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
4-Methylphenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
N-Nitroso-di-n-propylamine	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Hexachloroethane	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Nitrobenzene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Isophorone	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2-Nitrophenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2,4-Dimethylphenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Benzoic acid	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
bis(2-Chloroethoxy) methane	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2,4-Dichlorophenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
1,2,4-Trichlorobenzene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Naphthalene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
4-Chloroaniline	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Hexachlorobutadiene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
4-Chloro-3-methylphenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2-Methylnaphthalene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Hexachlorocyclopentadiene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2,4,6-Trichlorophenol	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2,4,5-Trichlorophenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
2-Chloronaphthalene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2-Nitroaniline	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
Dimethylphthalate	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Acenaphthylene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2,6-Dinitrotoluene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
3-Nitroaniline	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
Acenaphthene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2,4-Dinitrophenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
4-Nitrophenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
Dibenzofuran	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
2,4-Dinitrotoluene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Diethylphthalate	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
4-Chlorophenyl-phenylether	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Fluorene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
4-Nitroaniline	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
4,6-Dinitro-2-methylphenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
N-Nitrosodiphenylamine (1)	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
4-Bromophenyl-phenylether	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Hexachlorobenzene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Pentachlorophenol	ug/Kg	3600 U	3700 U	3600 U		3800 U	3400 U	3500 U	3700 U
Phenanthrene	ug/Kg	160 J	180 J	750 U		67 J	710 U	720 U	760 U
Anthracene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Carbazole									
Di-n-butylphthalate	ug/Kg	77 J	760 U	750 U		780 U	710 U	720 U	760 U
Fluoranthene	ug/Kg	280 J	300 J	750 U		110 J	710 U	720 U	760 U
Pyrene	ug/Kg	250 J	240 J	750 U		91 J	710 U	720 U	760 U
Butylbenzylphthalate	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
3,3'-Dichlorobenzidine	ug/Kg	1500 U	1500 U	1500 U		1600 U	1400 U	1400 U	1500 U
Benzo(a)anthracene	ug/Kg	160 J	150 J	750 U		76 J	710 U	720 U	760 U
Chrysene	ug/Kg	160 J	160 J	750 U		79 J	710 U	720 U	760 U
bis(2-Ethylhexyl)phthalate	ug/Kg	100 J	360 J	100 J		780 U	710 U	720 U	760 U
Di-n-octylphthalate	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Benzo(b)fluoranthene	ug/Kg	160 J	140 J	750 U		780 U	710 U	720 U	760 U
benzo(k)fluoranthene	ug/Kg	110 J	140 J	750 U		780 U	710 U	720 U	760 U
Benzo(a)pyrene	ug/Kg	170 J	150 J	750 U		780 U	710 U	720 U	760 U
Indeno(1,2,3-cd)pyrene	ug/Kg	110 J	96 J	750 U		780 U	710 U	720 U	760 U
Dibenz(a,h)anthracene	ug/Kg	730 U	760 U	750 U		780 U	710 U	720 U	760 U
Benzo(g,h,i)perylene	ug/Kg	120 J	99 J	750 U		780 U	710 U	720 U	760 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-10	B-10	B-10	B-10	B-11	B-11	B-11	B-12
	DEPTH	2-4	2-4	6-8	6-8	0-2	2-4	6-8	0-2
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/07/91
	MAIN ID	S1106-32	S1106-33 (1)	S1106-34	S1106-34DL(5)	S1106-36	S1106-37	S1106-38	S1107-39
	LAB ID	148458	148459	148460	148460	148462	148463	148464	148704
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
beta-BHC	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
delta-BHC	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
gamma-BHC (Lindane)	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
Heptachlor	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	14 J
Aldrin	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
Heptachlor epoxide	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
Endosulfan I	ug/Kg	18 U	18 U	18 U		19 U	17 U	18 U	19 U
Dieldrin	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	46
4,4'-DDE	ug/Kg	26 J	30 J	36 U		38 U	34 U	35 U	37 U
Endrin	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	37 U
Endosulfan II	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	37 U
4,4'-DDD	ug/Kg	36	34 J	36 U		38 U	34 U	35 U	37 U
Endosulfan sulfate	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	37 U
4,4'-DDT	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	37 U
Methoxychlor	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Endrin ketone	ug/Kg	36 U	37 U	36 U		38 U	34 U	35 U	37 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
gamma-Chlordane	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Toxaphene	ug/Kg	360 U	370 U	360 U		380 U	340 U	350 U	370 U
Aroclor-1016	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1221	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1232	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1242	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1248	ug/Kg	180 U	180 U	180 U		190 U	170 U	180 U	190 U
Aroclor-1254	ug/Kg	360 U	370 U	360 U		380 U	340 U	350 U	370 U
Aroclor-1260	ug/Kg	360 U	370 U	360 U		380 U	340 U	350 U	370 U
HERBICIDES									
2,4-D	ug/Kg	58 U J	57 U J	57 U J		60 U J	54 U J	55 U J	59 U J
2,4-DB	ug/Kg	58 U J	57 U J	57 U J		60 U J	54 U J	55 U J	59 U J
2,4,5-T	ug/Kg	6 U J	6 U J	6 U J		6 U J	5 U J	5 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J	6 U J	6 U J		6 U J	5 U J	5 U J	6 U J
Dalapon	ug/Kg	140 U J	140 U J	140 U J		140 U J	130 U J	130 U J	140 U J
Dicamba	ug/Kg	6 U J	6 U J	6 U J		6 U J	5 U J	5 U J	6 U J
Dichloroprop	ug/Kg	58 U J	57 U J	57 U J		60 U J	54 U J	55 U J	59 U J
Dinoseb	ug/Kg	28 U J	29 U J	28 U J		30 U J	27 U J	27 U J	29 U J
MCPA	ug/Kg	5600 U J	5700 U J	5700 U J		6000 U J	5400 U J	5500 U J	5900 U J
MCPP	ug/Kg	5600 U J	5700 U J	5700 U J		24000 J	5400 U J	5500 U J	18000 J
METALS									
Aluminum	mg/kg	17300	15100	18800		19000	15800	19600	17500
Antimony	mg/kg	8.4 U J	10.3 U J	10.2 U J		12.3 U J	10.9 U J	8 U J	10.2 U J
Arsenic	mg/kg	9.7 J	6.1 J	4.9 J		11.4 J	6 J	5 J	4.8 J
Barium	mg/kg	145 J	83 J	56.9 J		190 J	82.8 J	73.6 J	91.4 J
Beryllium	mg/kg	0.94	0.85 J	1		1.1 J	1.1	0.93	0.99
Cadmium	mg/kg	3.1	2.8	2.9		4.2	2.8	2.5	1.9
Calcium	mg/kg	53600	43900	31000		6440	25400	26800	9480
Chromium	mg/kg	30.4 J	28.5 J	28.3 J		39.3 J	21.8 J	29.9 J	24.2 J
Cobalt	mg/kg	13.8	10.7	15.8		13.4	12.4	13	11.1
Copper	mg/kg	56.9	41.2	25.6		109	29.2	34.4	26.9
Iron	mg/kg	32200	34900	35400		129000	33000	31500	32300
Lead	mg/kg	83.1	54.8	14.1		244	13.3	41.3	40.2
Magnesium	mg/kg	16900	12000	8150		5390	5170	7460	5570
Manganese	mg/kg	732	632	953		975	1050	602	1090
Mercury	mg/kg	0.33	0.47	0.05 J		0.48	0.11	0.09	0.06 J
Nickel	mg/kg	42.2	40.6	44.5		40.6	30.4	41.2	35.5
Potassium	mg/kg	2380	2150	2180		2930	19000	2270	2150
Selenium	mg/kg	0.13 U J	0.16 U J	0.16 U J		0.18 U J	0.18 U J	0.16 U J	0.16 U J
Silver	mg/kg	5.6	4.3	1.5 U		1.8 U	1.6 U	1.2 U	1.6 J
Sodium	mg/kg	707 R	466 R	115 R		94 U	83.1 U	91.9 R	77.9 U
Thallium	mg/kg	0.36 U	0.46 U	0.44 U		0.49 U	0.5 U	0.51 U	0.44 U
Vanadium	mg/kg	28.6	21.6	26		29.6	20	21.7	26.4
Zinc	mg/kg	554	537	114 J		1060 J	121 J	240 J	110 J
Cyanide	mg/kg	0.64 U	0.68 U	0.65 U		0.71 U	0.64 U	0.62 U	0.71 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-12	B-12	B-13	B-13	B-13	B-14	B-14	B-14
	DEPTH	2-4	6-8	0-2	2-4	6-8	0-2	2-4	2-4
	DATE	11/07/91	11/07/91	11/07/91	11/07/91	11/07/91	11/08/91	11/08/91	11/08/91
	MAIN ID	S1107-40	S1107-41	S1107-42	S1107-43	S1107-44	S1108-45	S1108-46	S1108-47(
	LAB ID	148705	148706	148707	148708	148709	148710	148711	148712
	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Bromomethane	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Vinyl Chloride	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Chloroethane	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Methylene Chloride	ug/Kg	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
Acetone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Carbon Disulfide	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,1-Dichloroethene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,1-Dichloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,2-Dichloroethene (total)	ug/Kg	2 J	5 U	6 U	5 U	5 U	4 J	3 J	16 J
Chloroform	ug/Kg	5 U	5 U	6 U	5 U	5 J	6 U	5 U	5 U
1,2-Dichloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
2-Butanone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
1,1,1-Trichloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Carbon Tetrachloride	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Vinyl Acetate	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Bromodichloromethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,2-Dichloropropane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
cis-1,3-Dichloropropene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Trichloroethene	ug/Kg	2 J	2 J	6 U	5 U	5 U	7	3 J	8 J
Dibromochloromethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
1,1,2-Trichloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Benzene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
trans-1,3-Dichloropropene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Bromoform	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
2-Hexanone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	11 U	11 U
Tetrachloroethene	ug/Kg	5 U	5 J	6 U	5 U	5 U	6 U	5 U	5 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Toluene	ug/Kg	5 U	5 U	6 U	5 U	1 J	2 J	5 U	5 U
Chlorobenzene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Ethylbenzene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Styrene	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U
Xylene (total)	ug/Kg	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL
	LOCATION	B-12	B-12	B-13	B-13	B-13	B-14	B-14	B-14
	DEPTH	2-4	6-8	0-2	2-4	6-8	0-2	2-4	2-4
	DATE	11/07/91	11/07/91	11/07/91	11/07/91	11/07/91	11/08/91	11/08/91	11/08/91
	MAIN ID	S1107-40	S1107-41	S1107-42	S1107-43	S1107-44	S1108-45	S1108-46	S1108-47(
	LAB ID	148705	148706	148707	148708	148709	148710	148711	148712
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
bis(2-Chloroethyl) ether	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Chlorophenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
1,3-Dichlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
1,4-Dichlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Benzyl Alcohol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
1,2-Dichlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Methylphenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
bis(2-Chloroisopropyl) ether	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Methylphenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
N-Nitroso-di-n-propylamine	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Hexachloroethane	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Nitrobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Isophorone	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Nitrophenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4-Dimethylphenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Benzoic acid	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
bis(2-Chloroethoxy) methane	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4-Dichlorophenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
1,2,4-Trichlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Naphthalene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Chloroaniline	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Hexachlorobutadiene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Chloro-3-methylphenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Methylnaphthalene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Hexachlorocyclopentadiene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4,6-Trichlorophenol	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4,5-Trichlorophenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
2-Chloronaphthalene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2-Nitroaniline	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
Dimethylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Acenaphthylene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,6-Dinitrotoluene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
3-Nitroaniline	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
Acenaphthene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4-Dinitrophenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
4-Nitrophenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
Dibenzofuran	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
2,4-Dinitrotoluene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Diethylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Chlorophenyl-phenylether	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Fluorene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Nitroaniline	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
4,6-Dinitro-2-methylphenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
N-Nitrosodiphenylamine (1)	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
4-Bromophenyl-phenylether	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Hexachlorobenzene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Pentachlorophenol	ug/Kg	3400 U		4000 U	3400 U	3200 U	3700 U	3400 U	3500 U
Phenanthrene	ug/Kg	700 U		250 J	710 U	670 U	310 J	700 U	720 U
Anthracene	ug/Kg	700 U		810 U	710 U	670 U	71 J	700 U	720 U
Carbazole									
Di-n-butylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Fluoranthene	ug/Kg	700 U		240 J	710 U	670 U	290 J	700 U	720 U
Pyrene	ug/Kg	700 U		260 J	710 U	670 U	240 J	700 U	720 U
Butylbenzylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
3,3'-Dichlorobenzidine	ug/Kg	1400 U		1600 U	1400 U	1300 U	1500 U	1400 U	1400 U
Benzo(a)anthracene	ug/Kg	700 U		130 J	710 U	670 U	160 J	700 U	720 U
Chrysene	ug/Kg	700 U		130 J	710 U	670 U	150 J	700 U	720 U
bis(2-Ethylhexyl)phthalate	ug/Kg	700 U		810 U	710 U	670 U	1300	290 J	2000 J
Di-n-octylphthalate	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Benzo(b)fluoranthene	ug/Kg	700 U		140 J	710 U	670 U	110 J	700 U	720 U
benzo(k)fluoranthene	ug/Kg	700 U		96 J	710 U	670 U	140 J	700 U	720 U
Benzo(a)pyrene	ug/Kg	700 U		130 J	710 U	670 U	140 J	700 U	720 U
Indeno(1,2,3-cd)pyrene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Dibenz(a,h)anthracene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U
Benzo(g,h,i)perylene	ug/Kg	700 U		810 U	710 U	670 U	760 U	700 U	720 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-12	B-12	B-13	B-13	B-13	B-14	B-14	B-14
	DEPTH	2-4	6-8	0-2	2-4	6-8	0-2	2-4	2-4
	DATE	11/07/91	11/07/91	11/07/91	11/07/91	11/07/91	11/08/91	11/08/91	11/08/91
	MAIN ID	S1107-40	S1107-41	S1107-42	S1107-43	S1107-44	S1108-45	S1108-46	S1108-47(
	LAB ID	148705	148706	148707	148708	148709	148710	148711	148712
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
beta-BHC	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
delta-BHC	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
gamma-BHC (Lindane)	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Heptachlor	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Aldrin	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Heptachlor epoxide	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Endosulfan I	ug/Kg	17 U		20 U	17 U	16 U	18 U	17 U	17 U
Dieldrin	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
4,4'-DDE	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Endrin	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Endosulfan II	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
4,4'-DDD	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Endosulfan sulfate	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
4,4'-DDT	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Methoxychlor	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Endrin ketone	ug/Kg	34 U		40 U	34 U	32 U	37 U	34 U	35 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
gamma-Chlordane	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Toxaphene	ug/Kg	340 U		400 U	340 U	320 U	370 U	340 U	350 U
Aroclor-1016	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1221	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1232	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1242	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1248	ug/Kg	170 U		200 U	170 U	160 U	180 U	170 U	170 U
Aroclor-1254	ug/Kg	340 U		400 U	340 U	320 U	370 U	340 U	350 U
Aroclor-1260	ug/Kg	340 U		400 U	340 U	320 U	370 U	340 U	350 U
HERBICIDES									
2,4-D	ug/Kg	54 U J		61 U J	55 U J	52 U J	57 U J	54 U J	55 U J
2,4-DB	ug/Kg	54 U J		61 U J	555 U J	52 U J	57 U J	54 U J	55 U J
2,4,5-T	ug/Kg	5 U J		6 U J	5 U J	5 U J	6 U J	5 U J	5 U J
2,4,5-TP (Silvex)	ug/Kg	5 U J		6 U J	5 U J	5 U J	6 U J	5 U J	5 U J
Dalapon	ug/Kg	130 U J		150 U J	130 U J	120 U J	140 U J	130 U J	130 U J
Dicamba	ug/Kg	5 U J		6 U J	5 U J	5 U J	6 U J	5 U J	5 U J
Dichloroprop	ug/Kg	54 U J		61 U J	55 U J	52 U J	57 U J	54 U J	55 U J
Dinoseb	ug/Kg	27 U J		31 U J	27 U J	26 U J	29 U J	27 U J	27 U J
MCPA	ug/Kg	5400 U J		6100 U J	5500 U J	5200 U J	5700 U J	5400 U J	5500 U J
MCPP	ug/Kg	5400 U J		6100 U J	5500 U J	5200 U J	8800 J	5400 U J	5500 U J
METALS									
Aluminum	mg/kg	14200		18900	14400	18200	12600	12400	12600
Antimony	mg/kg	10 U		12.5 U J	10.8 U J	8.4 U J	10.6 U J	10.6 U J	9.3 U J
Arsenic	mg/kg	4.2		5.4	4.7	5.6	5	4	4.6
Barium	mg/kg	54.5		380	78.3	101	86.1	56.7	64
Beryllium	mg/kg	0.73 J		1.2	0.77 J	0.88	0.69 U	0.71 J	0.69 J
Cadmium	mg/kg	3.2 J		4.7 J	3.2 J	4.2 J	3.4 J	2.9 J	2.7
Calcium	mg/kg	53100		11400	61400	26700	49200	87500	93800
Chromium	mg/kg	21		30.9	22.7	27.7	22.1	19	18.9
Cobalt	mg/kg	12.2		16.8	10.8	16.3	6.2 J	10.3	8.4 J
Copper	mg/kg	23		55	25.9	23.4	43	22.3	21.1
Iron	mg/kg	30900		37000	29500	36000	27000	24900	24600
Lead	mg/kg	6.4 J		65.6	15.8	11.6 J	141	11.9 J	9.3
Magnesium	mg/kg	5410		5740	9940	7670	10300	8500	8280
Manganese	mg/kg	586		2740	572	470	330	520	557
Mercury	mg/kg	0.04 J		0.09 J	0.04 U	0.04 J	0.07 J	0.04 U	0.04 U
Nickel	mg/kg	34		37.2	36.4	44	20.9	29.3	29
Potassium	mg/kg	1330		2420	2030	1790	1730	1480	1640
Selenium	mg/kg	1 U J		0.4 U J	1.5 U J	0.31 U J	0.33 U J	1.4 U J	1.5 U J
Silver	mg/kg	5.4 J		1.9 U J	1.6 U J	1.3 U J	1.6 U J	1.6 U J	1.4 U J
Sodium	mg/kg	264 R		132 R	140 R	116 R	96.4 R	114 R	118 R
Thallium	mg/kg	0.34 U		0.66 U	0.51 U	0.51 U	5.4 U	4.7 U	4.8 U
Vanadium	mg/kg	19		31.8	21.6	21.6	22.7	18.1	18.1
Zinc	mg/kg	95.3		461	164	118	357	85.7	87.1
Cyanide	mg/kg	0.64 U		0.68 U	0.61 U	0.61 U	0.67 U	0.63 U	0.58 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-14	B-14	B-15	B-15	B-15	B-15	B-15	B-15
	DEPTH	4-6	4-6	0-2	0-2	2-4	2-4	2-4	2-4
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91
	MAIN ID 1)	S1106-48	S1106-48RE(4)	S1106-49	S1106-49DL(5)	S1106-50	S1106-50DL(5)	S1106-50RE(4)	S1106-51
	LAB ID	148713	148713	148714	148714	148715	148715	148715	148716
	UNITS								
VOCs									
Chloromethane	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Bromomethane	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Vinyl Chloride	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Chloroethane	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Methylene Chloride	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Acetone	ug/Kg	12 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		8400 U J
Carbon Disulfide	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,1-Dichloroethene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,1-Dichloroethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,2-Dichloroethene (total)	ug/Kg	6 J	3 J	6600 R	29000	40000 J	36000 U R		79000 J
Chloroform	ug/Kg	5 U J	5 U J	18 J	3100 U R	1100 U J	14000 U R		14000 U J
1,2-Dichloroethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
2-Butanone	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
1,1,1-Trichloroethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Carbon Tetrachloride	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Vinyl Acetate	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Bromodichloromethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,2-Dichloropropane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
cis-1,3-Dichloropropene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Trichloroethene	ug/Kg	8 J	5 J	13000 R	110000	580000 R	470000 J		740000 R
Dibromochloromethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
1,1,2-Trichloroethene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Benzene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
trans-1,3-Dichloropropene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Bromoform	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
4-Methyl-2-Pentanone	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
2-Hexanone	ug/Kg	10 U J	10 U J	38 U	6300 U R	2200 U J	27000 U R		29000 U J
Tetrachloroethene	ug/Kg	5 U J	5 U J	7 J	3100 U R	1100 U J	14000 U R		14000 U J
1,1,2,2-Tetrachloroethane	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Toluene	ug/Kg	3 U J	2 J	4 J	570 R	3700 J	4600 R		5700 J
Chlorobenzene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Ethylbenzene	ug/Kg	5 U J	5 U J	19 U	3100 U R	2000 J	14000 U R		2800 U J
Styrene	ug/Kg	5 U J	5 U J	19 U	3100 U R	1100 U J	14000 U R		14000 U J
Xylene (total)	ug/Kg	5 U J	5 U J	19 U	3100 U R	14000 J	15000 U R		17000 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-14	B-14	B-15	B-15	B-15	B-15	B-15	B-15
	DEPTH	4-6	4-6	0-2	0-2	2-4	2-4	2-4	2-4
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91
	MAIN ID 1)	S1106-48	S1106-48RE(4)	S1106-49	S1106-49DL(5)	S1106-50	S1106-50DL(5)	S1106-50RE(4)	S1106-51
	LAB ID	148713	148713	148714	148714	148715	148715	148715	148716
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
bis(2-Chloroethyl) ether	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Chlorophenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
1,3-Dichlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
1,4-Dichlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Benzyl Alcohol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
1,2-Dichlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Methylphenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
bis(2-Chloroisopropyl) ether	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Methylphenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
N-Nitroso-di-n-propylamine	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Hexachloroethane	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Nitrobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Isophorone	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Nitrophenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4-Dimethylphenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Benzoic acid	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
bis(2-Chloroethoxy) methane	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4-Dichlorophenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
1,2,4-Trichlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Naphthalene	ug/Kg	690 U		700 U		1900 J		2000 J	2500 J
4-Chloroaniline	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Hexachlorobutadiene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Chloro-3-methylphenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Methylnaphthalene	ug/Kg	690 U		700 U		2000 J		2000 J	2700 J
Hexachlorocyclopentadiene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4,6-Trichlorophenol	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4,5-Trichlorophenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
2-Chloronaphthalene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2-Nitroaniline	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
Dimethylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Acenaphthylene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,6-Dinitrotoluene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
3-Nitroaniline	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
Acenaphthene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4-Dinitrophenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
4-Nitrophenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
Dibenzofuran	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
2,4-Dinitrotoluene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Diethylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Chlorophenyl-phenylether	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Fluorene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Nitroaniline	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
4,6-Dinitro-2-methylphenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
N-Nitrosodiphenylamine (1)	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
4-Bromophenyl-phenylether	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Hexachlorobenzene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Pentachlorophenol	ug/Kg	3300 U		3400 U		7700 U J		7700 U J	9500 U J
Phenanthrene	ug/Kg	690 U		700 U		300 J		290 J	420 J
Anthracene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Carbazole									
Di-n-butylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Fluoranthene	ug/Kg	690 U		98 J		1600 U J		1600 U J	2000 U J
Pyrene	ug/Kg	690 U		100 J		180 J		160 J	230 J
Butylbenzylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
3,3'-Dichlorobenzidine	ug/Kg	1400 U		1400 U		3200 U J		3200 U J	3900 U J
Benzo(a)anthracene	ug/Kg	690 U		97 J		1600 U J		1600 U J	2000 U J
Chrysene	ug/Kg	690 U		120 J		1600 U J		1600 U J	2000 U J
bis(2-Ethylhexyl)phthalate	ug/Kg	690 U		460 J		450 J		360 J	940 J
Di-n-octylphthalate	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Benzo(b)fluoranthene	ug/Kg	690 U		140 J		1600 U J		1600 U J	2000 U J
benzo(k)fluoranthene	ug/Kg	690 U		140 J		1600 U J		1600 U J	2000 U J
Benzo(a)pyrene	ug/Kg	690 U		150 J		1600 U J		1600 U J	2000 U J
Indeno(1,2,3-cd)pyrene	ug/Kg	690 U		180 J		1600 U J		1600 U J	2000 U J
Dibenz(a,h)anthracene	ug/Kg	690 U		700 U		1600 U J		1600 U J	2000 U J
Benzo(g,h,i)perylene	ug/Kg	690 U		190 J		1600 U J		1600 U J	2000 U J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND									
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-14	B-14	B-15	B-15	B-15	B-15	B-15	B-15
	DEPTH	4-6	4-6	0-2	0-2	2-4	2-4	2-4	2-4
	DATE	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91	11/06/91
	MAIN ID 1)	S1106-48	S1106-48RE(4)	S1106-49	S1106-49DL(5)	S1106-50	S1106-50DL(5)	S1106-50RE(4)	S1106-51
	LAB ID	148713	148713	148714	148714	148715	148715	148715	148716
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U		17 U		19 U			19 U
beta-BHC	ug/Kg	17 U		17 U		19 U			19 U
delta-BHC	ug/Kg	17 U		17 U		19 U			19 U
gamma-BHC (Lindane)	ug/Kg	17 U		17 U		19 U			19 U
Heptachlor	ug/Kg	17 U		17 U		19 U			19 U
Aldrin	ug/Kg	17 U		17 U		19 U			19 U
Heptachlor epoxide	ug/Kg	17 U		17 U		19 U			19 U
Endosulfan I	ug/Kg	17 U		17 U		19 U			19 U
Dieldrin	ug/Kg	33 U		34 U		39 U			38 U
4,4'-DDE	ug/Kg	33 U		250		39 U			38 U
Endrin	ug/Kg	33 U		34 U		39 U			38 U
Endosulfan II	ug/Kg	33 U		34 U		39 U			38 U
4,4'-DDD	ug/Kg	33 U		34 U		39 U			38 U
Endosulfan sulfate	ug/Kg	33 U		34 U		39 U			38 U
4,4'-DDT	ug/Kg	33 U		34 U		39 U			38 U
Methoxychlor	ug/Kg	170 U		170 U		190 U			190 U
Endrin ketone	ug/Kg	33 U		34 U		39 U			38 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U		170 U		190 U			190 U
gamma-Chlordane	ug/Kg	170 U		170 U		190 U			190 U
Toxaphene	ug/Kg	330 U		340 U		390 U			380 U
Aroclor-1016	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1221	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1232	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1242	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1248	ug/Kg	170 U		170 U		190 U			190 U
Aroclor-1254	ug/Kg	330 U		340 U		390 U			380 U
Aroclor-1260	ug/Kg	330 U		330 J		370 J			430
HERBICIDES									
2,4-D	ug/Kg	53 U J		53 U J		60 U J			59 U J
2,4-DB	ug/Kg	53 U J		53 U J		60 U J			59 U J
2,4,5-T	ug/Kg	5 U J		5 U J		6 U J			6 U J
2,4,5-TP (Silvex)	ug/Kg	5 U J		5 U J		6 U J			6 U J
Dalapon	ug/Kg	130 U J		130 U J		140 U J			140 U J
Dicamba	ug/Kg	5 U J		5 U J		6 U J			6 U J
Dichloroprop	ug/Kg	53 U J		53 U J		60 U J			59 U J
Dinoseb	ug/Kg	26 U J		26 U J		30 U J			30 U J
MCPA	ug/Kg	5300 U J		5300 U J		6000 U J			5900 U J
MCPP	ug/Kg	5300 U J		5300 U J		6000 U J			5900 U J
METALS									
Aluminum	mg/kg	18100		16100		13900			18100
Antimony	mg/kg	10.5 U J		11 U J		10.6 J			12.1 U J
Arsenic	mg/kg	2.7		4.1		5.5 U			5
Barium	mg/kg	55.8		121		75.7			109
Beryllium	mg/kg	0.87 J		0.89 J		0.78 J			1 J
Cadmium	mg/kg	3.7 J		3.4 J		3.2 J			3.4 J
Calcium	mg/kg	29700		30900		50000 J			10500 J
Chromium	mg/kg	26.2		30.5		22			26.5
Cobalt	mg/kg	14.1		14		10.1			13.7
Copper	mg/kg	15.6		38.6		25.4			26.9
Iron	mg/kg	37800		35300		27700			32800
Lead	mg/kg	5.4 J		40.7		27			33.1
Magnesium	mg/kg	7770		8190		6190			5840
Manganese	mg/kg	483		476		653			600
Mercury	mg/kg	0.04 U		0.06 J		0.05 J			0.06 J
Nickel	mg/kg	41		53		37			35.6
Potassium	mg/kg	1770		1910		1280			2200
Selenium	mg/kg	1.6 U J		0.31 U J		1.4 U J			1.5 U J
Silver	mg/kg	1.6 U J		1.7 U J		1.8 U J			1.8 U J
Sodium	mg/kg	116 R		97.3 R		81.1 U			92.4 U
Thallium	mg/kg	0.52 U		0.52 U		0.46 U			0.49 U
Vanadium	mg/kg	21.8		23.3		21			26.6
Zinc	mg/kg	99		117		123			106
Cyanide	mg/kg	0.6 U		0.47 U		0.59 U			0.68 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-15	B-15	B-15	B-16	B-16	B-16	B-17	B-17
	DEPTH	2-4	6-8	6-8	0-2	2-4	6-8	0-2	0-2
	DATE	11/08/91	11/08/91	11/08/91	11/12/91	11/12/91	11/12/91	11/13/91	11/13/91
	MAIN ID (1)	S1108-51DL(5)	S1108-52	S1108-52DL(5)	S1112-53	S1112-54	S1112-55	S1113-56	S1113-56R
	LAB ID	148716	148717	148717	148925	148926	148927	148928	148928
	UNITS								
VOCs									
Chloromethane	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Bromomethane	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Vinyl Chloride	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Chloroethane	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Methylene Chloride	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	6 U J
Acetone	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	15 U	27 U	11 U J	16 U J
Carbon Disulfide	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,1-Dichloroethene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,1-Dichloroethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,2-Dichloroethene (total)	ug/Kg	69000 U R	11000 J	19000 R	6 U	6 U	5 U	5 U J	5 U J
Chloroform	ug/Kg	5300 R	680 U J	1700 U R	6 U	2 J	5 U	5 U J	5 U J
1,2-Dichloroethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
2-Butanone	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
1,1,1-Trichloroethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Carbon Tetrachloride	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Vinyl Acetate	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Bromodichloromethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,2-Dichloropropane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
cis-1,3-Dichloropropene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Trichloroethene	ug/Kg	540000 J	29000 R	38000 J	6 U	6 U	7	9 J	9 J
Dibromochloromethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,1,2-Trichloroethene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Benzene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
trans-1,3-Dichloropropene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Bromoform	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
4-Methyl-2-Pentanone	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
2-Hexanone	ug/Kg	48000 U R	1400 U J	3400 U R	12 U	11 U	10 U	11 U J	11 U J
Tetrachloroethene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
1,1,2,2-Tetrachloroethane	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Toluene	ug/Kg	6900 R	850 J	970 R	6 U	6 U	6	5 U J	1 J
Chlorobenzene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Ethylbenzene	ug/Kg	24000 U R	800 J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Styrene	ug/Kg	24000 U R	680 U J	1700 U R	6 U	6 U	5 U	5 U J	5 U J
Xylene (total)	ug/Kg	18000 R	4900 J	12000 R	6 U	6 U	28	5 U J	5 U J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-15	B-15	B-15	B-16	B-16	B-16	B-17	B-17
	DEPTH	2-4	6-8	6-8	0-2	2-4	6-8	0-2	0-2
	DATE	11/08/91	11/08/91	11/08/91	11/12/91	11/12/91	11/12/91	11/13/91	11/13/91
	MAIN ID (1)	S1108-51DL(5)	S1108-52	S1108-52DL(5)	S1112-53	S1112-54	S1112-55	S1113-56	S1113-56R
	LAB ID	148716	148717	148717	148925	148926	148927	148928	148928
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
bis(2-Chloroethyl) ether	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Chlorophenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
1,3-Dichlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
1,4-Dichlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Benzyl Alcohol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
1,2-Dichlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Methylphenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
bis(2-Chloroisopropyl) ether	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Methylphenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
N-Nitroso-di-n-propylamine	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Hexachloroethane	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Nitrobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Isophorone	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Nitrophenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4-Dimethylphenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Benzoic acid	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
bis(2-Chloroethoxy) methane	ug/Kg	2000 U J	950 U J		800 U	710 U	710 U	740 U	
2,4-Dichlorophenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
1,2,4-Trichlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Naphthalene	ug/Kg	2400 J	1200 J		800 U	730 U	710 U	740 U	
4-Chloroaniline	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Hexachlorobutadiene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Chloro-3-methylphenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Methylnaphthalene	ug/Kg	2600 J	950 U J		800 U	730 U	710 U	740 U	
Hexachlorocyclopentadiene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4,6-Trichlorophenol	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4,5-Trichlorophenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
2-Chloronaphthalene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2-Nitroaniline	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
Dimethylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Acenaphthylene	ug/Kg	2000 U J	950 U J		510 J	730 U	710 U	740 U	
2,6-Dinitrotoluene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
3-Nitroaniline	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
Acenaphthene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4-Dinitrophenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
4-Nitrophenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
Dibenzofuran	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
2,4-Dinitrotoluene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Diethylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Chlorophenyl-phenylether	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Fluorene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Nitroaniline	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
4,6-Dinitro-2-methylphenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
N-Nitrosodiphenylamine (1)	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
4-Bromophenyl-phenylether	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Hexachlorobenzene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Pentachlorophenol	ug/Kg	9500 U J	4600 U J		3900 U	3600 U	3400 U	3600 U	
Phenanthrene	ug/Kg	400 J	170 J		170 J	730 U	710 U	740 U	
Anthracene	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Carbazole									
Di-n-butylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Fluoranthene	ug/Kg	2000 U J	950 U J		800	730 U	710 U	740 U	
Pyrene	ug/Kg	2000 U J	150 J		1800	730 U	710 U	740 U	
Butylbenzylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
3,3'-Dichlorobenzidine	ug/Kg	3900 U J	1900 U J		1600 U	1500 U	1400 U	1500 U	
Benzo(a)anthracene	ug/Kg	2000 U J	950 U J		1300	730 U	710 U	740 U	
Chrysene	ug/Kg	2000 U J	950 U J		1800	730 U	710 U	740 U	
bis(2-Ethylhexyl)phthalate	ug/Kg	730 J	110 J		800 U	730 U	700 J	740 U	
Di-n-octylphthalate	ug/Kg	2000 U J	950 U J		800 U	730 U	710 U	740 U	
Benzo(b)fluoranthene	ug/Kg	2000 U J	950 U J		740 J	730 U	710 U	740 U	
benzo(k)fluoranthene	ug/Kg	2000 U J	950 U J		870	730 U	710 U	740 U	
Benzo(a)pyrene	ug/Kg	2000 U J	950 U J		1500	730 U	710 U	740 U	
Indeno(1,2,3-cd)pyrene	ug/Kg	2000 U J	950 U J		660 J	730 U	710 U	740 U	
Dibenz(a,h)anthracene	ug/Kg	2000 U J	950 U J		330 J	730 U	710 U	740 U	
Benzo(g,h,i)perylene	ug/Kg	2000 U J	950 U J		880	730 U	710 U	740 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-15	B-15	B-15	B-16	B-16	B-16	B-17	B-17
	DEPTH	2-4	6-8	6-8	0-2	2-4	6-8	0-2	0-2
	DATE	11/06/91	11/06/91	11/06/91	11/12/91	11/12/91	11/12/91	11/13/91	11/13/91
	MAIN ID (1)	S1106-51DL(5)	S1106-52	S1106-52DL(5)	S1112-53	S1112-54	S1112-55	S1113-56	S1113-56R
	LAB ID	148716	148717	148717	148925	148926	148927	148928	148928
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
beta-BHC	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
delta-BHC	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
gamma-BHC (Lindane)	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Heptachlor	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Aldrin	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Heptachlor epoxide	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Endosulfan I	ug/Kg		17 U J		19 U	18 U	17 U	18 U	
Dieldrin	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
4,4'-DDE	ug/Kg		69 J		21 J	36 U	34 U	39	
Endrin	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
Endosulfan II	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
4,4'-DDD	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
Endosulfan sulfate	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
4,4'-DDT	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
Methoxychlor	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Endrin ketone	ug/Kg		35 U J		39 U	36 U	34 U	36 U	
Endrin aldehyde									
alpha-Chlordane	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
gamma-Chlordane	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Toxaphene	ug/Kg		350 U J		390 U	360 U	340 U	360 U	
Aroclor-1016	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1221	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1232	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1242	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1248	ug/Kg		170 U J		190 U	180 U	170 U	180 U	
Aroclor-1254	ug/Kg		350 U J		390 U	360 U	340 U	360 U	
Aroclor-1260	ug/Kg		230 J		390 U	360 U	340 U	360 U	
HERBICIDES									
2,4-D	ug/Kg		54 U J		58 U J	55 U J	54 U J	56 U J	
2,4-DB	ug/Kg		54 U J		59 U J	55 U J	54 U J	56 U J	
2,4,5-T	ug/Kg		5 U J		6 U J	6 U J	5 U J	6 U J	
2,4,5-TP (Silvex)	ug/Kg		5 U J		6 U J	6 U J	5 U J	6 U J	
Dalapon	ug/Kg		130 U J		140 U J	130 U J	130 U J	130 U J	
Dicamba	ug/Kg		5 U J		6 U J	6 U J	5 U J	6 U J	
Dichloroprop	ug/Kg		54 U J		59 U J	55 U J	54 U J	56 U J	
Dinoseb	ug/Kg		27 U J		30 U J	28 U J	27 U J	28 U J	
MCPA	ug/Kg		5400 U J		5900 U J	5500 U J	5400 U J	5600 U J	
MCPP	ug/Kg		5400 U J		5900 U J	5500 U J	5400 U J	5600 U J	
METALS									
Aluminum	mg/kg		16600		12700	19600	19300	10900	
Antimony	mg/kg		9.3 U J		8.5 U J	10.9 U J	8.4 U J	12.3 J	
Arsenic	mg/kg		3.4		5.1	4.4	3.8	7	
Barium	mg/kg		49.9		91.1	101	64.8	82.5	
Beryllium	mg/kg		0.81 J		0.78 J	1	0.96	0.74 U	
Cadmium	mg/kg		3.7 J		1.8	3.2 J	2.9 J	8.2 J	
Calcium	mg/kg		12400		26100	27800	43000	74700	
Chromium	mg/kg		26.7		15.9	26.6	27.4	28.1	
Cobalt	mg/kg		12.6		5.8 J	12.8	13.3	11.2	
Copper	mg/kg		16.9		23.4	23.9	19.1	52.1	
Iron	mg/kg		31000		16500	32000	31800	86400	
Lead	mg/kg		9.8 J		39.8	9.5 J	5.3 J	40.1	
Magnesium	mg/kg		8290		10200	6730	11000	24900	
Manganese	mg/kg		467		582	634	574	602	
Mercury	mg/kg		0.04 U		0.07 J	0.05 J	0.04 U	0.06 J	
Nickel	mg/kg		41.8		17.5	35.3	38.6	39.7	
Potassium	mg/kg		1310		1960	2970	2540	1610	
Selenium	mg/kg		1.6 U J		0.39 U J	0.24 U J	0.35 U J	0.32 U J	
Silver	mg/kg		1.4 U J		1.3 U J	1.6 U J	1.3 U J	1.7 U J	
Sodium	mg/kg		71.4 U		64.9 U	83.6 U	139 J	99.3 J	
Thallium	mg/kg		0.53 U		0.64 U	0.4 U	0.58 U	0.52 U	
Vanadium	mg/kg		21		23.8	31	26.4	23.5	
Zinc	mg/kg		94.4		58.1	83.3	94.6	244	
Cyanide	mg/kg		0.59 U		0.65 U	0.6 U	0.66 U	0.65 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-17	B-17	B-17	B-17	B-18	B-18	B-18	B-19
	DEPTH	2-4	2-4	4-6	6-8	0-2	2-4	4-6	0-2
	DATE	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91
	MAIN ID E(4)	S1113-57	S1113-57DL(5)	S1113-58	S1113-59 (2)	S1113-60	S1113-61	S1113-62	S1113-63
	LAB ID	148929	148929	148930	148931	148932	148933	148934	148935
	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Bromomethane	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Vinyl Chloride	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Chloroethane	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Methylene Chloride	ug/Kg	6 U J	8 U R	6 U	7 U	5 U	5 U	5 U	5 U
Acetone	ug/Kg	12 U J	16 U R	15 U	16 U	12 U	11 U	11 U	12 U
Carbon Disulfide	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,1-Dichloroethene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,1-Dichloroethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,2-Dichloroethene (total)	ug/Kg	14 J	13 R	4 J	190	6 U	4 J	5 U	6 U
Chloroform	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	4 J	6	6 U
1,2-Dichloroethane	ug/Kg	6 U J	8 U R	6 U	21	6 U	5 U	5 U	6 U
2-Butanone	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
1,1,1-Trichloroethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	3 J	5 U	6 U
Carbon Tetrachloride	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Vinyl Acetate	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Bromodichloromethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,2-Dichloropropane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
cis-1,3-Dichloropropene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Trichloroethene	ug/Kg	260 R	210 J	47	540 J	6 U	5 U	5 U	6 U
Dibromochloromethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
1,1,2-Trichloroethene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Benzene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
trans-1,3-Dichloropropene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Bromoform	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
4-Methyl-2-Pentanone	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
2-Hexanone	ug/Kg	12 U J	16 U R	12 U	33 U	12 U	11 U	11 U	12 U
Tetrachloroethene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	6	5 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Toluene	ug/Kg	5 J	3 R	6 U	17 U	6 U	5 U	5 U	6 U
Chlorobenzene	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U
Ethylbenzene	ug/Kg	6 U J	6 U R	6 U	17 U	6 U	5 U	5 U	6 U
Styrene	ug/Kg	6 U J	6 U R	6 U	17 U	6 U	5 U	5 U	6 U
Xylene (total)	ug/Kg	6 U J	8 U R	6 U	17 U	6 U	5 U	5 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-17	B-17	B-17	B-17	B-18	B-18	B-18	B-19
	DEPTH	2-4	2-4	4-6	6-8	0-2	2-4	4-6	0-2
	DATE	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91
	MAIN ID E(4)	S1113-57	S1113-57DL(5)	S1113-58	S1113-59 (2)	S1113-60	S1113-61	S1113-62	S1113-63
	LAB ID	148929	148929	148930	148931	148932	148933	148934	148935
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
bis(2-Chloroethyl) ether	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Chlorophenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
1,3-Dichlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
1,4-Dichlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzyl Alcohol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
1,2-Dichlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Methylphenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
bis(2-Chloroisopropyl) ether	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Methylphenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
N-Nitroso-di-n-propylamine	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Hexachloroethane	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Nitrobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Isophorone	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Nitrophenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4-Dimethylphenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzoic acid	ug/Kg	3900 U		3700 U	3300 U	3600 U	3800 U	3400 U	3800 U
bis(2-Chloroethoxy) methane	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4-Dichlorophenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
1,2,4-Trichlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Naphthalene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Chloroaniline	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Hexachlorobutadiene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Chloro-3-methylphenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Methylnaphthalene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Hexachlorocyclopentadiene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4,6-Trichlorophenol	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4,5-Trichlorophenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
2-Chloronaphthalene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2-Nitroaniline	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
Dimethylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Acenaphthylene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,6-Dinitrotoluene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
3-Nitroaniline	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
Acenaphthene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4-Dinitrophenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
4-Nitrophenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
Dibenzofuran	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
2,4-Dinitrotoluene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Diethylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Chlorophenyl-phenylether	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Fluorene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Nitroaniline	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
4,6-Dinitro-2-methylphenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
N-Nitrosodiphenylamine (1)	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
4-Bromophenyl-phenylether	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Hexachlorobenzene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Pentachlorophenol	ug/Kg	3900 U		3700 U	3300 U	3600 U	3600 U	3400 U	3800 U
Phenanthrene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Anthracene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Carbazole									
Di-n-butylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Fluoranthene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Pyrene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Butylbenzylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
3,3'-Dichlorobenzidine	ug/Kg	1600 U		1500 U	1400 U	1500 U	1500 U	1400 U	1600 U
Benzo(a)anthracene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Chrysene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
bis(2-Ethylhexyl)phthalate	ug/Kg	790 U		770 U	680 U	740 U	400 J	110 J	780 U
Di-n-octylphthalate	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzo(b)fluoranthene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
benzo(k)fluoranthene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzo(a)pyrene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Indeno(1,2,3-cd)pyrene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Dibenz(a,h)anthracene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U
Benzo(g,h,i)perylene	ug/Kg	790 U		770 U	680 U	740 U	740 U	700 U	780 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-17	B-17	B-17	B-17	B-18	B-18	B-18	B-19
	DEPTH	2-4	2-4	4-6	6-8	0-2	2-4	4-6	0-2
	DATE	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91	11/13/91
	MAIN ID E(4)	S1113-57	S1113-57DL(5)	S1113-58	S1113-59 (2)	S1113-60	S1113-61	S1113-62	S1113-63
	LAB ID	148929	148929	148930	148931	148932	148933	148934	148935
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
beta-BHC	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
delta-BHC	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
gamma-BHC (Lindane)	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Heptachlor	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Aldrin	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Heptachlor epoxide	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Endosulfan I	ug/Kg	19 U		19 U	17 U	18 U	18 U	17 U	19 U
Dieldrin	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	38 U
4,4'-DDE	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	38 U
Endrin	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	38 U
Endosulfan II	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	38 U
4,4'-DDD	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	38 U
Endosulfan sulfate	ug/Kg	39 U		37 U	33 U	38 U	36 U	34 U	38 U
4,4'-DDT	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	38 U
Methoxychlor	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Endrin ketone	ug/Kg	39 U		37 U	33 U	36 U	36 U	34 U	38 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
gamma-Chlordane	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Toxaphene	ug/Kg	390 U		370 U	330 U	360 U	360 U	340 U	380 U
Aroclor-1016	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1221	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1232	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1242	ug/Kg	190 U		180 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1248	ug/Kg	190 U		190 U	170 U	180 U	180 U	170 U	190 U
Aroclor-1254	ug/Kg	390 U		370 U	330 U	360 U	360 U	340 U	380 U
Aroclor-1260	ug/Kg	390 U		370 U	330 U	360 U	360 U	340 U	380 U
HERBICIDES									
2,4-D	ug/Kg	60 U J		60 U J	53 U J	56 U J	57 U J	53 U J	60 U J
2,4-DB	ug/Kg	60 U J		60 U J	53 U J	56 U J	57 U J	53 U J	60 U J
2,4,5-T	ug/Kg	6 U J		6 U J	6 U J	6 U J	6 U J	5 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J		6 U J	5 U J	6 U J	6 U J	5 U J	6 U J
Dalapon	ug/Kg	150 U J		140 U J	130 U J	140 U J	140 U J	130 U J	140 U J
Dicamba	ug/Kg	6 U J		6 U J	5 U J	6 U J	6 U J	5 U J	6 U J
Dichloroprop	ug/Kg	60 U J		60 U J	53 U J	56 U J	57 U J	53 U J	60 U J
Dinoseb	ug/Kg	30 U J		30 U J	26 U J	26 U J	29 U J	26 U J	30 U J
MCPA	ug/Kg	6000 U J		6000 U J	5300 U J	5600 U J	5700 U J	5300 U J	6000 U J
MCPP	ug/Kg	6000 U J		6000 U J	5300 U J	5600 U J	5700 U J	5300 U J	6000 U J
METALS									
Aluminum	mg/kg	18700		16800	15100	22600	21100	22300	16600
Antimony	mg/kg	10.3 U J		6.6 U J	10.6 U J	8 U J	8.6 U J	8.7 J	10.6 U J
Arsenic	mg/kg	5.5		4.6	4.6	5.1	5.6	6.5	5.9
Barium	mg/kg	157		73.5	40.1	85.8	59.9	59.7	89.9
Beryllium	mg/kg	1.1		0.88	0.61 J	1.1	0.95	1	1
Cadmium	mg/kg	3.7 J		2.9 J	3	4	4.1	4.2	3.7
Calcium	mg/kg	20500		13200	58100	6180	3100	30000	3440
Chromium	mg/kg	31.6		26.5	22.4	30.4	30.5	31.9	26
Cobalt	mg/kg	13.1		10.6	11.3	16	15.7	16.3	11
Copper	mg/kg	46.7		20.2	12.9	24.6 J	15.8 J	18.4 J	22.5 J
Iron	mg/kg	34600		30200	26700	34500	36700	37800	33300
Lead	mg/kg	106		12.8	5.2 J	8.9 J	4.6 J	4.9 J	13.7 J
Magnesium	mg/kg	9340		8270	6750	6440	7790	8260	5460
Manganese	mg/kg	1090		400	677	668	522	615	517
Mercury	mg/kg	0.11		0.05 U	0.04 U	0.06 J	0.04 U	0.04 U	0.05 J
Nickel	mg/kg	37.2		39.2	33.7	41.8	46.5	46.5	37.3
Potassium	mg/kg	2750		1610	1630	2870	1850	2450	1240
Selenium	mg/kg	0.34 U J		0.26 U J	0.31 U J	0.29 U J	0.32 U J	0.27 U J	0.29 U J
Silver	mg/kg	1.5 U J		0.99 U J	1.6 U	1.2 U	1.3 U	1.2 U	1.6 U
Sodium	mg/kg	78.9 U		50.7 U	242 J	105 J	99.9 J	176 J	85.7 J
Thallium	mg/kg	0.56 U		0.43 U	0.51 U	0.48 U	0.52 U	0.44 U	0.48 U
Vanadium	mg/kg	30.8		24.3	19.8	29	24.5	27	25
Zinc	mg/kg	1710		253	67.2	113	86.6	102	90.7
Cyanide	mg/kg	0.64 U		0.59 U	0.52 U	0.66 U	0.65 U	0.64 U	0.66 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-19	B-19	B-20	B-20	B-20	B-20	B-21	B-21
	DEPTH	2-4	4-6	0-2	2-4	2-4	4-6	0-2	2-4
	DATE	11/13/91	11/13/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91
	MAIN ID	S1113-64	S1113-65	S1114-66	S1114-67	S1114-67D	S1114-68	S1114-69	S1114-70
	LAB ID	148936	148937	149176	149177	149177	149178	149179	149180
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Bromomethane	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Vinyl Chloride	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Chloroethane	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Methylene Chloride	ug/Kg	9 U	5 U	6 U	6 U		5 U	6 U	6 U
Acetone	ug/Kg	12 U	11 U	12 U	11 U		11 U	31 U	12 U
Carbon Disulfide	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,1-Dichloroethene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,1-Dichloroethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,2-Dichloroethene (total)	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Chloroform	ug/Kg	1 J	5 U	6 U	6 U		5 U	6 U	6 U
1,2-Dichloroethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
2-Butanone	ug/Kg	10 J	11 U	12 U	11 U		11 U	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Carbon Tetrachloride	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Vinyl Acetate	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Bromodichloromethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,2-Dichloropropane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
cis-1,3-Dichloropropene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Trichloroethene	ug/Kg	1 J	5 U	6 U	2 J		5 U	6 U	6 U
Dibromochloromethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,1,2-Trichloroethene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Benzene	ug/Kg	2 J	5 U	6 U	6 U		5 U	6 U	6 U
trans-1,3-Dichloropropene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Bromoform	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
2-Hexanone	ug/Kg	12 U	11 U	12 U	11 U		11 U	12 U	12 U
Tetrachloroethene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Toluene	ug/Kg	15	5 U	6 U	6 U		5 U	6 U	6 U
Chlorobenzene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Ethylbenzene	ug/Kg	4 J	5 U	6 U	6 U		5 U	6 U	6 U
Styrene	ug/Kg	6 U	5 U	6 U	6 U		5 U	6 U	6 U
Xylene (total)	ug/Kg	18	5 U	6 U	6 U		5 U	6 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-19	B-19	B-20	B-20	B-20	B-20	B-21	B-21
	DEPTH	2-4	4-6	0-2	2-4	2-4	4-6	0-2	2-4
	DATE	11/13/91	11/13/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91
	MAIN ID	S1113-64	S1113-65	S1114-66	S1114-67	S1114-67D	S1114-68	S1114-69	S1114-70
	LAB ID	148936	148937	149176	149177	149177	149178	149179	149180
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
bis(2-Chloroethyl) ether	ug/Kg	9 J	780 U	780 U	750 U		740 U	780 U	770 U
2-Chlorophenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
1,3-Dichlorobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
1,4-Dichlorobenzene	ug/Kg	730 U	760 U	750 U	750 U		740 U	780 U	770 U
Benzyl Alcohol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
1,2-Dichlorobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2-Methylphenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
bis(2-Chloroisopropyl) ether	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Methylphenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
N-Nitroso-di-n-propylamine	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Hexachloroethane	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Nitrobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Isophorone	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2-Nitrophenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,4-Dimethylphenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Benzoic acid	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
bis(2-Chloroethoxy) methane	ug/Kg	730 U	780 U	780 U	750 U		740 U	780 U	770 U
2,4-Dichlorophenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
1,2,4-Trichlorobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Naphthalene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Chloroaniline	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Hexachlorobutadiene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Chloro-3-methylphenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2-Methylnaphthalene	ug/Kg	88 J	760 U	780 U	750 U		740 U	780 U	770 U
Hexachlorocyclopentadiene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,4,6-Trichlorophenol	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,4,5-Trichlorophenol	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
2-Chloronaphthalene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2-Nitroaniline	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
Dimethylphthalate	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Acenaphthylene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,6-Dinitrotoluene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
3-Nitroaniline	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
Acenaphthene	ug/Kg	6 J	760 U	780 U	750 U		740 U	220 J	770 U
2,4-Dinitrophenol	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
4-Nitrophenol	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
Dibenzofuran	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
2,4-Dinitrotoluene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Diethylphthalate	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Chlorophenyl-phenylether	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Fluorene	ug/Kg	730 U	760 U	780 U	750 U		740 U	160 J	770 U
4-Nitroaniline	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
4,6-Dinitro-2-methylphenol	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
N-Nitrosodiphenylamine (1)	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
4-Bromophenyl-phenylether	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Hexachlorobenzene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Pentachlorophenol	ug/Kg	3500 U	3700 U	3800 U	3600 U		3600 U	3800 U	3700 U
Phenanthrene	ug/Kg	730 U	780 U	290 J	750 U		740 U	1700	770 U
Anthracene	ug/Kg	730 U	760 U	84 J	750 U		740 U	460 J	770 U
Carbazole									
Di-n-butylphthalate	ug/Kg	730 U	760 U	88 J	750 U		740 U	780 U	770 U
Fluoranthene	ug/Kg	730 U	760 U	270 J	750 U		740 U	2000	770 U
Pyrene	ug/Kg	730 U	760 U	300 J	750 U		740 U	2100	770 U
Butylbenzylphthalate	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
3,3'-Dichlorobenzidine	ug/Kg	1500 U	1500 U	1600 U	1500 U		1500 U	1600 U	1500 U
Benzo(a)anthracene	ug/Kg	730 U	760 U	150 J	750 U		740 U	830	770 U
Chrysene	ug/Kg	730 U	760 U	160 J	750 U		740 U	880	770 U
bis(2-Ethylhexyl)phthalate	ug/Kg	730 U	88 J	780 U	750 U		740 U	630 J	770 U
Di-n-octylphthalate	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Benzo(b)fluoranthene	ug/Kg	730 U	760 U	93 J	750 U		740 U	670 J	770 U
benzo(k)fluoranthene	ug/Kg	730 U	760 U	160 J	750 U		740 U	700 J	770 U
Benzo(a)pyrene	ug/Kg	730 U	760 U	120 J	750 U		740 U	760 J	770 U
Indeno(1,2,3-cd)pyrene	ug/Kg	730 U	760 U	780 U	750 U		740 U	350 J	770 U
Dibenz(a,h)anthracene	ug/Kg	730 U	760 U	780 U	750 U		740 U	780 U	770 U
Benzo(g,h,i)perylene	ug/Kg	730 U	760 U	780 U	750 U		740 U	370 J	770 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-19	B-19	B-20	B-20	B-20	B-20	B-21	B-21
	DEPTH	2-4	4-6	0-2	2-4	2-4	4-6	0-2	2-4
	DATE	11/13/91	11/13/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91	11/14/91
	MAIN ID	S1113-64	S1113-65	S1114-66	S1114-67	S1114-67D	S1114-68	S1114-69	S1114-70
	LAB ID	148936	148937	149176	149177	149177	149178	149179	149180
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
beta-BHC	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
delta-BHC	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
gamma-BHC (Lindane)	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Heptachlor	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Aldrin	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Heptachlor epoxide	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Endosulfan I	ug/Kg	18 U	18 U	19 U	18 U	90 U R	18 U	19 U	19 U
Dieldrin	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
4,4'-DDE	ug/Kg	35 U	37 U	28 J	190 R	140 J	18 J	38 U	37 U
Endrin	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
Endosulfan II	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
4,4'-DDD	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
Endosulfan sulfate	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
4,4'-DDT	ug/Kg	38 U	37 U	38 U	29 J	180 U R	36 U	38 U	37 U
Methoxychlor	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Endrin ketone	ug/Kg	35 U	37 U	38 U	36 U	180 U R	36 U	38 U	37 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
gamma-Chlordane	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Toxaphene	ug/Kg	350 U	370 U	380 U	360 U	1800 U R	360 U	380 U	370 U
Aroclor-1016	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1221	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1232	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1242	ug/Kg	180 U	190 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1248	ug/Kg	180 U	180 U	190 U	180 U	900 U R	180 U	190 U	190 U
Aroclor-1254	ug/Kg	350 U	370 U	380 U	360 U	1800 U R	360 U	380 U	370 U
Aroclor-1260	ug/Kg	350 U	370 U	380 U	360 U	1800 U R	360 U	380 U	370 U
HERBICIDES									
2,4-D	ug/Kg	56 U J	59 U J	60 U J	57 U J		56 U J	58 U J	57 U J
2,4-DB	ug/Kg	56 U J	59 U J	60 U J	57 U J		56 U J	58 U J	57 U J
2,4,5-T	ug/Kg	6 U J	6 U J	6 U J	6 U J		6 U J	6 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J	6 U J	6 U J	6 U J		6 U J	6 U J	6 U J
Dalapon	ug/Kg	140 U J	140 U J	140 U J	140 U J		130 U J	140 U J	140 U J
Dicamba	ug/Kg	6 U J	6 U J	6 U J	6 U J		6 U J	6 U J	6 U J
Dichloroprop	ug/Kg	56 U J	59 U J	60 U J	57 U J		56 U J	58 U J	57 U J
Dinoseb	ug/Kg	28 U J	29 U J	30 U J	29 U J		28 U J	29 U J	29 U J
MCPA	ug/Kg	5600 U J	5900 U J	6000 U J	5700 U J		5600 U J	5800 U J	5700 U J
MCPP	ug/Kg	5600 U J	5900 U J	6000 U J	5700 U J		5600 U J	5800 U J	5700 U J
METALS									
Aluminum	mg/kg	21600	19500	13200	20300		19900	19400	21300
Antimony	mg/kg	11 U J	10.3 U J	10.6 U J	10.6 U J		7.5 U J	9.6 U J	7.6 U J
Arsenic	mg/kg	4.8	5.2	4.9	4.5		4	4.6	4.6
Barium	mg/kg	81.7	90.7	74.5	90.7		62.8	110	75.9
Beryllium	mg/kg	1.1	1	0.8 J	1.1		1	0.99	1.1
Cadmium	mg/kg	4	3.6	2.6	4		4	3.3	4.6
Calcium	mg/kg	9750	16000	123000	32500		35500	38300	7850
Chromium	mg/kg	34.6	29.8	17.5	29.6		29.8	26	33.4
Cobalt	mg/kg	16.9	16.5	6.9 J	15.5		14.3	13.9	17.8
Copper	mg/kg	18.3 J	22.8 J	26.5 J	26.1 J		19.6 J	26 J	21.8 J
Iron	mg/kg	40300	38300	19900	36800		35500	31600	41500
Lead	mg/kg	7.4 J	8.6 J	18.4	26.3		6.2 J	15.7	8.2 J
Magnesium	mg/kg	8050	6890	24100	8010		7890	9500	7720
Manganese	mg/kg	918	947	681	1060		920	1460	924
Mercury	mg/kg	0.04 U	0.07 J	0.05 J	0.04 U		0.05 U	0.31	0.04 U
Nickel	mg/kg	53.2	45.7	20.1	43.6		43.5	41.1	52.2
Potassium	mg/kg	2110	1860	2050	2310		2070	2300	1630
Selenium	mg/kg	0.38 U J	0.29 U J	0.37 U J	0.23 U J		0.26 U J	0.32 U J	0.34 U J
Silver	mg/kg	1.6 U	1.5 U	1.6 U	1.6 U		1.1 U	1.5 U	1.1 U
Sodium	mg/kg	122 J	126 J	150 J	115 J		162 J	133 J	101 J
Thallium	mg/kg	0.6 U	0.48 U	0.61 U	0.36 U		0.45 U	0.53 U	0.56 U
Vanadium	mg/kg	27.2	26.3	22.2	29.3		24.8	27.9	26.4
Zinc	mg/kg	86.1	88.9	130	273		104	335	92.2
Cyanide	mg/kg	0.64 U	0.68 U	0.67 U	0.63		0.63 U	0.58 U	0.67 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-21 2-4 11/14/91 S1114-71(1) 149181	SOIL B-21 4-6 11/14/91 S1114-72 149182	SOIL B-22 0-2 12/02/91 S1202-73 (3) 150016	SOIL B-22 2-4 12/02/91 S1202-74 (4) 150017	SOIL B-22 4-6 12/02/91 S1202-75(: 150018	SOIL B-23 0-2 12/02/91 S1202-76 150019	SOIL B-23 2-4 12/02/91 S1202-77 150020	SOIL B-23 4-6 12/02/91 S1202-78 150021	SOIL B-24 0-2 12/03/91 S1203-79(3) 150022
VOCs										
Chloromethane	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Bromomethane	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Vinyl Chloride	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Chloroethane	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Methylene Chloride	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Acetone	ug/Kg	11 U	11 U	12 U	11 U	11 U	12 U	13 U	12 U	13 U
Carbon Disulfide	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,1-Dichloroethene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,1-Dichloroethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloroethene (total)	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Chloroform	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloroethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
2-Butanone	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
1,1,1-Trichloroethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Carbon Tetrachloride	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Vinyl Acetate	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Bromodichloromethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloropropane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
cis-1,3-Dichloropropene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Trichloroethene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Dibromochloromethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,1,2-Trichloroethene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Benzene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
trans-1,3-Dichloropropene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Bromoform	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
2-Hexanone	ug/Kg	11 U	11 U	12 U	10 U	11 U	12 U	11 U	11 U	13 U
Tetrachloroethene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Toluene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Chlorobenzene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Ethylbenzene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Styrene	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U
Xylene (total)	ug/Kg	6 U	5 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-21	B-21	B-22	B-22	B-22	B-23	B-23	B-23	B-24
	DEPTH	2-4	4-6	0-2	2-4	4-6	0-2	2-4	4-6	0-2
	DATE	11/14/91	11/14/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/03/91
	MAIN ID	S1114-71(1)	S1114-72	S1202-73 (3)	S1202-74 (4)	S1202-75(:	S1202-76	S1202-77	S1202-78	S1203-79(3)
	LAB ID	149181	149182	150016	150017	150018	150019	150020	150021	150022
COMPOUND	UNITS									
SEMIVOLATILES										
Phenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
bis(2-Chloroethyl) ether	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Chlorophenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
1,3-Dichlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
1,4-Dichlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzyl Alcohol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
1,2-Dichlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Methylphenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
bis(2-Chloroisopropyl) ether	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Methylphenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
N-Nitroso-di-n-propylamine	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Hexachloroethane	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Nitrobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Isophorone	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Nitrophenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4-Dimethylphenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzoic acid	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
bis(2-Chloroethoxy) methane	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4-Dichlorophenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
1,2,4-Trichlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Naphthalene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Chloroaniline	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Hexachlorobutadiene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Chloro-3-methylphenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Methylnaphthalene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Hexachlorocyclopentadiene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4,6-Trichlorophenol	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4,5-Trichlorophenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
2-Chloronaphthalene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2-Nitroaniline	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
Dimethylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Acenaphthylene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,6-Dinitrotoluene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
3-Nitroaniline	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
Acenaphthene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4-Dinitrophenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
4-Nitrophenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
Dibenzofuran	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
2,4-Dinitrotoluene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Diethylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Chlorophenyl-phenylether	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Fluorene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Nitroaniline	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
4,6-Dinitro-2-methylphenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
N-Nitrosodiphenylamine (1)	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
4-Bromophenyl-phenylether	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Hexachlorobenzene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Pentachlorophenol	ug/Kg	3600 U		3900 U	3500 U		3800 U	3600 U	3600 U	4400 U
Phenanthrene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Anthracene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Carbazole										
Di-n-butylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Fluoranthene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Pyrene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Butylbenzylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
3,3'-Dichlorobenzidine	ug/Kg	1500 U		1600 U	1400 U		1600 U	1500 U	1500 U	1800 U
Benzo(a)anthracene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Chrysene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
bis(2-Ethylhexyl)phthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Di-n-octylphthalate	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzo(b)fluoranthene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
benzo(k)fluoranthene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzo(a)pyrene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Indeno(1,2,3-cd)pyrene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Dibenz(a,h)anthracene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U
Benzo(g,h,i)perylene	ug/Kg	740 U		800 U	710 U		790 U	740 U	730 U	900 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-21	B-21	B-22	B-22	B-22	B-23	B-23	B-23	B-24
	DEPTH	2-4	4-6	0-2	2-4	4-6	0-2	2-4	4-6	0-2
	DATE	11/14/91	11/14/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/02/91	12/03/91
	MAIN ID	S1114-71(1)	S1114-72	S1202-73 (3)	S1202-74 (4)	S1202-75(:	S1202-76	S1202-77	S1202-78	S1203-79(3)
	LAB ID	149181	149182	150016	150017	150018	150019	150020	150021	150022
COMPOUND	UNITS									
PESTICIDES/PCBs										
alpha-BHC	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
beta-BHC	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
delta-BHC	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
gamma-BHC (Lindane)	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Heptachlor	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Aldrin	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Heptachlor epoxide	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Endosulfan I	ug/Kg	18 U		19 U	17 U		19 U	18 U	18 U	22 U
Dieldrin	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
4,4'-DDE	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
Endrin	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
Endosulfan II	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
4,4'-DDD	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
Endosulfan sulfate	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
4,4'-DDT	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
Methoxychlor	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Endrin ketone	ug/Kg	36 U		38 U	35 U		38 U	36 U	36 U	44 U
Endrin aldehyde										
alpha-Chlordane	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
gamma-Chlordane	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Toxaphene	ug/Kg	360 U		380 U	350 U		380 U	360 U	360 U	440 U
Aroclor-1016	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1221	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1232	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1242	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1248	ug/Kg	180 U		190 U	170 U		190 U	180 U	180 U	220 U
Aroclor-1254	ug/Kg	360 U		380 U	350 U		380 U	360 U	360 U	440 U
Aroclor-1260	ug/Kg	360 U		380 U	350 U		380 U	360 U	360 U	440 U
HERBICIDES										
2,4-D	ug/Kg	57 U J		60 U J	54 U J		60 U J	56 U J	56 U J	68 U J
2,4-DB	ug/Kg	57 U J		60 U J	54 U J		60 U J	56 U J	56 U J	68 U J
2,4,5-T	ug/Kg	6 U J		6 U J	5 U J		6 U J	6 U J	6 U J	7 U J
2,4,5-TP (Silvex)	ug/Kg	6 U J		6 U J	5 U J		6 U J	6 U J	6 U J	7 U J
Dalapon	ug/Kg	140 U J		150 U J	130 U J		140 U J	130 U J	130 U J	160 U J
Dicamba	ug/Kg	6 U J		6 U J	5 U J		6 U J	6 U J	6 U J	7 U J
Dichloroprop	ug/Kg	57 U J		60 U J	54 U J		60 U J	56 U J	56 U J	68 U J
Dinoseb	ug/Kg	28 U J		30 U J	27 U J		30 U J	28 U J	28 U J	34 U J
MCPA	ug/Kg	5700 U J		6000 U J	5400 U J		6000 U J	5600 U J	5600 U J	6800 U J
MCPP	ug/Kg	5700 U J		6000 U J	5400 U J		6000 U J	5600 U J	5600 U J	6800 U J
METALS										
Aluminum	mg/kg	21400		18400	16500		15700	18700	18100	21700
Antimony	mg/kg	9 U J		9.2 U J	10.5 U J		10.2 U J	9.8 U J	10.5 U J	12.3 U J
Arsenic	mg/kg	4.9		7.6 J	4.6 J		3.6 J	5.5 J	5.2 J	6.1 J
Barium	mg/kg	74.7		107	70		96.2	69	67	166
Beryllium	mg/kg	1.1		1.1	0.9 J		0.98	1.1	0.98	1.3
Cadmium	mg/kg	4.2		1.8	2.5		2.1	2.4	2.6	2.7
Calcium	mg/kg	9720		3270	10800		1960	6970	11400	5440
Chromium	mg/kg	33.9		27.4	29.4		22.6	31.1	31.7	29.8
Cobalt	mg/kg	19		11.5	16.2		11.5	16.1	16.2	13.9
Copper	mg/kg	20.3 J		21.4	22.8		18.4	22.7	21.3	32
Iron	mg/kg	38900		32000	37300		27800	36000	39400	33500
Lead	mg/kg	7.6 J		13.6 R	4.5 R		8.4 R	8 R	4.1 R	15.5 R
Magnesium	mg/kg	7540		5470	7570		4150	7830	8620	5710
Manganese	mg/kg	834		578	848		632	577	733	1420
Mercury	mg/kg	0.03 U		0.04 U	0.07 J		0.04 U	0.07 J	0.07 J	0.1 J
Nickel	mg/kg	51.3		34.5	48.8		20.9	43.8	48.1	38.5
Potassium	mg/kg	1940		1970	1470		1530	1920	1580	2790
Selenium	mg/kg	0.32 U J		0.21 U J	0.19 U J		0.19 U J	0.15 U J	0.16 U J	0.27 U J
Silver	mg/kg	1.3 U		1.5 J	1.7 U		1.7 U	1.6 U	1.7 U	2 U
Sodium	mg/kg	111 J		53 U	63.2 J		59.3 U	56.9 U	60.7 U	71.1 U
Thallium	mg/kg	0.52 U		0.59 U J	0.53 U J		0.53 U J	0.42 U J	0.46 U J	0.74 U J
Vanadium	mg/kg	26.3		26.2	21		27.4	25.4	27.2	33.8
Zinc	mg/kg	84		76.4	74.5		56	79.6	102	107
Cyanide	mg/kg	0.68 U		0.72 U	0.65 U		0.7 U	0.67 U	0.65 U	0.79 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-24	B-24	B-25	B-25	B-25	B-25	B-27	B-27
	DEPTH	2-4	4-6	0-2	2-4	4-6	4-6	0-2	2-4
	DATE	12/03/91	12/03/91	12/03/91	12/03/91	12/03/91	12/03/91	12/04/91	12/04/91
	MAIN ID	S1203-80 (3)	S1203-81 (3)	S1203-82	S1203-83	S1203-84	S1203-84RE (4)	S1204-86 (2,3)	S1204-87 (3)
	LAB ID	150023	150024	150025	150026	150027	150027	150235	150236
	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Bromomethane	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Vinyl Chloride	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Chloroethane	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Methylene Chloride	ug/Kg	5 U	5 U	6 U	6 U	5 U	6 U J	6 U	6 U
Acetone	ug/Kg	11 U	11 U	13 U	12 U	11 U	12 U J	12 U	12 U
Carbon Disulfide	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,1-Dichloroethene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,1-Dichloroethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,2-Dichloroethene (total)	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	100	250
Chloroform	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,2-Dichloroethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
2-Butanone	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Carbon Tetrachloride	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Vinyl Acetate	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Bromodichloromethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,2-Dichloropropane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
cis-1,3-Dichloropropene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Trichloroethene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	10	13
Dibromochloromethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
1,1,2-Trichloroethene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Benzene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
trans-1,3-Dichloropropene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Bromoform	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
2-Hexanone	ug/Kg	11 U	11 U	13 U	12 U	11 U	11 U J	12 U	12 U
Tetrachloroethene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	4 J	6 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Toluene	ug/Kg	5 U	5 U	6 U	6 U	1 J	1 J	6 U	6 U
Chlorobenzene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Ethylbenzene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Styrene	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U
Xylene (total)	ug/Kg	5 U	5 U	6 U	6 U	5 U	5 U J	6 U	6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL B-24 2-4 12/03/91 S1203-80 (3) 150023	SOIL B-24 4-6 12/03/91 S1203-81 (3) 150024	SOIL B-25 0-2 12/03/91 S1203-82 150025	SOIL B-25 2-4 12/03/91 S1203-83 150026	SOIL B-25 4-6 12/03/91 S1203-84 150027	SOIL B-25 4-6 12/03/91 S1203-84RE(4) 150027	SOIL B-27 0-2 12/04/91 S1204-86(2,3) 150235	SOIL B-27 2-4 12/04/91 S1204-87 (3) 150236
SEMIVOLATILES									
Phenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
bis(2-Chloroethyl) ether	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Chlorophenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
1,3-Dichlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
1,4-Dichlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzyl Alcohol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
1,2-Dichlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Methylphenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
bis(2-Chloroisopropyl) ether	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Methylphenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
N-Nitroso-di-n-propylamine	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Hexachloroethane	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Nitrobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Isophorone	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Nitrophenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4-Dimethylphenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzoic acid	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
bis(2-Chloroethoxy) methane	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4-Dichlorophenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
1,2,4-Trichlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Naphthalene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Chloroaniline	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Hexachlorobutadiene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Chloro-3-methylphenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Methylnaphthalene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Hexachlorocyclopentadiene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4,6-Trichlorophenol	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4,5-Trichlorophenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
2-Chloronaphthalene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2-Nitroaniline	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
Dimethylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Acenaphthylene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,6-Dinitrotoluene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
3-Nitroaniline	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
Acenaphthene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4-Dinitrophenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
4-Nitrophenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
Dibenzofuran	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
2,4-Dinitrotoluene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Diethylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Chlorophenyl-phenylether	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Fluorene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Nitroaniline	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
4,6-Dinitro-2-methylphenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
N-Nitrosodiphenylamine (1)	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
4-Bromophenyl-phenylether	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Hexachlorobenzene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Pentachlorophenol	ug/Kg	3500 U	3400 U	4300 U	3600 U	3400 U		4100 U	3800 U
Phenanthrene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Anthracene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Carbazole									
Di-n-butylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Fluoranthene	ug/Kg	720 U	700 U	880 U	730 U	710 U		110 J	780 U
Pyrene	ug/Kg	720 U	700 U	880 U	730 U	710 U		90 J	780 U
Butylbenzylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
3,3'-Dichlorobenzidine	ug/Kg	1400 U	1400 U	1800 U	1500 U	1400 U		1700 U	1600 U
Benzo(a)anthracene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Chrysene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
bis(2-Ethylhexyl)phthalate	ug/Kg	720 U	700 U	880 U	730 U	510 J		840 U	780 U
Di-n-octylphthalate	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzo(b)fluoranthene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
benzo(k)fluoranthene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzo(a)pyrene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Indeno(1,2,3-cd)pyrene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Dibenz(a,h)anthracene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U
Benzo(g,h,i)perylene	ug/Kg	720 U	700 U	880 U	730 U	710 U		840 U	780 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-24	B-24	B-25	B-25	B-25	B-25	B-27	B-27
	DEPTH	2-4	4-6	0-2	2-4	4-6	4-6	0-2	2-4
	DATE	12/03/91	12/03/91	12/03/91	12/03/91	12/03/91	12/03/91	12/04/91	12/04/91
	MAIN ID	S1203-80 (3)	S1203-81 (3)	S1203-82	S1203-83	S1203-84	S1203-84RE (4)	S1204-86 (2,3)	S1204-87 (3)
	LAB ID	150023	150024	150025	150026	150027	150027	150235	150236
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
beta-BHC	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
delta-BHC	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
gamma-BHC (Lindane)	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Heptachlor	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Aldrin	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Heptachlor epoxide	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Endosulfan I	ug/Kg	17 U	17 U	21 U	18 U	17 U		20 U	19 U
Dieldrin	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
4,4'-DDE	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Endrin	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Endosulfan II	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
4,4'-DDD	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Endosulfan sulfate	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
4,4'-DDT	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Methoxychlor	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Endrin ketone	ug/Kg	34 U	34 U	43 U	36 U	34 U		41 U	38 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
gamma-Chlordane	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Toxaphene	ug/Kg	340 U	340 U	430 U	360 U	340 U		410 U	380 U
Aroclor-1016	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1221	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1232	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1242	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1248	ug/Kg	170 U	170 U	210 U	180 U	170 U		200 U	190 U
Aroclor-1254	ug/Kg	340 U	340 U	430 U	360 U	340 U		410 U	380 U
Aroclor-1260	ug/Kg	340 U	340 U	430 U	360 U	340 U		410 U	380 U
HERBICIDES									
2,4-D	ug/Kg	55 U J	53 U J	66 U J	55 U J	53 U J		63 U J	59 U J
2,4-DB	ug/Kg	55 U J	53 U J	66 U J	55 U J	53 U J		63 U J	59 U J
2,4,5-T	ug/Kg	5 U J	5 U J	7 U J	6 U J	5 U J		6 U J	6 U J
2,4,5-TP (Silvex)	ug/Kg	5 U J	5 U J	7 U J	6 U J	5 U J		6 U J	6 U J
Dalapon	ug/Kg	130 U J	130 U J	160 U J	130 U J	130 U J		150 U J	140 U J
Dicamba	ug/Kg	5 U J	5 U J	7 U J	6 U J	5 U J		6 U J	6 U J
Dichloroprop	ug/Kg	55 U J	53 U J	66 U J	55 U J	53 U J		63 U J	59 U J
Dinoseb	ug/Kg	27 U J	27 U J	33 U J	28 U J	27 U J		32 U J	30 U J
MCPA	ug/Kg	5500 U J	5300 U J	6600 U J	5500 U J	5300 U J		6300 U J	5900 U J
MCPP	ug/Kg	5500 U J	5300 U J	6600 U J	5500 U J	5300 U J		6300 U J	5900 U J
METALS									
Aluminum	mg/kg	14200	17200	16300	16200	19800		14600	17600
Antimony	mg/kg	9.2 U J	9.8 U J	12.4 U J	7.5 U J	11.7 U J		12.4 U J	8.4 U J
Arsenic	mg/kg	5.2	3.1 J	5 J	8.2 J	3.5 J		5.5 J	4.6 J
Barium	mg/kg	59.8	67.8	104	68.6	54.9		114	96.7
Beryllium	mg/kg	0.82 J	1	0.99 J	0.88	1.2		0.89 R	1 R
Cadmium	mg/kg	2.1	2.2	2.3	2.3	2.7		1.8	2.4
Calcium	mg/kg	92200	33900	3970	18900	33200		4570	4930
Chromium	mg/kg	24.2	29.3	25.6	28.5	34.5		22.4	28
Cobalt	mg/kg	12	15.4	12.9	16	19.7		8.1 J	18
Copper	mg/kg	19.5	22.5	25.8	26.3	17.5		29.9	19.7
Iron	mg/kg	30800	36100	31200	35600	41100		23200	36100
Lead	mg/kg	6.1 R	3.7 R	14 R	7.4 R	3.5 R		33.2	12 R
Magnesium	mg/kg	8340	8170	5190	6950	9190		4000	6170
Manganese	mg/kg	822	920	653	700	1030		526	1120
Mercury	mg/kg	0.04 U	0.04 J	0.08 J	0.04 U	0.04 U		0.09 J	0.04 J
Nickel	mg/kg	38.1	43.8	31.4	45.6	54.6		25.3	39.5
Potassium	mg/kg	1580	2190	2130	1550	1860		1850	1920
Selenium	mg/kg	0.21 U J	0.16 U J	0.18 U J	0.15 U J	0.18 U J		0.22 U J	0.14 U J
Silver	mg/kg	1.5 U	1.6 U	2 U	1.2 U	1.9 U		2 U	1.4 U
Sodium	mg/kg	104 J	108 J	72 U	55.4 J	106 J		71.7 U	48.5 U
Thallium	mg/kg	0.6 U J	0.51 U J	0.5 U J	0.42 U J	0.5 U J		0.61 U J	0.39 U J
Vanadium	mg/kg	22	24.5	28.8	23.3	26.5		25.6	28
Zinc	mg/kg	69.8	88.6	93.2	99	66.9		284	84.4
Cyanide	mg/kg	0.63 U	0.59 U	0.78 U	0.6 U	0.62 U		0.6 U	0.61 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-28	B-28	B-28	B-28	B-28	B-28	B-28	B-29
	DEPTH	0-2	2-4	2-4	2-4	2-4	4-6	4-6	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-88 (3)	S1204-89	S1204-89A(1)	S1204-89ARE(4)	S1204-89DL(5)	S1204-90(3)	S1204-90RE(4)	S1204-91
	LAB ID	150237	150238	150240	150240	150238	150241	150241	150242
	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Bromomethane	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Vinyl Chloride	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Chloroethane	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Methylene Chloride	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Acetone	ug/Kg	12 U	39 U	56 J		59 U	1400 U		12 U
Carbon Disulfide	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,1-Dichloroethene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,1-Dichloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,2-Dichloroethene (total)	ug/Kg	160	2500 J	1600		440	20000		76
Chloroform	ug/Kg	6 U	20 U	28 U		32	690 U		6 U
1,2-Dichloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
2-Butanone	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
1,1,1-Trichloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Carbon Tetrachloride	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Vinyl Acetate	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Bromodichloromethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,2-Dichloropropane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
cis-1,3-Dichloropropene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Trichloroethene	ug/Kg	18	83	74		31	2600		49
Dibromochloromethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,1,2-Trichloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Benzene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
trans-1,3-Dichloropropene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Bromoform	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
4-Methyl-2-Pentanone	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
2-Hexanone	ug/Kg	12 U	39 U	56 U		59 U	1400 U		12 U
Tetrachloroethene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Toluene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Chlorobenzene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Ethylbenzene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Styrene	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U
Xylene (total)	ug/Kg	6 U	20 U	28 U		29 U	690 U		6 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX / LOCATION / DEPTH / DATE / MAIN ID / LAB ID / UNITS	SOIL B-28 0-2 12/04/91 S1204-88 (3) 150237	SOIL B-28 2-4 12/04/91 S1204-89 150238	SOIL B-28 2-4 12/04/91 S1204-89A(1) 150240	SOIL B-28 2-4 12/04/91 S1204-89ARE(4) 150240	SOIL B-28 2-4 12/04/91 S1204-89DL(5) 150238	SOIL B-28 4-6 12/04/91 S1204-90(3) 150241	SOIL B-28 4-6 12/04/91 S1204-90RE(4) 150241	SOIL B-29 0-2 12/04/91 S1204-91 150242
SEMIVOLATILES									
Phenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
bis(2-Chloroethyl) ether	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Chlorophenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
1,3-Dichlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
1,4-Dichlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzyl Alcohol	ug/Kg	710 U	760 U	760 U			730 U		790 U
1,2-Dichlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Methylphenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
bis(2-Chloroisopropyl) ether	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Methylphenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
N-Nitroso-di-n-propylamine	ug/Kg	710 U	760 U	760 U			730 U		790 U
Hexachloroethane	ug/Kg	710 U	760 U	760 U			730 U		790 U
Nitrobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Isophorone	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Nitrophenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4-Dimethylphenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzoic acid	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
bis(2-Chloroethoxy) methane	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4-Dichlorophenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
1,2,4-Trichlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Naphthalene	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Chloroaniline	ug/Kg	710 U	760 U	760 U			730 U		790 U
Hexachlorobutadiene	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Chloro-3-methylphenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Methylnaphthalene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Hexachlorocyclopentadiene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4,6-Trichlorophenol	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4,5-Trichlorophenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
2-Chloronaphthalene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2-Nitroaniline	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
Dimethylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
Acenaphthylene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,6-Dinitrotoluene	ug/Kg	710 U	760 U	760 U			730 U		790 U
3-Nitroaniline	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
Acenaphthene	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4-Dinitrophenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
4-Nitrophenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
Dibenzofuran	ug/Kg	710 U	760 U	760 U			730 U		790 U
2,4-Dinitrotoluene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Diethylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Chlorophenyl-phenylether	ug/Kg	710 U	760 U	760 U			730 U		790 U
Fluorene	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Nitroaniline	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
4,6-Dinitro-2-methylphenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
N-Nitrosodiphenylamine (1)	ug/Kg	710 U	760 U	760 U			730 U		790 U
4-Bromophenyl-phenylether	ug/Kg	710 U	760 U	760 U			730 U		790 U
Hexachlorobenzene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Pentachlorophenol	ug/Kg	3500 U	3700 U	3700 U			3500 U		3800 U
Phenanthrene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Anthracene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Carbazole									
Di-n-butylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
Fluoranthene	ug/Kg	710 U	760 U	760 U			730 U		72 J
Pyrene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Butylbenzylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
3,3'-Dichlorobenzidine	ug/Kg	1400 U	1500 U	1500 U			1500 U		1600 U
Benzo(a)anthracene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Chrysene	ug/Kg	710 U	760 U	760 U			730 U		790 U
bis(2-Ethylhexyl)phthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
Di-n-octylphthalate	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzo(b)fluoranthene	ug/Kg	710 U	760 U	760 U			730 U		790 U
benzo(k)fluoranthene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzo(a)pyrene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Indeno(1,2,3-cd)pyrene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Dibenz(a,h)anthracene	ug/Kg	710 U	760 U	760 U			730 U		790 U
Benzo(g,h,i)perylene	ug/Kg	710 U	760 U	760 U			730 U		790 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-28	B-28	B-28	B-28	B-28	B-28	B-28	B-29
	DEPTH	0-2	2-4	2-4	2-4	2-4	4-8	4-6	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-88 (3)	S1204-89	S1204-89A(1)	S1204-89ARE(4)	S1204-89DL(5)	S1204-90(3)	S1204-90RE(4)	S1204-91
	LAB ID	150237	150238	150240	150240	150238	150241	150241	150242
	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
beta-BHC	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
delta-BHC	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
gamma-BHC (Lindane)	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Heptachlor	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Aldrin	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Heptachlor epoxide	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Endosulfan I	ug/Kg	17 U	18 U	19 U	19 U J		18 U	18 U J	19 U
Dieldrin	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
4,4'-DDE	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Endrin	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Endosulfan II	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
4,4'-DDD	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Endosulfan sulfate	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
4,4'-DDT	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Methoxychlor	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Endrin ketone	ug/Kg	35 U	37 U	37 U	37 U J		35 U	35 U J	38 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
gamma-Chlordane	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Toxaphene	ug/Kg	350 U	370 U	370 U	370 U J		350 U	350 U J	380 U
Aroclor-1016	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1221	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1232	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1242	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1248	ug/Kg	170 U	180 U	190 U	190 U J		180 U	180 U J	190 U
Aroclor-1254	ug/Kg	350 U	370 U	370 U	370 U J		350 U	350 U J	380 U
Aroclor-1260	ug/Kg	350 U	370 U	370 U	370 U J		390	230 J	380 U
HERBICIDES									
2,4-D	ug/Kg	54 U J	58 U J	59 U			55 U		61 U
2,4-DB	ug/Kg	54 U J	58 U J	59 U			55 U		61 U
2,4,5-T	ug/Kg	5 U J	6 U J	5.9 U			5.5 U		6.1 U
2,4,5-TP (Silvex)	ug/Kg	5 U J	6 U J	5.9 U			5.5 U		6.1 U
Dalapon	ug/Kg	130 U J	140 U J	140 U			130 U		150 U
Dicamba	ug/Kg	5 U J	6 U J	5.9 U			5.5 U		6.1 U
Dichloroprop	ug/Kg	54 U J	58 U J	59 U			55 U		61 U
Dinoseb	ug/Kg	27 U J	29 U J	29 U			28 U		30 U
MCPA	ug/Kg	5400 U J	5800 U J	5900 U			5500 U		6100 U
MCPP	ug/Kg	5400 U J	5800 U J	5900 U			5500 U		6100 U
METALS									
Aluminum	mg/kg	14500	15600	20100			19200		19100
Antimony	mg/kg	12.1 U J	7.6 U J	6.8 U J			8.9 U J		11.2 U J
Arsenic	mg/kg	3.9 J	8.3 J	6.1			4.5		5.1
Barium	mg/kg	94.7	69.5	71.5			50.4		144
Beryllium	mg/kg	0.88 R	0.94 R	1 R			0.99 R		1.2 R
Cadmium	mg/kg	2.6	2.4	4.1			3.9		3.8
Calcium	mg/kg	3540	2870	3010 J			10900 J		5110 J
Chromium	mg/kg	21.5	28.3	30.5			29		26.6
Cobalt	mg/kg	14.3	18.7	17.7			14.4		13.9
Copper	mg/kg	23.2	24.8	25.6			13.6		28.9
Iron	mg/kg	26200	35800	44000			40900		32000
Lead	mg/kg	16	8.1 R	12.4 J			5.5 J		12.8 J
Magnesium	mg/kg	4240	6370	7500			7720		5300
Manganese	mg/kg	1290	1070	938			646		1700
Mercury	mg/kg	0.05 J	0.04 U	0.04 U			0.03 U		0.07 J
Nickel	mg/kg	28.3	43.1	48.2			46.9		35.3
Potassium	mg/kg	1590	1550	1980			1700		2480
Selenium	mg/kg	0.14 U J	0.22 U J	0.19 U J			0.14 U J		0.13 U J
Silver	mg/kg	2 U	1.2 U	0.43 U			0.56 U		1.1 J
Sodium	mg/kg	69.9 U	44.2 U	63.1 J			84.3 J		68 J
Thallium	mg/kg	0.39 U J	0.61 U J	0.54 U			0.39 U		0.37 U
Vanadium	mg/kg	19.1	22.4	28			23.7		32.6
Zinc	mg/kg	131	136	188			112		101
Cyanide	mg/kg	0.65 U	0.65 U	0.62 U			0.62 U		0.71 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-29	B-29	B-29	B-29	B-29	B-29	B-29	B-29
	DEPTH	0-2	0-2	0-2	0-2	2-4	4-6	4-6	4-6
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-91RE(4)	S1204-91A(1)	S1204-91ARE(1)	S1204-92	S1204-92RE(4)	S1204-93	S1204-93RE(4)	S1204-93A(1)
	LAB ID	150242	150243	150243	150244	150244	150245	150245	150246
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg		12 U		41 U		1400 U		1400 U
Bromomethane	ug/Kg		12 U		41 U		1400 U		1400 U
Vinyl Chloride	ug/Kg		12 U		41 U		1400 U		1400 U
Chloroethane	ug/Kg		12 U		41 U		1400 U		1400 U
Methylene Chloride	ug/Kg		6 U		21 U		680 U		700 U
Acetone	ug/Kg		12 U		42		1400 U		1400 U
Carbon Disulfide	ug/Kg		6 U		21 U		680 U		700 U
1,1-Dichloroethene	ug/Kg		6 U		21 U		680 U		700 U
1,1-Dichloroethane	ug/Kg		6 U		21 U		680 U		700 U
1,2-Dichloroethene (total)	ug/Kg		66		610		14000		11000
Chloroform	ug/Kg		6 U		21 U		680 U		700 U
1,2-Dichloroethane	ug/Kg		6 U		21 U		680 U		700 U
2-Butanone	ug/Kg		12 U		41 U		1400 U		1400 U
1,1,1-Trichloroethane	ug/Kg		6 U		21 U		680 U		700 U
Carbon Tetrachloride	ug/Kg		6 U		21 U		680 U		700 U
Vinyl Acetate	ug/Kg		12 U		41 U		1400 U		1400 U
Bromodichloromethane	ug/Kg		6 U		21 U		680 U		700 U
1,2-Dichloropropane	ug/Kg		6 U		21 U		680 U		700 U
cis-1,3-Dichloropropene	ug/Kg		6 U		21 U		680 U		700 U
Trichloroethene	ug/Kg		58		250		21000		17000
Dibromochloromethane	ug/Kg		6 U		21 U		680 U		700 U
1,1,2-Trichloroethene	ug/Kg		6 U		21 U		680 U		700 U
Benzene	ug/Kg		6 U		21 U		680 U		700 U
trans-1,3-Dichloropropene	ug/Kg		6 U		21 U		680 U		700 U
Bromoform	ug/Kg		6 U		21 U		680 U		700 U
4-Methyl-2-Pentanone	ug/Kg		12 U		41 U		1400 U		1400 U
2-Hexanone	ug/Kg		12 U		41 U		1400 U		1400 U
Tetrachloroethene	ug/Kg		6 U		21 U		680 U		700 U
1,1,2,2-Tetrachloroethane	ug/Kg		6 U		21 U		680 U		700 U
Toluene	ug/Kg		6 U		21 U		680 U		700 U
Chlorobenzene	ug/Kg		6 U		21 U		620 J		360 J
Ethylbenzene	ug/Kg		6 U		21 U		880 U		700 U
Styrene	ug/Kg		6 U		21 U		680 U		700 U
Xylene (total)	ug/Kg		6 U		21 U		680 U		700 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-29	B-29	B-29	B-29	B-29	B-29	B-29	B-29
	DEPTH	0-2	0-2	0-2	0-2	2-4	4-6	4-6	4-6
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-91RE(4)	S1204-91A(1)	S1204-91ARE(1)	S1204-92	S1204-92RE(4)	S1204-93	S1204-93RE(4)	S1204-93A(1)
	LAB ID	150242	150243	150243	150244	150244	150245	150245	150246
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg		780 U		720 U		730 U		750 U
bis(2-Chloroethyl) ether	ug/Kg		780 U		720 U		730 U		750 U
2-Chlorophenol	ug/Kg		780 U		720 U		730 U		750 U
1,3-Dichlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
1,4-Dichlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
Benzyl Alcohol	ug/Kg		780 U		720 U		730 U		750 U
1,2-Dichlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
2-Methylphenol	ug/Kg		780 U		720 U		730 U		750 U
bis(2-Chloroisopropyl) ether	ug/Kg		780 U		720 U		730 U		750 U
4-Methylphenol	ug/Kg		780 U		720 U		730 U		750 U
N-Nitroso-di-n-propylamine	ug/Kg		780 U		720 U		730 U		750 U
Hexachloroethane	ug/Kg		780 U		720 U		730 U		750 U
Nitrobenzene	ug/Kg		780 U		720 U		730 U		750 U
Isophorone	ug/Kg		780 U		720 U		730 U		750 U
2-Nitrophenol	ug/Kg		780 U		720 U		730 U		750 U
2,4-Dimethylphenol	ug/Kg		780 U		720 U		730 U		750 U
Benzoic acid	ug/Kg		3800 U		3500 U		3500 U		3600 U
bis(2-Chloroethoxy) methane	ug/Kg		780 U		720 U		730 U		750 U
2,4-Dichlorophenol	ug/Kg		780 U		720 U		730 U		750 U
1,2,4-Trichlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
Naphthalene	ug/Kg		780 U		720 U		730 U		750 U
4-Chloroaniline	ug/Kg		780 U		720 U		730 U		750 U
Hexachlorobutadiene	ug/Kg		780 U		720 U		730 U		750 U
4-Chloro-3-methylphenol	ug/Kg		780 U		720 U		730 U		750 U
2-Methylnaphthalene	ug/Kg		780 U		720 U		730 U		750 U
Hexachlorocyclopentadiene	ug/Kg		780 U		720 U		730 U		750 U
2,4,6-Trichlorophenol	ug/Kg		780 U		720 U		730 U		750 U
2,4,5-Trichlorophenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
2-Chloronaphthalene	ug/Kg		780 U		720 U		730 U		750 U
2-Nitroaniline	ug/Kg		3800 U		3500 U		3500 U		3800 U
Dimethylphthalate	ug/Kg		780 U		720 U		730 U		750 U
Acenaphthylene	ug/Kg		780 U		720 U		730 U		750 U
2,6-Dinitrotoluene	ug/Kg		780 U		720 U		730 U		750 U
3-Nitroaniline	ug/Kg		3800 U		3500 U		3500 U		3600 U
Acenaphthene	ug/Kg		780 U		720 U		730 U		750 U
2,4-Dinitrophenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
4-Nitrophenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
Dibenzofuran	ug/Kg		780 U		720 U		730 U		750 U
2,4-Dinitrotoluene	ug/Kg		780 U		720 U		730 U		750 U
Diethylphthalate	ug/Kg		780 U		720 U		730 U		750 U
4-Chlorophenyl-phenylether	ug/Kg		780 U		720 U		730 U		750 U
Fluorene	ug/Kg		780 U		720 U		730 U		750 U
4-Nitroaniline	ug/Kg		3800 U		3500 U		3500 U		3600 U
4,6-Dinitro-2-methylphenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
N-Nitrosodiphenylamine (1)	ug/Kg		780 U		720 U		730 U		750 U
4-Bromophenyl-phenylether	ug/Kg		780 U		720 U		730 U		750 U
Hexachlorobenzene	ug/Kg		780 U		720 U		730 U		750 U
Pentachlorophenol	ug/Kg		3800 U		3500 U		3500 U		3600 U
Phenanthrene	ug/Kg		780 U		720 U		730 U		750 U
Anthracene	ug/Kg		780 U		720 U		730 U		750 U
Carbazole									
Di-n-butylphthalate	ug/Kg		780 U		720 U		730 U		750 U
Fluoranthene	ug/Kg		100 J		720 U		730 U		750 U
Pyrene	ug/Kg		120 J		720 U		730 U		750 U
Butylbenzylphthalate	ug/Kg		780 U		720 U		730 U		750 U
3,3'-Dichlorobenzidine	ug/Kg		780 U		1400 U		1500 U		1500 U
Benzo(a)anthracene	ug/Kg		160 J		720 U		730 U		750 U
Chrysene	ug/Kg		160 J		720 U		730 U		750 U
bis(2-Ethylhexyl)phthalate	ug/Kg		780 U		720 U		730 U		750 U
Di-n-octylphthalate	ug/Kg		780 U		720 U		730 U		750 U
Benzo(b)fluoranthene	ug/Kg		140 J		720 U		730 U		750 U
benzo(k)fluoranthene	ug/Kg		210 J		720 U		730 U		750 U
Benzo(a)pyrene	ug/Kg		190 J		720 U		730 U		750 U
Indeno(1,2,3-cd)pyrene	ug/Kg		780 U		720 U		730 U		750 U
Dibenz(a,h)anthracene	ug/Kg		780 U		720 U		730 U		750 U
Benzo(g,h,i)perylene	ug/Kg		780 U		720 U		730 U		750 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-29	B-29	B-29	B-29	B-29	B-29	B-29	B-29
	DEPTH	0-2	0-2	0-2	0-2	2-4	4-6	4-6	4-6
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-91RE(4)	S1204-91A(1)	S1204-91ARE(1)	S1204-92	S1204-92RE(4)	S1204-93	S1204-93RE(4)	S1204-93A(1)
	LAB ID	150242	150243	150243	150244	150244	150245	150245	150246
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
beta-BHC	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
delta-BHC	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
gamma-BHC (Lindane)	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Heptachlor	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Aldrin	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Heptachlor epoxide	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Endosulfan I	ug/Kg	19 U J	19 U	19 U J	18 U	18 U J	18 U	18 U J	18 U
Dieldrin	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
4,4'-DDE	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
Endrin	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
Endosulfan II	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
4,4'-DDD	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
Endosulfan sulfate	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
4,4'-DDT	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
Methoxychlor	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Endrin ketone	ug/Kg	39 U J	38 U	38 U J	35 U	36 U J	35 U	36 U J	36 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
gamma-Chlordane	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Toxaphene	ug/Kg	390 U J	380 U	380 U J	350 U	360 U J	350 U	360 U J	360 U
Aroclor-1016	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1221	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1232	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1242	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1248	ug/Kg	190 U J	190 U	190 U J	180 U	180 U J	180 U	180 U J	180 U
Aroclor-1254	ug/Kg	390 U J	380 U	380 U J	350 U	360 U J	350 U	360 U J	360 U
Aroclor-1260	ug/Kg	390 U J	380 U	380 U J	350 U	360 U J	350 U	360 U J	360 U
HERBICIDES									
2,4-D	ug/Kg		60 U		57 U		57 U		56 U
2,4-DB	ug/Kg		80 U		57 U		410 J		58 U J
2,4,5-T	ug/Kg		6 U		5.7 U		5.7 U		5.8 U
2,4,5-TP (Silvex)	ug/Kg		6 U		5.7 U		5.7 U		5.8 U
Dalapon	ug/Kg		140 U		140 U		140 U		130 U
Dicamba	ug/Kg		8 U		5.7 U		5.7 U		5.8 U
Dichloroprop	ug/Kg		80 U		57 U		57 U		56 U
Dinoseb	ug/Kg		30 U		29 U		28 U		28 U
MCPA	ug/Kg		6000 U		5700 U		5700 U		5600 U
MCPP	ug/Kg		6000 U		5700 U		5700 U		5600 U
METALS									
Aluminum	mg/kg		16300		18100		18500		14700
Antimony	mg/kg		10.4 U J		6.6 U J		10.4 U J		10.3 U J
Arsenic	mg/kg		4.7		4.2		4.4		4.2
Barium	mg/kg		64.1		71.8		49.9		34.8 J
Beryllium	mg/kg		1 R		0.9 R		0.99 R		0.81 R
Cadmium	mg/kg		3.4		3.7		4		3
Calcium	mg/kg		5040 J		60500 J		12100 J		15900 J
Chromium	mg/kg		23.2		25.7		27.5		22
Cobalt	mg/kg		10.8		15.2		15.2		10.1
Copper	mg/kg		24.5		27.3		21.5		18
Iron	mg/kg		26100		35300		36800		27500
Lead	mg/kg		9.4 J		6.8 J		4.1 J		4.3 J
Magnesium	mg/kg		5230		9690		7460		6030
Manganese	mg/kg		551		667		492 J		364 J
Mercury	mg/kg		0.05 J		0.03 U		0.05 J		0.05 U
Nickel	mg/kg		31.1		41.8		41.2		32.4
Potassium	mg/kg		2230		2180		1690		1350
Selenium	mg/kg		0.13 U J		0.75 U J		0.15 U J		0.22 U J
Silver	mg/kg		0.68 U		0.42 U		0.89 J		0.66 U
Sodium	mg/kg		64.9 J		131 J		80.8 J		78.6 J
Thallium	mg/kg		0.38 U		0.42 U		0.41 U		0.63 U
Vanadium	mg/kg		27.8		25.3		23.5		18.9 R
Zinc	mg/kg		77.2		101		100		88.5
Cyanide	mg/kg		0.71 U		0.65 U		0.59 U		0.8 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-29	B-30	B-30	B-30	B-30	B-30	B-30	B-30
	DEPTH	4-6	0-2	0-2	0-2	2-4	2-4	2-4	4-6
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-93ARE(1,4)	S1204-94	S1204-94A(1)	S1204-94RE(4)	S1204-95RE(4)	S1204-95	S1204-95RE(4)	S1204-96
	LAB ID	150246	150247	150248	150247	150249	150249	150249	150250
	UNITS								
VOCs									
Chloromethane	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Bromomethane	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Vinyl Chloride	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Chloroethane	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Methylene Chloride	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Acetone	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Carbon Disulfide	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,1-Dichloroethene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,1-Dichloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,2-Dichloroethene (total)	ug/Kg		45	31		1400 J	1700 J		18000
Chloroform	ug/Kg		6 U	4 J		29 U J	29 U J		720 U
1,2-Dichloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
2-Butanone	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
1,1,1-Trichloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Carbon Tetrachloride	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Vinyl Acetate	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Bromodichloromethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,2-Dichloropropane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
cis-1,3-Dichloropropene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Trichloroethene	ug/Kg		5 J	5 J		110 J	91 J		450 J
Dibromochloromethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,1,2-Trichloroethene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Benzene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
trans-1,3-Dichloropropene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Bromoform	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
4-Methyl-2-Pentanone	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
2-Hexanone	ug/Kg		12 U	12 U		57 U J	57 U J		1400 U
Tetrachloroethene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
1,1,2,2-Tetrachloroethane	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Toluene	ug/Kg		6 U	6 U		29 U J	29 U J		410 J
Chlorobenzene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Ethylbenzene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Styrene	ug/Kg		6 U	6 U		29 U J	29 U J		720 U
Xylene (total)	ug/Kg		6 U	6 U		41 J	28 J		970

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-29	B-30	B-30	B-30	B-30	B-30	B-30	B-30
	DEPTH	4-6	0-2	0-2	0-2	2-4	2-4	2-4	4-6
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-93ARE(1,4)	S1204-94	S1204-94A(1)	S1204-94RE(4)	S1204-95RE(4)	S1204-95	S1204-95RE(4)	S1204-96
	LAB ID	150246	150247	150248	150247	150249	150249	150249	150250
	UNITS								
SEMIVOLATILES									
Phenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
bis(2-Chloroethyl) ether	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2-Chlorophenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
1,3-Dichlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
1,4-Dichlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Benzyl Alcohol	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
1,2-Dichlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2-Methylphenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
bis(2-Chloroisopropyl) ether	ug/Kg		800 U R	780 U	800 U J		720 U J	720 U J	1500 U J
4-Methylphenol	ug/Kg		800 U R	780 U	800 U J		720 U	720 U	1500 U J
N-Nitroso-di-n-propylamine	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Hexachloroethane	ug/Kg		800 U R	780 U	800 U J		720 U J	720 U J	1500 U J
Nitrobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Isophorone	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2-Nitrophenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
2,4-Dimethylphenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
Benzoic acid	ug/Kg		3900 U R	120 J	3900 U J		3500 U J	720 U J	7100 U J
bis(2-Chloroethoxy) methane	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,4-Dichlorophenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
1,2,4-Trichlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Naphthalene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	240 J
4-Chloroaniline	ug/Kg		800 U R	780 U	800 U J		720 U J	720 U J	1500 U J
Hexachlorobutadiene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Chloro-3-methylphenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
2-Methylnaphthalene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	250 J
Hexachlorocyclopentadiene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,4,6-Trichlorophenol	ug/Kg		800 U R	760 U	800 U J		720 U	720 U	1500 U J
2,4,5-Trichlorophenol	ug/Kg		3900 U R	3700 U	3900 U J		3500 U	3500 U	7100 U J
2-Chloronaphthalene	ug/Kg		800 U R	780 U	800 U J		720 U J	720 U J	1500 U J
2-Nitroaniline	ug/Kg		3900 U R	3700 U	3900 U J		3500 U J	3500 U J	7100 U J
Dimethylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Acenaphthylene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,6-Dinitrotoluene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
3-Nitroaniline	ug/Kg		3900 U R	3700 U	3900 U J		3500 U J	3500 U J	7100 U J
Acenaphthene	ug/Kg		800 U R	780 U	800 U J		720 U J	720 U J	1500 U J
2,4-Dinitrophenol	ug/Kg		3900 U R	3700 U	3900 U J		3500 U	3500 U	7100 U J
4-Nitrophenol	ug/Kg		3900 U R	81 J	3900 U J		3500 U	3500 U	7100 U J
Dibenzofuran	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
2,4-Dinitrotoluene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Diethylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Chlorophenyl-phenylether	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Fluorene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Nitroaniline	ug/Kg		3900 U R	3700 U	3900 U J		3500 U J	3500 U J	7100 U J
4,6-Dinitro-2-methylphenol	ug/Kg		3900 U R	3700 U	3900 U J		3500 U	3500 U	7100 U J
N-Nitrosodiphenylamine (1)	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
4-Bromophenyl-phenylether	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Hexachlorobenzene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Pentachlorophenol	ug/Kg		3900 U R	3700 U	3900 U J		3500 U	3500 U	7100 U J
Phenanthrene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Anthracene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Carbazole									
Di-n-butylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Fluoranthene	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Pyrene	ug/Kg		800 U R	780 U	800 U J		720 U J	720 U J	1500 U J
Butylbenzylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
3,3'-Dichlorobenzidine	ug/Kg		1600 U R	760 U	1600 U J		1400 U J	1400 U J	2900 U J
Benzo(a)anthracene	ug/Kg		800 U R	85 J	800 U J		720 U J	720 U J	1500 U J
Chrysene	ug/Kg		800 U R	79 J	800 U J		720 U J	720 U J	1500 U J
bis(2-Ethylhexyl)phthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Di-n-octylphthalate	ug/Kg		800 U R	760 U	800 U J		720 U J	720 U J	1500 U J
Benzo(b)fluoranthene	ug/Kg		800 U R	780 U	800 U J		720 U J	720 U J	1500 U J
benzo(k)fluoranthene	ug/Kg		800 U R	780 U	800 U J		720 U J	720 U J	1500 U J
Benzo(a)pyrene	ug/Kg		800 U R	70 J	800 U J		720 U J	720 U J	1500 U J
Indeno(1,2,3-cd)pyrene	ug/Kg		800 U R	81 J	800 U J		720 U J	720 U J	1500 U J
Dibenz(a,h)anthracene	ug/Kg		800 U R	81 J	800 U J		720 U J	720 U J	1500 U J
Benzo(g,h,i)perylene	ug/Kg		800 U R	84 J	800 U J		720 U J	720 U J	1500 U J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-29	B-30	B-30	B-30	B-30	B-30	B-30	B-30
	DEPTH	4-6	0-2	0-2	0-2	2-4	2-4	2-4	4-6
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91	12/04/91
	MAIN ID	S1204-93ARE(1,4)	S1204-94	S1204-94A(1)	S1204-94RE(4)	S1204-95RE(4)	S1204-95	S1204-95RE(4)	S1204-96
	LAB ID	150246	150247	150248	150247	150249	150249	150249	150250
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
beta-BHC	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
delta-BHC	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
gamma-BHC (Lindane)	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Heptachlor	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Aldrin	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Heptachlor epoxide	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Endosulfan I	ug/Kg	18 U J	19 U R	18 U	19 U J	19 U	17 U	18 U J	18 U
Dieldrin	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
4,4'-DDE	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Endrin	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Endosulfan II	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
4,4'-DDD	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Endosulfan sulfate	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
4,4'-DDT	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Methoxychlor	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Endrin ketone	ug/Kg	35 U J	39 U R	37 U	38 U J	38 U	35 U	35 U J	36 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
gamma-Chlordane	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Toxaphene	ug/Kg	350 U J	390 U R	370 U	380 U J	380 U	350 U	350 U J	360 U
Aroclor-1016	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Aroclor-1221	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Aroclor-1232	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Aroclor-1242	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 R	180 U J	200 R
Aroclor-1248	ug/Kg	180 U J	190 U R	180 U	190 U J	190 U	170 U	180 U J	180 U
Aroclor-1254	ug/Kg	350 U J	390 U R	370 U	380 U J	380 U	350 U	350 U J	360 U
Aroclor-1260	ug/Kg	350 U J	390 U R	370 U	380 U J	380 U	580	770 J	370
HERBICIDES									
2,4-D	ug/Kg		61 U	60 U			56 U		58 U
2,4-DB	ug/Kg		61 U	60 U			56 U		58 U
2,4,5-T	ug/Kg		6.1 U	6 U			5.6 U		5.6 U
2,4,5-TP (Silvex)	ug/Kg		6.1 U	6 U			5.6 U		5.8 U
Dalapon	ug/Kg		150 U	140 U			130 U		130 U
Dicamba	ug/Kg		6.1 U	6 U			5.6 U		5.6 U
Dichloroprop	ug/Kg		61 U	60 U			56 U		56 U
Dinoseb	ug/Kg		30 U	30 U			28 U		28 U
MCPA	ug/Kg		6100 U	6000 U			5600 U		5600 U
MCPP	ug/Kg		6100 U	6000 U			5600 U		5600 U
METALS									
Aluminum	mg/kg		16200	14400			15700		13000
Antimony	mg/kg		7.3 U J	9.5 U J			7.6 U J		6.3 U J
Arsenic	mg/kg		5.1	4.6			5.5		3
Barium	mg/kg		86.4	74.6			64.9		38.5
Beryllium	mg/kg		0.79 R	0.6 R			0.82 R		0.69 R
Cadmium	mg/kg		2.9	2.2			3		2.9
Calcium	mg/kg		16900 J	20200			44800 J		2460 J
Chromium	mg/kg		20	18.5			22.5		20.7
Cobalt	mg/kg		8.9	7.6 J			12.5		10.4
Copper	mg/kg		18.9	18.1			22.9		12
Iron	mg/kg		24000	19700			27700		29800
Lead	mg/kg		11.5 J	8.8 J			7 J		7.3 J
Magnesium	mg/kg		5190	10700			7660		5160
Manganese	mg/kg		735	597			627		347
Mercury	mg/kg		0.04 U	0.05 J			0.04 J		0.04 U
Nickel	mg/kg		23.7	19.8			36.7		31
Potassium	mg/kg		2040	2120			1910		938
Selenium	mg/kg		0.17 U J	1.1 U J			0.98 U J		0.61 U J
Silver	mg/kg		0.47 U	0.61 U			0.48 U		0.45 J
Sodium	mg/kg		83.3 J	74.8 J			101 J		40 J
Thallium	mg/kg		0.47 U	0.6 U			0.55 U		0.34 U
Vanadium	mg/kg		25.2	24			21.5 R		16 R
Zinc	mg/kg		68.5	69.5			98.5		74.4
Cyanide	mg/kg		0.69 U	0.66 U			0.61 U		0.65 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-30	B-30	B-30	B-30	B-31	B-31	B-31	B-31
	DEPTH	4-6	4-6	4-6	4-6	0-2	0-2	0-2	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/05/91	12/05/91	12/05/91	12/05/91
	MAIN ID	S1204-96A(1)	S1204-96ADL(5)	S1204-96RE(4)	S1204-96ARE(1,4)	S1205-97	S1205-97A(1)	S1205-97RE(4)	S1205-97ARE(1,4)
	LAB ID	150251	150251	150250	150251	150252	150253	150252	150253
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	1400 U	2800 U R			12 U	12 U		
Bromomethane	ug/Kg	1400 U	2800 U R			12 U	12 U		
Vinyl Chloride	ug/Kg	1400 U	2800 U R			12 U	12 U		
Chloroethane	ug/Kg	1400 U	2800 U R			12 U	12 U		
Methylene Chloride	ug/Kg	710 U	1500 R			6 U	6 U		
Acetone	ug/Kg	680 J	4100 R			12 U	12 U		
Carbon Disulfide	ug/Kg	710 U	1400 U R			6 U	6 U		
1,1-Dichloroethene	ug/Kg	710 U	1400 U R			6 U	6 U		
1,1-Dichloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
1,2-Dichloroethene (total)	ug/Kg	16000	4100 R			6 U	6 U		
Chloroform	ug/Kg	710 U	1400 U R			6 U	6 U		
1,2-Dichloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
2-Butanone	ug/Kg	1400 U	2800 U R			12 U	12 U		
1,1,1-Trichloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
Carbon Tetrachloride	ug/Kg	710 U	1400 U R			6 U	6 U		
Vinyl Acetate	ug/Kg	1400 U	2800 U R			12 U	12 U		
Bromodichloromethane	ug/Kg	710 U	1400 U R			6 U	6 U		
1,2-Dichloropropane	ug/Kg	710 U	1400 U R			6 U	6 U		
cis-1,3-Dichloropropene	ug/Kg	710 U	1400 U R			6 U	6 U		
Trichloroethene	ug/Kg	390 J	1400 U R			23 J	110 J		
Dibromochloromethane	ug/Kg	710 U	1400 U R			6 U	6 U		
1,1,2-Trichloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
Benzene	ug/Kg	710 U	1400 U R			6 U	6 U		
trans-1,3-Dichloropropene	ug/Kg	710 U	1400 U R			6 U	6 U		
Bromoform	ug/Kg	710 U	1400 U R			6 U	6 U		
4-Methyl-2-Pentanone	ug/Kg	1400 U	2800 U R			12 U	12 U		
2-Hexanone	ug/Kg	1400 U	2800 U R			12 U	12 U		
Tetrachloroethene	ug/Kg	710 U	1400 U R			6 U	6 U		
1,1,2,2-Tetrachloroethane	ug/Kg	710 U	1400 U R			6 U	6 U		
Toluene	ug/Kg	640 J	420 R			6 U	6 U		
Chlorobenzene	ug/Kg	710 U	1400 U R			6 U	6 U		
Ethylbenzene	ug/Kg	660 J	520 R			6 U	6 U		
Styrene	ug/Kg	710 U	1400 U R			6 U	6 U		
Xylene (total)	ug/Kg	2100	970 R			6 U	6 U		

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-30 4-6 12/04/91 S1204-96A(1) 150251	SOIL B-30 4-6 12/04/91 S1204-96ADL(5) 150251	SOIL B-30 4-6 12/04/91 S1204-96RE(4) 150250	SOIL B-30 4-6 12/04/91 S1204-96ARE(1,4) 150251	SOIL B-31 0-2 12/05/91 S1205-97 150252	SOIL B-31 0-2 12/05/91 S1205-97A(1) 150253	SOIL B-31 0-2 12/05/91 S1205-97RE(4) 150252	SOIL B-31 0-2 12/05/91 S1205-97ARE(1,4) 150253
SEMIVOLATILES									
Phenol	ug/Kg	1400 U J				800 U	780 U		
bis(2-Chloroethyl) ether	ug/Kg	1400 U J				800 U	780 U		
2-Chlorophenol	ug/Kg	1400 U J				800 U	780 U		
1,3-Dichlorobenzene	ug/Kg	1400 U J				800 U	780 U		
1,4-Dichlorobenzene	ug/Kg	1400 U J				800 U	780 U		
Benzyl Alcohol	ug/Kg	1400 U J				800 U	780 U		
1,2-Dichlorobenzene	ug/Kg	1400 U J				800 U	780 U		
2-Methylphenol	ug/Kg	1400 U J				800 U	780 U		
bis(2-Chloroisopropyl) ether	ug/Kg	1400 U J				800 U	780 U		
4-Methylphenol	ug/Kg	1400 U J				800 U	780 U		
N-Nitroso-di-n-propylamine	ug/Kg	1400 U J				800 U	780 U		
Hexachloroethane	ug/Kg	1400 U J				800 U	780 U		
Nitrobenzene	ug/Kg	1400 U J				800 U	780 U		
Isophorone	ug/Kg	1400 U J				800 U	780 U		
2-Nitrophenol	ug/Kg	1400 U J				800 U	780 U		
2,4-Dimethylphenol	ug/Kg	1400 U J				800 U	780 U		
Benzoic acid	ug/Kg	7000 U J				3900 U	94 J		
bis(2-Chloroethoxy) methane	ug/Kg	1400 U J				800 U	780 U		
2,4-Dichlorophenol	ug/Kg	1400 U J				800 U	780 U		
1,2,4-Trichlorobenzene	ug/Kg	1400 U J				800 U	780 U		
Naphthalene	ug/Kg	240 J				800 U	780 U		
4-Chloroaniline	ug/Kg	1400 U J				800 U	780 U		
Hexachlorobutadiene	ug/Kg	1400 U J				800 U	780 U		
4-Chloro-3-methylphenol	ug/Kg	1400 U J				800 U	780 U		
2-Methylnaphthalene	ug/Kg	220 J				78 J	780 U		
Hexachlorocyclopentadiene	ug/Kg	1400 U J				800 U	780 U		
2,4,6-Trichlorophenol	ug/Kg	1400 U J				800 U	780 U		
2,4,5-Trichlorophenol	ug/Kg	7000 U J				3900 U	3800 U		
2-Chloronaphthalene	ug/Kg	1400 U J				800 U	780 U		
2-Nitroaniline	ug/Kg	7000 U J				3900 U	3800 U		
Dimethylphthalate	ug/Kg	1400 U J				800 U	780 U		
Acenaphthylene	ug/Kg	1400 U J				800 U	780 U		
2,6-Dinitrotoluene	ug/Kg	1400 U J				800 U	780 U		
3-Nitroaniline	ug/Kg	7000 U J				3900 U	3800 U		
Acenaphthene	ug/Kg	1400 U J				800 U	780 U		
2,4-Dinitrophenol	ug/Kg	7000 U J				3900 U	3800 U		
4-Nitrophenol	ug/Kg	7000 U J				3900 U	3800 U		
Dibenzofuran	ug/Kg	1400 U J				800 U	780 U		
2,4-Dinitrotoluene	ug/Kg	1400 U J				800 U	780 U		
Diethylphthalate	ug/Kg	1400 U J				800 U	780 U		
4-Chlorophenyl-phenylether	ug/Kg	1400 U J				800 U	780 U		
Fluorene	ug/Kg	1400 U J				800 U	780 U		
4-Nitroaniline	ug/Kg	7000 U J				3900 U	3800 U		
4,6-Dinitro-2-methylphenol	ug/Kg	7000 U J				3900 U	3800 U		
N-Nitrosodiphenylamine (1)	ug/Kg	1400 U J				800 U	780 U		
4-Bromophenyl-phenylether	ug/Kg	1400 U J				800 U	780 U		
Hexachlorobenzene	ug/Kg	1400 U J				800 U	780 U		
Pentachlorophenol	ug/Kg	7000 U J				3900 U	3800 U		
Phenanthrene	ug/Kg	1400 U J				180 J	120 J		
Anthracene	ug/Kg	1400 U J				800 U	780 U		
Carbazole									
Di-n-butylphthalate	ug/Kg	1400 U J				800 U	150 J		
Fluoranthene	ug/Kg	1400 U J				250 J	250 J		
Pyrene	ug/Kg	1400 U J				190 J	250 J		
Butylbenzylphthalate	ug/Kg	1400 U J				800 U	140 J		
3,3'-Dichlorobenzidine	ug/Kg	2900 U J				1600 U	1600 U		
Benzo(a)anthracene	ug/Kg	1400 U J				140 J	260 J		
Chrysene	ug/Kg	1400 U J				150 J	210 J		
bis(2-Ethylhexyl)phthalate	ug/Kg	1400 U J				83 J	230 J		
Di-n-octylphthalate	ug/Kg	1400 U J				800 U	150 J		
Benzo(b)fluoranthene	ug/Kg	1400 U J				130 J	240 J		
benzo(k)fluoranthene	ug/Kg	1400 U J				99 J	160 J		
Benzo(a)pyrene	ug/Kg	1400 U J				110 J	200 J		
Indeno(1,2,3-cd)pyrene	ug/Kg	1400 U J				82 J	200 J		
Dibenz(a,h)anthracene	ug/Kg	1400 U J				800 U	170 J		
Benzo(g,h,i)perylene	ug/Kg	1400 U J				83 J	220 J		

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-30	B-30	B-30	B-30	B-31	B-31	B-31	B-31
	DEPTH	4-6	4-6	4-6	4-6	0-2	0-2	0-2	0-2
	DATE	12/04/91	12/04/91	12/04/91	12/04/91	12/05/91	12/05/91	12/05/91	12/05/91
	MAIN ID	S1204-96A(1)	S1204-96ADL(5)	S1204-96RE(4)	S1204-96ARE(1,4)	S1205-97	S1205-97A(1)	S1205-97RE(4)	S1205-97ARE(1,4)
	LAB ID	150251	150251	150250	150251	150252	150253	150252	150253
COMPOUND	UNITS								
PESTICIDES/PCBs									
alpha-BHC	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
beta-BHC	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
delta-BHC	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
gamma-BHC (Lindane)	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Heptachlor	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Aldrin	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Heptachlor epoxide	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Endosulfan I	ug/Kg	17 U		17 U J	17 U J	20 U	19 U	19 U J	19 U J
Dieldrin	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
4,4'-DDE	ug/Kg	35 U		35 U J	34 U J	39 U	41	43 J	43 J
Endrin	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
Endosulfan II	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
4,4'-DDD	ug/Kg	35 U		38 J	34 U J	39 U	38 U	39 U J	38 U J
Endosulfan sulfate	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
4,4'-DDT	ug/Kg	35 U		35 U J	34 U J	36 J	43	100 J	72 J
Methoxychlor	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Endrin ketone	ug/Kg	35 U		35 U J	34 U J	39 U	38 U	39 U J	38 U J
Endrin aldehyde									
alpha-Chlordane	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
gamma-Chlordane	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Toxaphene	ug/Kg	350 U		350 U J	340 U J	390 U	380 U	390 U J	380 U J
Aroclor-1016	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Aroclor-1221	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Aroclor-1232	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Aroclor-1242	ug/Kg	160 J		170 U J	170 U J	400 R	220 R	190 U J	190 U J
Aroclor-1248	ug/Kg	170 U		170 U J	170 U J	200 U	190 U	190 U J	190 U J
Aroclor-1254	ug/Kg	350 U		350 U J	340 U J	390 U	380 U	390 U J	380 U J
Aroclor-1260	ug/Kg	270 J		490 J	280 J	390 U	380 U	390 U J	380 U J
HERBICIDES									
2,4-D	ug/Kg	55 U				60 U	59 U		
2,4-DB	ug/Kg	55 U				60 U	59 U		
2,4,5-T	ug/Kg	5.5 U				8 U	5.9 U		
2,4,5-TP (Silvex)	ug/Kg	5.5 U				6 U	5.9 U		
Dalapon	ug/Kg	130 U				140 U	140 U		
Dicamba	ug/Kg	5.5 U				6 U	5.9 U		
Dichloroprop	ug/Kg	55 U				60 U	59 U		
Dinoseb	ug/Kg	27 U				30 U	30 U		
MCPA	ug/Kg	5500 U				6000 U	5900 U		
MCPP	ug/Kg	5500 U				6000 U	5900 U		
METALS									
Aluminum	mg/kg	19600				18400	14100		
Antimony	mg/kg	11.1 U J				9.9 U J	7.4 J		
Arsenic	mg/kg	4.3				10.8	8.6		
Barium	mg/kg	63.9				136	111		
Beryllium	mg/kg	1.1 R				1 R	0.87 R		
Cadmium	mg/kg	3.7				3.8	3.7		
Calcium	mg/kg	4110 J				24700 J	79200 J		
Chromium	mg/kg	29.7				28.3 J	22.4 J		
Cobalt	mg/kg	13.7				11.8	10.8		
Copper	mg/kg	15.6				64.8	148		
Iron	mg/kg	35500				34400	30700		
Lead	mg/kg	8.2 J				160	202		
Magnesium	mg/kg	7230				7810	8510		
Manganese	mg/kg	449				670	495		
Mercury	mg/kg	0.04 U				0.78	0.17		
Nickel	mg/kg	42.4				35.5 J	39.9 J		
Potassium	mg/kg	2060				2610	2110		
Selenium	mg/kg	0.19 U J				0.23 U J	0.22 U J		
Silver	mg/kg	0.78 J				0.63 U	0.58 J		
Sodium	mg/kg	62.9 J				113 J	141 J		
Thallium	mg/kg	0.52 U				0.64 U	0.61 U		
Vanadium	mg/kg	24.8				29.7	24.1		
Zinc	mg/kg	111				797	1210		
Cyanide	mg/kg	0.65 U				0.72 U	0.63 U		

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-31	B-31	B-31	B-31	B-31	B-31
	DEPTH	2-4	2-4	4-6	4-6	6-8	6-8
	DATE	12/05/91	12/05/91	12/05/91	12/05/91	12/05/91	12/05/91
	MAIN ID	S1205-98(3)	S1205-98RE(3,4)	S1205-99	S1205-99R	S1205-100(2)	S1205-100RE(4)
	LAB ID	150254	150254	150255	150255	150256	150256
	UNITS						
VOCs							
Chloromethane	ug/Kg	12 U		56 U		63 U	63 U
Bromomethane	ug/Kg	12 U		56 U		63 U	63 U
Vinyl Chloride	ug/Kg	12 U		68		370	320
Chloroethane	ug/Kg	12 U		56 U		63 U	63 U
Methylene Chloride	ug/Kg	6 U		28 U		32 U	32 U
Acetone	ug/Kg	12 U		56 U		63 U	63 U
Carbon Disulfide	ug/Kg	6 U		120		32 U	32 U
1,1-Dichloroethene	ug/Kg	6 U		28 U		32 U	32 U
1,1-Dichloroethane	ug/Kg	6 U		28 U		32 U	32 U
1,2-Dichloroethene (total)	ug/Kg	6 U		660		630	600
Chloroform	ug/Kg	5 J		28 U		32 U	32 U
1,2-Dichloroethane	ug/Kg	6 U		28 U		32 U	32 U
2-Butanone	ug/Kg	12 U		56 U		63 U	63 U
1,1,1-Trichloroethane	ug/Kg	6 U		28 U		32 U	32 U
Carbon Tetrachloride	ug/Kg	6 U		28 U		32 U	32 U
Vinyl Acetate	ug/Kg	12 U		56 U		63 U	63 U
Bromodichloromethane	ug/Kg	6 U		28 U		32 U	32 U
1,2-Dichloropropane	ug/Kg	6 U		28 U		32 U	32 U
cis-1,3-Dichloropropene	ug/Kg	6 U		28 U		32 U	32 U
Trichloroethene	ug/Kg	5 J		2400 E		640	610
Dibromochloromethane	ug/Kg	6 U		28 U		32 U	32 U
1,1,2-Trichloroethene	ug/Kg	6 U		28 U		32 U	32 U
Benzene	ug/Kg	6 U		6 J		32 U	32 U
trans-1,3-Dichloropropene	ug/Kg	6 U		28 U		32 U	32 U
Bromoform	ug/Kg	6 U		28 U		32 U	32 U
4-Methyl-2-Pentanone	ug/Kg	12 U		56 U		63 U	63 U
2-Hexanone	ug/Kg	12 U		56 U		63 U	63 U
Tetrachloroethene	ug/Kg	6 U		28 U		32 U	32 U
1,1,2,2-Tetrachloroethane	ug/Kg	6 U		28 U		32 U	32 U
Toluene	ug/Kg	6 U		85		32 U	32 U
Chlorobenzene	ug/Kg	6 U		28 U		32 U	32 U
Ethylbenzene	ug/Kg	6 U		23 J		32 U	32 U
Styrene	ug/Kg	6 U		28 U		32 U	32 U
Xylene (total)	ug/Kg	6 U		69		32 U	32 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-31	B-31	B-31	B-31	B-31	B-31
	DEPTH	2-4	2-4	4-6	4-6	6-8	6-8
	DATE	12/05/91	12/05/91	12/05/91	12/05/91	12/05/91	12/05/91
	MAIN ID	S1205-98(3)	S1205-98RE(3,4)	S1205-99	S1205-99R	S1205-100(2)	S1205-100RE(4)
	LAB ID	150254	150254	150255	150255	150256	150256
	UNITS						
SEMIVOLATILES							
Phenol	ug/Kg	780 U		720 U	720 U	14000 J	
bis(2-Chloroethyl) ether	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2-Chlorophenol	ug/Kg	780 U		720 U	720 U	4100 U J	
1,3-Dichlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
1,4-Dichlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Benzyl Alcohol	ug/Kg	780 U		720 U J	720 U J	4100 U J	
1,2-Dichlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2-Methylphenol	ug/Kg	780 U		720 U	720 U	4100 U J	
bis(2-Chloroisopropyl) ether	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Methylphenol	ug/Kg	780 U		720 U	720 U	4100 U J	
N-Nitroso-di-n-propylamine	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Hexachloroethane	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Nitrobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Isophorone	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2-Nitrophenol	ug/Kg	780 U		720 U	720 U	1300 J	
2,4-Dimethylphenol	ug/Kg	780 U		720 U	720 U	4100 U J	
Benzoic acid	ug/Kg	3800 U		3500 U J	3500 U J	1500 J	
bis(2-Chloroethoxy) methane	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2,4-Dichlorophenol	ug/Kg	780 U		720 U	720 U	4100 U J	
1,2,4-Trichlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Naphthalene	ug/Kg	780 U		180 J	200 J	4100 U J	
4-Chloroaniline	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Hexachlorobutadiene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Chloro-3-methylphenol	ug/Kg	780 U		720 U	720 U	4100 U J	
2-Methylnaphthalene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Hexachlorocyclopentadiene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2,4,6-Trichlorophenol	ug/Kg	780 U		720 U	720 U	4100 U J	
2,4,5-Trichlorophenol	ug/Kg	3800 U		3500 U	3500 U	20000 U J	
2-Chloronaphthalene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2-Nitroaniline	ug/Kg	3800 U		3500 U J	3500 U J	20000 U J	
Dimethylphthalate	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Acenaphthylene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2,6-Dinitrotoluene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
3-Nitroaniline	ug/Kg	3800 U		3500 U J	3500 U J	20000 U J	
Acenaphthene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
2,4-Dinitrophenol	ug/Kg	3600 U		3500 U	3500 U	20000 U J	
4-Nitrophenol	ug/Kg	3800 U		3500 U	3500 U	1600 J	
Dibenzofuran	ug/Kg	780 U		110 U J	720 U J	4100 U J	
2,4-Dinitrotoluene	ug/Kg	760 U		720 U J	720 U J	4100 U J	
Diethylphthalate	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Chlorophenyl-phenylether	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Fluorene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Nitroaniline	ug/Kg	3800 U		3500 U J	3500 U J	20000 U J	
4,6-Dinitro-2-methylphenol	ug/Kg	3800 U		720 U	3500 U	20000 U J	
N-Nitrosodiphenylamine (1)	ug/Kg	780 U		720 U J	720 U J	4100 U J	
4-Bromophenyl-phenylether	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Hexachlorobenzene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Pentachlorophenol	ug/Kg	3800 U		3500 U	3500 U	20000 U J	
Phenanthrene	ug/Kg	780 U		110 U J	110 U J	4100 U J	
Anthracene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Carbazole							
Di-n-butylphthalate	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Fluoranthene	ug/Kg	150 J		120 U J	110 U J	4100 U J	
Pyrene	ug/Kg	110 J		140 U J	130 U J	4100 U J	
Butylbenzylphthalate	ug/Kg	780 U		390 U J	720 U J	4100 U J	
3,3'-Dichlorobenzidine	ug/Kg	1600 U		1400 U J	1400 U J	8100 U J	
Benzo(a)anthracene	ug/Kg	100 J		720 U J	720 U J	4100 U J	
Chrysene	ug/Kg	100 J		83 U J	110 U J	4100 U J	
bis(2-Ethylhexyl)phthalate	ug/Kg	170 J		220 U J	210 U J	4100 U J	
Di-n-octylphthalate	ug/Kg	780 U		250 U J	720 U J	4100 U J	
Benzo(b)fluoranthene	ug/Kg	100 J		720 U J	720 U J	4100 U J	
benzo(k)fluoranthene	ug/Kg	82 J		720 U J	720 U J	4100 U J	
Benzo(a)pyrene	ug/Kg	86 J		720 U J	720 U J	4100 U J	
Indeno(1,2,3-cd)pyrene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Dibenz(a,h)anthracene	ug/Kg	780 U		720 U J	720 U J	4100 U J	
Benzo(g,h,i)perylene	ug/Kg	72 J		720 U J	720 U J	4100 U J	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	SOIL B-31 2-4 12/05/91 S1205-98(3) 150254	SOIL B-31 2-4 12/05/91 S1205-98RE(3,4) 150254	SOIL B-31 4-6 12/05/91 S1205-99 150255	SOIL B-31 4-6 12/05/91 S1205-99R 150255	SOIL B-31 6-8 12/05/91 S1205-100(2) 150256	SOIL B-31 6-8 12/05/91 S1205-100RE(4) 150256
PESTICIDES/PCBs							
alpha-BHC	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
beta-BHC	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
delta-BHC	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
gamma-BHC (Lindane)	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Heptachlor	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Aldrin	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Heptachlor epoxide	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Endosulfan I	ug/Kg	19 U	19 U J	17 U	17 U J	20 U	20 U J
Dieldrin	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
4,4'-DDE	ug/Kg	57	71 J	35 U	35 U J	40 U	40 U J
Endrin	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
Endosulfan II	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
4,4'-DDD	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
Endosulfan sulfate	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
4,4'-DDT	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
Methoxychlor	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Endrin ketone	ug/Kg	38 U	38 U J	35 U	35 U J	40 U	40 U J
Endrin aldehyde							
alpha-Chlordane	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
gamma-Chlordane	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Toxaphene	ug/Kg	380 U	380 U J	350 U	350 U J	400 U	400 U J
Aroclor-1016	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Aroclor-1221	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Aroclor-1232	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Aroclor-1242	ug/Kg	1000 R	190 U J	570 R	170 U J	450 R	200 U J
Aroclor-1248	ug/Kg	190 U	190 U J	170 U	170 U J	200 U	200 U J
Aroclor-1254	ug/Kg	380 U	380 U J	350 U	350 U J	400 U	400 U J
Aroclor-1260	ug/Kg	380 U	380 U J	350 U	350 U J	400 U	400 U J
HERBICIDES							
2,4-D	ug/Kg	60 U		54 U		61 U	
2,4-DB	ug/Kg	60 U		54 U		61 U	
2,4,5-T	ug/Kg	6 U		5.4 U		6.1 U	
2,4,5-TP (Silvex)	ug/Kg	6 U		5.4 U		6.1 U	
Dalapon	ug/Kg	140 U		130 U		150 U	
Dicamba	ug/Kg	6 U		5.4 U		6.1 U	
Dichloroprop	ug/Kg	60 U		54 U		61 U	
Dinoseb	ug/Kg	30 U		27 U		31 U	
MCPA	ug/Kg	6000 U		6200 U		6100 U	
MCPP	ug/Kg	6000 U		6200 U		6100 U	
METALS							
Aluminum	mg/kg	25500		15000		21200	
Antimony	mg/kg	8.7 U J		11.4 U J		13.1 U J	
Arsenic	mg/kg	45.8		3.9		2.6	
Barium	mg/kg	121		52.2		61.1	
Beryllium	mg/kg	0.98 R		0.86 R		1.1 R	
Cadmium	mg/kg	4.3		3.5		4.4	
Calcium	mg/kg	17800 J		25500 J		3460	
Chromium	mg/kg	34.8		28.8		30.4	
Cobalt	mg/kg	15.4		14.4		18.1	
Copper	mg/kg	76.1		31.6		26.4	
Iron	mg/kg	41800		29000		44100	
Lead	mg/kg	696		68.5		15.3 J	
Magnesium	mg/kg	9290		7020		7010	
Manganese	mg/kg	724		337		541	
Mercury	mg/kg	0.17		0.05 J		0.05 U	
Nickel	mg/kg	40.9		51.1		47	
Potassium	mg/kg	2330		2170		1280	
Selenium	mg/kg	0.23 U J		0.24 J		0.23 U J	
Silver	mg/kg	0.55 U		0.9 J		0.84 U	
Sodium	mg/kg	201 J		141 J		326 J	
Thallium	mg/kg	0.64 U		0.51 U		0.66 U	
Vanadium	mg/kg	28.3		22 R		25.3	
Zinc	mg/kg	472		393		93.5	
Cyanide	mg/kg	0.63 U		0.64 U		0.73 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-32	B-32	B-32	B-32	B-33	B-33	B-34	B-34
	DEPTH (FT.)	0-2	2-4	4-6	6-7.8	0-2	2-3.5	0-2	2-2.75
	DATE	04/27/93	04/27/93	04/27/93	04/27/93	12/14/92	12/14/92	12/14/92	12/14/92
	ES ID	B32-1	B32-2	B32-3	B32-4	B33-1	B33-2	B34-1	B34-2
	LAB ID	183092	183093	183094	183095	176253	176254	176255	176256
	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Bromomethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Vinyl Chloride	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Chloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Methylene Chloride	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Acetone	ug/Kg	17 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Carbon Disulfide	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1-Dichloroethene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1-Dichloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,2-Dichloroethene (total)	ug/Kg	110	12 U	1300 U	240 J	12 U	12 U	12 U	12 U
Chloroform	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,2-Dichloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
2-Butanone	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Carbon Tetrachloride	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,2-Dichloropropane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
cis-1,3-Dichloropropene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Trichloroethene	ug/Kg	140	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Dibromochloromethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1,2-Trichloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Benzene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
trans-1,3-Dichloropropene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Bromoform	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
4-Methyl-2-Pentanone	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
2-Hexanone	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Tetrachloroethene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Toluene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Chlorobenzene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Ethylbenzene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Styrene	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U
Xylene (total)	ug/Kg	11 U	12 U	1300 U	1300 U	12 U	12 U	12 U	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-32	B-32	B-32	B-32	B-33	B-33	B-34	B-34
	DEPTH(FT.)	0-2	2-4	4-6	6-7.8	0-2	2-3.5	0-2	2-2.75
	DATE	04/27/93	04/27/93	04/27/93	04/27/93	12/14/92	12/14/92	12/14/92	12/14/92
	ES ID	B32-1	B32-2	B32-3	B32-4	B33-1	B33-2	B34-1	B34-2
	LAB ID	183092	183093	183094	183095	176253	176254	176255	176256
COMPOUND	UNITS								
Semivolatiles									
Phenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
bis(2-Chloroethyl) ether	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2-Chlorophenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
1,3-Dichlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
1,4-Dichlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2-Methylphenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Methylphenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
N-Nitroso-di-n-propylamine	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Hexachloroethane	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Nitrobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Isophorone	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2-Nitrophenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4-Dimethylphenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4-Dichlorophenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
1,2,4-Trichlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Naphthalene	ug/Kg	360 U	400 U	440 U	290 J	420 U	380 U	400 U	360 U
4-Chloroaniline	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Hexachlorobutadiene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Chloro-3-methylphenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	360 U	400 U
2-Methylnaphthalene	ug/Kg	360 U	400 U	440 U	320 J	420 U	380 U	400 U	360 U
Hexachlorocyclopentadiene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4,6-Trichlorophenol	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4,5-Trichlorophenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
2-Chloronaphthalene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2-Nitroaniline	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
Dimethylphthalate	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Acenaphthylene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,6-Dinitrotoluene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
3-Nitroaniline	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
Acenaphthene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4-Dinitrophenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
4-Nitrophenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
Dibenzofuran	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
2,4-Dinitrotoluene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Diethylphthalate	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Chlorophenyl-phenylether	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Fluorene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Nitroaniline	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
4,6-Dinitro-2-methylphenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
N-Nitrosodiphenylamine	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
4-Bromophenyl-phenylether	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Hexachlorobenzene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Pentachlorophenol	ug/Kg	870 U	970 U	1100 U	860 U	1000 U	910 U	970 U	880 U
Phenanthrene	ug/Kg	360 U	400 U	440 U	140 J	20 J	380 U	51 J	360 U
Anthracene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	19 J	360 U
Carbazole	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Di-n-butylphthalate	ug/Kg	360 U	400 U	440 U	180 J	420 U	380 U	400 U	360 U
Fluoranthene	ug/Kg	80 J	400 U	440 U	350 U	28 J	380 U	62 J	360 U
Pyrene	ug/Kg	74 J	400 U	440 U	130 J	30 J	380 U	64 J	16 J
Butylbenzylphthalate	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
3,3'-Dichlorobenzidine	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzo(a)anthracene	ug/Kg	58 J	400 U	440 U	350 U	18 J	380 U	42 J	360 U
Chrysene	ug/Kg	66 J	400 U	440 U	350 U	25 J	380 U	51 J	13 J
bis(2-Ethylhexyl)phthalate	ug/Kg	53 J	110 J	200 J	440	400 J	380 U	650	780
Di-n-octylphthalate	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzo(b)fluoranthene	ug/Kg	67 J	400 U	440 U	350 U	420 U	380 U	39 J	360 U
Benzo(k)fluoranthene	ug/Kg	49 J	400 U	440 U	350 U	420 U	380 U	39 J	360 U
Benzo(a)pyrene	ug/Kg	58 J	400 U	440 U	350 U	420 U	380 U	38 J	360 U
Indeno(1,2,3-cd)pyrene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	34 J	360 U
Dibenz(a,h)anthracene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	400 U	360 U
Benzo(g,h,i)perylene	ug/Kg	360 U	400 U	440 U	350 U	420 U	380 U	37 J	360 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-32	B-32	B-32	B-32	B-33	B-33	B-34	B-34
	DEPTH(FT.)	0-2	2-4	4-6	6-7.8	0-2	2-3.5	0-2	2-2.75
	DATE	04/27/93	04/27/93	04/27/93	04/27/93	12/14/92	12/14/92	12/14/92	12/14/92
	ES ID	B32-1	B32-2	B32-3	B32-4	B33-1	B33-2	B34-1	B34-2
	LAB ID	183092	183093	183094	183095	176253	176254	176255	176256
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
beta-BHC	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
delta-BHC	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
gamma-BHC (Lindane)	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Heptachlor	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Aldrin	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Heptachlor epoxide	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Endosulfan I	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Dieldrin	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
4,4'-DDE	ug/Kg	6.6	4 U	4.4 U	3.6 U	2.5 J	3.8 U	4.7 J	3.7 U
Endrin	ug/Kg	3.8 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
Endosulfan II	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.6 U	4 U	3.7 U
4,4'-DDD	ug/Kg	3.8 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
Endosulfan sulfate	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.8 U	4 U	3.7 U
4,4'-DDT	ug/Kg	1.8 J	4 U	4.4 U	3.8 U	3.6 J	3.8 U	9	2.5 J
Methoxychlor	ug/Kg	19 U	21 U	23 U	19 U	22 U	19 U	21 U	19 U
Endrin ketone	ug/Kg	3.6 U	4 U	4.4 U	3.6 U	4.2 U	3.6 U	4 U	3.7 U
Endrin aldehyde	ug/Kg	3.6 U	4 U	4.4 U	3.8 U	4.2 U	3.8 U	4 U	3.7 U
alpha-Chlordane	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
gamma-Chlordane	ug/Kg	1.9 U	2.1 U	2.3 U	1.9 U	2.2 U	1.9 U	2.1 U	1.9 U
Toxaphene	ug/Kg	190 U	210 U	230 U	190 U	220 U	190 U	210 U	190 U
Aroclor-1016	ug/Kg	36 U	40 U	44 U	36 U	42 U	38 U	40 U	37 U
Aroclor-1221	ug/Kg	74 U	61 U	90 U	74 U	86 U	77 U	81 U	74 U
Aroclor-1232	ug/Kg	38 U	40 U	44 U	36 U	42 U	38 U	40 U	37 U
Aroclor-1242	ug/Kg	38 U	40 U	44 U	36 U	42 U	38 U	40 U	37 U
Aroclor-1248	ug/Kg	38 U	40 U	29 J	140 J	42 U	38 U	40 U	37 U
Aroclor-1254	ug/Kg	38 U	40 U	44 U	38 U	42 U	38 U	40 U	37 U
Aroclor-1260	ug/Kg	36 U	40 U	170	320 J	42 U	36 U	40 U	37 U
Herbicides									
2,4-D	ug/Kg	56 U	61 U	68 U	55 U	64 U	57 U	61 U	55 U
2,4-DB	ug/Kg	56 U	61 U	68 U	55 U	64 U	57 U	61 U	55 U
2,4,5-T	ug/Kg	5.6 U	8.1 U	6.8 U	5.5 U	6.4 U	5.7 U	6.1 U	5.5 U
2,4,5-TP (Silvex)	ug/Kg	5.6 U	8.1 U	6.8 U	5.5 U	6.4 U	5.7 U	6.1 U	5.5 U
Dalapon	ug/Kg	140 U	150 U	170 U	140 U	150 U	140 U	150 U	130 U
Dicamba	ug/Kg	5.6 U	8.1 U	6.8 U	5.5 U	6.4 U	5.7 U	6.1 U	5.5 U
Dichloroprop	ug/Kg	56 U	81.0 U	68 U	55 U	64 U	57 U	61 U	55 U
Dinoseb	ug/Kg	28 U	31.0 U	34 U	28 U	32 U	29 U	30 U	27 U
MCPA	ug/Kg	5600 U	6100.0 U	6800 U	5500 U	6400 U	5700 U	6100 U	5500 U
MCPP	ug/Kg	5600 U	6100.0 U	6800 U	5500 U	6400 U	5700 U	6100 U	5500 U
Metals									
Aluminum	mg/Kg	13900	14400	16800	13900	19700	16000	21400	17200
Antimony	mg/Kg	5.7 UJ	5.7 UJ	4.9 UJ	3.7 UJ	6.9 UJ	7.7 UJ	7.5 UJ	7.7 UJ
Arsenic	mg/Kg	4.5	4.5	5	2.7	2	1.6	3.6	1.9
Barium	mg/Kg	85.1	105	81.8	46.6	108 J	58.9 J	99.1 J	65.9 J
Beryllium	mg/Kg	0.89 J	0.81 J	0.8 J	0.62 J	1	0.74	1.1	0.76
Cadmium	mg/Kg	0.41 U	0.42 U	0.36 U	0.27 U	0.4 U	0.44 U	0.43 U	0.44 U
Calcium	mg/Kg	27900	6740	4310	3910	4620	46100	4340	41300
Chromium	mg/Kg	25.5	22.9	27.4	22.7	32 J	26.6 J	35 J	28.5 J
Cobalt	mg/Kg	15.8	11.2	16.5	12	17.1	17.3	16.5	15.5
Copper	mg/Kg	38.8	32.8	29.8	17.3	24.4	16.7	26	18.4
Iron	mg/Kg	29800	26500	34900	28300	36800	35300	40200	33400
Lead	mg/Kg	44.6	38.1	15.5	5.6	19.2	6.7 R	9.1 R	9.1 R
Magnesium	mg/Kg	7520	6030	6200	5710	6550	7260	7020	7200
Manganese	mg/Kg	499	799	430	513	1070	780	857	852
Mercury	mg/Kg	0.21	0.04 U	0.05 U	0.03 U	0.08 R	0.04 R	0.09 R	0.08 R
Nickel	mg/Kg	49.7	29.1	48.2	36	45.6	43.7	49.5	42.6
Potassium	mg/Kg	1450	1550	1320	904	1580	1370	1520	1410
Selenium	mg/Kg	0.24 J	0.19 U	0.23 U	0.17 U	0.15 U	0.48 J	0.58 J	0.69
Silver	mg/Kg	0.89 U	0.9 U	0.76 U	0.58 U	0.41 U	0.45 U	0.44 U	0.46 U
Sodium	mg/Kg	118 J	107 U	91 U	68.7 U	52 J	162 J	55 J	155 J
Thallium	mg/Kg	0.6 U	0.58 U	0.69 U	0.5 U	0.35 U	0.33 U	0.37 U	0.32 U
Vanadium	mg/Kg	19.3	23.7	24.7	17	26.9	20.9	29	22.4
Zinc	mg/Kg	194	129	132	79.1	114 J	87.8 J	200 J	84.2 J
Cyanide	mg/Kg	0.66 U	0.71 U	0.81 U	0.66 U	0.76 U	0.65 U	0.7 U	0.63 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-35	B-35	B-35	B-35	B-35	B-36	B-36	B-36
	DEPTH(FT.)	0-2	0-2	2-4	2-4	4-5.1	0-2	2-4	4-6
	DATE	12/15/92	12/15/92	12/15/92	12/15/92	12/15/92	04/27/93	04/27/93	04/27/93
	ES ID	B35-1	B35-1RE	B35-2	B35-2RE	B35-3	B36-1	B36-2	B36-3
	LAB ID	176442	176442R1	176443	176443R1	176444	183096	183097	183098
	UNITS								
VOCs									
Chloromethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Bromomethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Vinyl Chloride	ug/Kg	13 U J	13 U J	13 U		8 J	12 U	12 U	53 U
Chloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Methylene Chloride	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Acetone	ug/Kg	13 U J	13 U J	23 U		20 U	12 U	130	87
Carbon Disulfide	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,1-Dichloroethene	ug/Kg	13 U J	13 U J	3 J		140	12 U	12 U	53 U
1,1-Dichloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,2-Dichloroethene (total)	ug/Kg	13 U J	13 U J	13 J		200	12 U	12 U	53 U
Chloroform	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,2-Dichloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
2-Butanone	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	17	53 U
1,1,1-Trichloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Carbon Tetrachloride	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,2-Dichloropropane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
cis-1,3-Dichloropropene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Trichloroethene	ug/Kg	44 J	45 J	5 J		110	12 U	12 U	53 U
Dibromochloromethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,1,2-Trichloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Benzene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
trans-1,3-Dichloropropene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Bromoform	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
4-Methyl-2-Pentanone	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
2-Hexanone	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Tetrachloroethene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
1,1,2,2-Tetrachloroethane	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Toluene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	3 J	11 J
Chlorobenzene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Ethylbenzene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	8 J
Styrene	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	53 U
Xylene (total)	ug/Kg	13 U J	13 U J	13 U		12 U	12 U	12 U	91

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-35	B-35	B-35	B-35	B-35	B-36	B-36	B-36
	DEPTH(FT.)	0-2	0-2	2-4	2-4	4-5.1	0-2	2-4	4-6
	DATE	12/15/92	12/15/92	12/15/92	12/15/92	12/15/92	04/27/93	04/27/93	04/27/93
	ES ID	B35-1	B35-1RE	B35-2	B35-2RE	B35-3	B36-1	B36-2	B36-3
	LAB ID	176442	176442R1	176443	176443R1	176444	183096	183097	183098
	UNITS								
Semivolatiles									
Phenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
bis(2-Chloroethyl) ether	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2-Chlorophenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
1,3-Dichlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
1,4-Dichlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2-Methylphenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
4-Methylphenol	ug/Kg	400 UJ	400 UJ	8100 UJ	29 J	410 U	370 U	410 U	770 U
N-Nitroso-di-n-propylamine	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Hexachloroethane	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Nitrobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Isophorone	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2-Nitrophenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4-Dimethylphenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4-Dichlorophenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
1,2,4-Trichlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Naphthalene	ug/Kg	52 J	23 J	8100 UJ	25 J	410 U	370 U	410 U	410 J
4-Chloroaniline	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Hexachlorobutadiene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
4-Chloro-3-methylphenol	ug/Kg	400 UJ	8100 UJ	400 UJ	410 UJ	360 U	370 U	410 U	770 U
2-Methylnaphthalene	ug/Kg	20 J	19 J	8100 UJ	20 J	410 U	370 U	410 U	3600
Hexachlorocyclopentadiene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4,6-Trichlorophenol	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4,5-Trichlorophenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
2-Chloronaphthalene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2-Nitroaniline	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
Dimethylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Acenaphthylene	ug/Kg	14 J	400 UJ	8100 UJ	400 UJ	410 U	54 J	39 J	770 U
2,6-Dinitrotoluene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
3-Nitroaniline	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
Acenaphthene	ug/Kg	40 J	38 J	8100 UJ	13 J	410 U	37 J	410 U	770 U
2,4-Dinitrophenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
4-Nitrophenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
Dibenzofuran	ug/Kg	24 J	24 J	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
2,4-Dinitrotoluene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Diethylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
4-Chlorophenyl-phenylether	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Fluorene	ug/Kg	38 J	35 J	8100 UJ	16 J	410 U	43 J	410 U	470 J
4-Nitroaniline	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
4,6-Dinitro-2-methylphenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	980 U	1900 U
N-Nitrosodiphenylamine	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
4-Bromophenyl-phenylether	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Hexachlorobenzene	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Pentachlorophenol	ug/Kg	960 UJ	960 UJ	20000 UJ	980 UJ	990 U	910 U	410 J	1900 U
Phenanthrene	ug/Kg	460 J	430 J	330 J	260 J	410 U	300 J	230 J	1200
Anthracene	ug/Kg	75 J	69 J	8100 UJ	67 J	410 U	61 J	410 U	770 U
Carbazole	ug/Kg	180 J	160 J	8100 UJ	100 J	410 U	370 U	410 U	770 U
Di-n-butylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	23 J	260 J	370 U	220 J	330 J
Fluoranthene	ug/Kg	530 J	560 J	550 J	480 J	410 U	630	210 J	160 J
Pyrene	ug/Kg	630 J	500 J	800 J	710 J	410 U	510	190 J	230 J
Butylbenzylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	130 J	410 U	370 U	410 U	770 U
3,3'-Dichlorobenzidine	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Benzo(a)anthracene	ug/Kg	220 J	220 J	8100 UJ	430 J	410 U	460	150 J	770 U
Chrysene	ug/Kg	290 J	290 J	420 J	450 J	410 U	430	100 J	770 U
bis(2-Ethylhexyl)phthalate	ug/Kg	400 UJ	400 UJ	1400 J	340 J	1700	190 J	370 J	700 J
Di-n-octylphthalate	ug/Kg	400 UJ	400 UJ	8100 UJ	400 UJ	410 U	370 U	410 U	770 U
Benzo(b)fluoranthene	ug/Kg	180 J	220 J	420 J	380 J	410 U	640	130 J	770 U
Benzo(k)fluoranthene	ug/Kg	210 J	210 J	8100 UJ	360 J	410 U	400	130 J	770 U
Benzo(a)pyrene	ug/Kg	100 J	120 J	8100 UJ	300 J	410 U	470	120 J	770 U
Indeno(1,2,3-cd)pyrene	ug/Kg	89 J	110 J	8100 UJ	200 J	410 U	280 J	110 J	770 U
Dibenz(a,h)anthracene	ug/Kg	46 J	29 J	8100 UJ	88 J	410 U	140 J	410 U	770 U
Benzo(g,h,i)perylene	ug/Kg	31 J	42 J	8100 UJ	56 J	410 U	150 J	410 U	770 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-35	B-35	B-35	B-35	B-35	B-36	B-36	B-36
	DEPTH (FT.)	0-2	0-2	2-4	2-4	4-5.1	0-2	2-4	4-6
	DATE	12/15/92	12/15/92	12/15/92	12/15/92	12/15/92	04/27/93	04/27/93	04/27/93
	ES ID	B35-1	B35-1RE	B35-2	B35-2RE	B35-3	B36-1	B36-2	B36-3
	LAB ID	176442	176442R1	176443	176443R1	176444	183096	183097	183098
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
beta-BHC	ug/Kg	2 U		2.1 U		2.1 U	1.8 J	4.2 U	2 U
delta-BHC	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	2.3 J	2 U
gamma-BHC (Lindane)	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Heptachlor	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Aldrin	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Heptachlor epoxide	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Endosulfan I	ug/Kg	2 U		2.1 U		2.1 U	1.9 U	4.2 U	2 U
Dieldrin	ug/Kg	4 U		4 U		4 U	3.7 U	8.1 U	3.8 U
4,4'-DDE	ug/Kg	3.9 J		5.6 J		4 U	22	27	2.3 J
Endrin	ug/Kg	4 U		4 U		4 U	3.7 U	4.1 J	3.8 U
Endosulfan II	ug/Kg	4 U		4 U		4 U	2.7 J	8.1 U	3.8 U
4,4'-DDD	ug/Kg	4 U		7.6		4 U	16	74	36
Endosulfan sulfate	ug/Kg	2.2 J		4 U		4 U	2.5 J	8.1 U	3.8 U
4,4'-DDT	ug/Kg	3.9 J		4 U		4 U	7.1 J	13 J	3.8 U
Methoxychlor	ug/Kg	20 U		21 U		21 U	19 U	42 U	20 U
Endrin ketone	ug/Kg	4 U		4 U		4 U	5.5 J	8.1 U	3.8 U
Endrin aldehyde	ug/Kg	4 U		4 U		4 U	3.7 U	8.1 U	3.8 U
alpha-Chlordane	ug/Kg	2 U		2.1 U		2.1 U	3.1 J	4.2 U	2 U
gamma-Chlordane	ug/Kg	2 U		2.1 U		2.1 U	2.1	4.2 U	2 U
Toxaphene	ug/Kg	200 U		210 U		210 U	190 U	420 U	200 U
Aroclor-1016	ug/Kg	40 U		40 U		40 U	37 U	81 U	38 U
Aroclor-1221	ug/Kg	80 U		82 U		82 U	76 U	180 U	78 U
Aroclor-1232	ug/Kg	40 U		40 U		40 U	37 U	81 U	38 U
Aroclor-1242	ug/Kg	40 U		40 U		40 U	37 U	81 U	38 U
Aroclor-1248	ug/Kg	40 U		40 U		40 U	37 U	81 U	92 J
Aroclor-1254	ug/Kg	40 U		25 J		40 U	37 U	81 U	38 U
Aroclor-1260	ug/Kg	40 U		40 U		40 U	37 U	350 J	160 J
Herbicides									
2,4-D	ug/Kg	60 U		61 U		61 U	57 U	62 U	58 U
2,4-DB	ug/Kg	60 U		61 U		61 U	57 U	62 U	58 U
2,4,5-T	ug/Kg	6 U		6.1 U		6.1 U	5.7 U	6.2 U	5.8 U
2,4,5-TP (Silvex)	ug/Kg	6 U		6.1 U		6.1 U	5.7 U	6.2 U	5.8 U
Dalapon	ug/Kg	140 U		150 U		150 U	140 U	150 U	140 U
Dicamba	ug/Kg	6 U		6.1 U		6.1 U	5.7 U	6.2 U	5.8 U
Dichloroprop	ug/Kg	60 U		61 U		61 U	57.0 U	62 U	58 U
Dinoseb	ug/Kg	30 U		31 U		30 U	29.0 U	31 U	29 U
MCPA	ug/Kg	6000 U		6100 U		6100 U	5700.0 U	6200 U	5800 U
MCPP	ug/Kg	6000 U		6100 U		6100 U	5700.0 U	6200 U	5800 U
Metals									
Aluminum	mg/Kg	14300		15000		22000	11700	16200	15300
Antimony	mg/Kg	8 J		9.1 UJ		7.2 UJ	3.8 UJ	4.7 UJ	5.8 UJ
Arsenic	mg/Kg	1.7		3.8		2.1	9.8	8.1	4.6
Barium	mg/Kg	183 J		182 J		98.1 J	73.7	133	82.5
Beryllium	mg/Kg	0.59 J		0.7 J		1.1	0.57 J	0.85 J	0.71 J
Cadmium	mg/Kg	0.71		0.8 J		0.42 U	0.39 J	0.35 U	0.43 U
Calcium	mg/Kg	25200		30400		5010	40400	7650	14200
Chromium	mg/Kg	28.9 J		34.2 J		36.9 J	26.5	24.8	24.4
Cobalt	mg/Kg	10.8		11		17.7	11.5	12	12.6
Copper	mg/Kg	75.5		73.2		23.3	51.8	27.1	28.4
Iron	mg/Kg	28600		30200		42900	36900	28100	30200
Lead	mg/Kg	126		203		25.4	110	57.9	14.9
Magnesium	mg/Kg	7360		7410		7690	7020	5320	6000
Manganese	mg/Kg	476		443		1250	472	669	686
Mercury	mg/Kg	0.39		0.76		0.06 R	0.33	0.14	0.05 U
Nickel	mg/Kg	35.4		36.1		54.4	42.9	32.8	40.1
Potassium	mg/Kg	1130		1800		1680	1210	1420	1420
Selenium	mg/Kg	1		1.1		0.67 J	0.23 U	0.59 J	0.22 J
Silver	mg/Kg	0.4 U		0.82 J		0.43 U	0.82 J	0.75 U	0.92 U
Sodium	mg/Kg	203 J		268 J		248 J	120 J	88.9 U	109 U
Thallium	mg/Kg	0.33 U		0.39 U		0.35 U	0.68 U	0.43 U	0.63 U
Vanadium	mg/Kg	21.3		22.8		28.9	23.9	25.5	23.6
Zinc	mg/Kg	8290		4210		116 J	252	108	99.6
Cyanide	mg/Kg	0.49 U		2.2		0.67 U	0.68 U	0.74 U	0.59 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-36	B-36	B-37	B-37	B-37	B-37	B-38	B-38
	DEPTH(FT.)	6-7.9	4-6	0-2	2-4	4-5.5	4-5.5	0-2	0-2
	DATE	04/27/93	04/27/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B36-4	B36-6	B37-1	B37-2	B37-3	B37-6	B38-1	B38-1RE
	LAB ID	183099	183100	183181	183182	183183	183184	183185	183185R1
COMPOUND	UNITS		DUP B36-3				DUP B37-3		
VOCs									
Chloromethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Bromomethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Vinyl Chloride	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Chloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Methylene Chloride	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Acetone	ug/Kg	1300 U	100	13 U	11 U	11 U	13 U	11 U	
Carbon Disulfide	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1-Dichloroethene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1-Dichloroethane	ug/Kg	1300 U	56 U	13 U	11 U	11 U	11 U	11 U	
1,2-Dichloroethene (total)	ug/Kg	1300 U	58 U	3 J	2 J	16	12	7 J	
Chloroform	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,2-Dichloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
2-Butanone	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1,1-Trichloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Carbon Tetrachloride	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,2-Dichloropropane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
cis-1,3-Dichloropropene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Trichloroethene	ug/Kg	1300 U	58 U	8 J	10 J	37	38	73	
Dibromochloromethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1,2-Trichloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Benzene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
trans-1,3-Dichloropropene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Bromoform	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
4-Methyl-2-Pentanone	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
2-Hexanone	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Tetrachloroethene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
1,1,2,2-Tetrachloroethane	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Toluene	ug/Kg	1300 U	8 J	13 U	11 U	11 U	11 U	11 U	
Chlorobenzene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Ethylbenzene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Styrene	ug/Kg	1300 U	58 U	13 U	11 U	11 U	11 U	11 U	
Xylene (total)	ug/Kg	500 J	76	13 U	11 U	11 U	11 U	11 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-36	B-36	B-37	B-37	B-37	B-37	B-38	B-38
	DEPTH(FT.)	6-7.9	4-6	0-2	2-4	4-5.5	4-5.5	0-2	0-2
	DATE	04/27/93	04/27/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B36-4	B36-6	B37-1	B37-2	B37-3	B37-6	B38-1	B38-1RE
	LAB ID	183099	183100	183181	183182	183183	183184	183185	183185R1
COMPOUND	UNITS		DUP B36-3				DUP B37-3		
Semivolatiles									
Phenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
bis(2-Chloroethyl) ether	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Chlorophenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
1,3-Dichlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
1,4-Dichlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Methylphenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
4-Methylphenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
N-Nitroso-di-n-propylamine	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Hexachloroethane	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Nitrobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Isophorone	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Nitrophenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4-Dimethylphenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4-Dichlorophenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
1,2,4-Trichlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Naphthalene	ug/Kg	480 J	370 J	460 U	390 U	360 U	370 U	360 U	360 U
4-Chloroaniline	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Hexachlorobutadiene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
4-Chloro-3-methylphenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Methylnaphthalene	ug/Kg	1900	3200	460 U	390 U	360 U	370 U	360 U	360 U
Hexachlorocyclopentadiene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4,6-Trichlorophenol	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4,5-Trichlorophenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
2-Chloronaphthalene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2-Nitroaniline	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
Dimethylphthalate	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Acenaphthylene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,6-Dinitrotoluene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
3-Nitroaniline	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
Acenaphthene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	64 J	67 J
2,4-Dinitrophenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
4-Nitrophenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
Dibenzofuran	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
2,4-Dinitrotoluene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Diethylphthalate	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
4-Chlorophenyl-phenylether	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Fluorene	ug/Kg	480 J	660	480 U	390 U	360 U	370 U	65 J	72 J
4-Nitroaniline	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
4,6-Dinitro-2-methylphenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
N-Nitrosodiphenylamine	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
4-Bromophenyl-phenylether	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Hexachlorobenzene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Pentachlorophenol	ug/Kg	1500 U	940 U	1100 U	940 U	870 U	890 U	880 U	880 U
Phenanthrene	ug/Kg	1200	1400	460 U	390 U	360 U	370 U	870	830
Anthracene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	210 J	250 J
Carbazole	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Di-n-butylphthalate	ug/Kg	420 J	290 J	460 U	390 U	110 J	160 J	130 J	120 J
Fluoranthene	ug/Kg	610 U	94 J	460 U	390 U	360 U	370 U	1500	1300
Pyrene	ug/Kg	290 J	98 J	460 U	390 U	360 U	370 U	1400	1300
Butylbenzylphthalate	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
3,3'-Dichlorobenzidine	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U
Benzo(a)anthracene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	730 J	740 J
Chrysene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	490	500
bis(2-Ethylhexyl)phthalate	ug/Kg	790	300 J	83 J	99 J	170 J	290 J	260 J	250 J
Di-n-octylphthalate	ug/Kg	610 U	390 U	460 U	390 U	360 U	51 J	380 U	360 U
Benzo(b)fluoranthene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	660	740 J
Benzo(k)fluoranthene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 J	310 J
Benzo(a)pyrene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	370	380
Indeno(1,2,3-cd)pyrene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	160 J	150 J
Dibenz(a,h)anthracene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 UJ	360 U
Benzo(g,h,i)perylene	ug/Kg	610 U	390 U	460 U	390 U	360 U	370 U	360 U	360 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-36	B-36	B-37	B-37	B-37	B-37	B-38	B-38
	DEPTH(FT.)	6-7.9	4-6	0-2	2-4	4-5.5	4-5.5	0-2	0-2
	DATE	04/27/93	04/27/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B36-4	B36-6	B37-1	B37-2	B37-3	B37-6	B38-1	B38-1RE
	LAB ID	183099	183100	183181	183182	183183	183184	183185	183185R1
COMPOUND	UNITS		DUP B36-3				DUP B37-3		
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
beta-BHC	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
delta-BHC	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.8 J	
gamma-BHC (Lindane)	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Heptachlor	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Aldrin	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Heptachlor epoxide	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Endosulfan I	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	2.1 J	
Dieldrin	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.8 U	
4,4'-DDE	ug/Kg	3.6 U	2.2 J	4.6 U	3.9 U	3.6 U	3.7 U	3.4 J	
Endrin	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
Endosulfan II	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
4,4'-DDD	ug/Kg	15	35	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
Endosulfan sulfate	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
4,4'-DDT	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
Methoxychlor	ug/Kg	13 J	20 U	24 U	20 U	18 U	19 U	19 U	
Endrin ketone	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	5.6 J	
Endrin aldehyde	ug/Kg	3.6 U	3.9 U	4.6 U	3.9 U	3.6 U	3.7 U	3.6 U	
alpha-Chlordane	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.3 J	
gamma-Chlordane	ug/Kg	1.9 U	2 U	2.4 U	2 U	1.8 U	1.9 U	1.9 U	
Toxaphene	ug/Kg	190 U	200 U	240 U	200 U	180 U	190 U	190 U	
Aroclor-1016	ug/Kg	36 U	39 U	46 U	39 U	36 U	37 U	36 U	
Aroclor-1221	ug/Kg	74 U	80 U	94 U	78 U	72 U	74 U	73 U	
Aroclor-1232	ug/Kg	36 U	39 U	46 U	39 U	36 U	37 U	36 U	
Aroclor-1242	ug/Kg	36 U	39 U	46 U	39 U	36 U	37 U	36 U	
Aroclor-1248	ug/Kg	160 J	69 J	46 U	39 U	36 U	37 U	36 U	
Aroclor-1254	ug/Kg	36 U	39 U	46 U	39 U	36 U	37 U	36 U	
Aroclor-1260	ug/Kg	390 J	170 J	46 U	39 U	36 U	37 U	36 U	
Herbicides									
2,4-D	ug/Kg	56 U	59 U	71 U	59 U	54 U	56 U	55 U	
2,4-DB	ug/Kg	56 U	59 U	71 U	59 U	54 U	56 U	55 U	
2,4,5-T	ug/Kg	5.6 U	5.9 U	7.1 U	5.9 U	5.4 U	5.6 U	5.5 U	
2,4,5-TP (Silvex)	ug/Kg	5.6 U	5.9 U	7.1 U	5.9 U	5.4 U	5.6 U	5.5 U	
Dalapon	ug/Kg	140 U	150 U	170 U	150 U	130 U	140 U	140 U	
Dicamba	ug/Kg	5.6 U	5.9 U	7.1 U	5.9 U	5.4 U	5.6 U	5.5 U	
Dichloroprop	ug/Kg	56 U	59 U	71 U	59 U	54 U	56 U	55 U	
Dinoseb	ug/Kg	28 U	30 U	36 U	30 U	27 U	28 U	28 U	
MCPA	ug/Kg	5600 U	5900 U	7100 U	5900 U	5400 U	5600 U	5500 U	
MCPP	ug/Kg	5600 U	5900 U	7100 U	5900 U	5400 U	5600 U	5500 U	
Metals									
Aluminum	mg/Kg	11500	15700	15400	15400	16000	12800	9120	
Antimony	mg/Kg	3.1 UJ	4.1 UJ	7.3 UJ	5.4 UJ	3.5 UJ	4.8 UJ	4.2 J	
Arsenic	mg/Kg	4.1	5.3	2.5	4.4	5.9	2.1 J	2.8	
Barium	mg/Kg	50.6	75.2	114	75.2	68.7	38.4	211	
Beryllium	mg/Kg	0.52 J	0.77	0.92 J	0.74 J	0.74	0.55 J	0.46 J	
Cadmium	mg/Kg	0.22 U	0.3 U	0.74 J	0.4 U	0.28 U	0.35 U	0.36 J	
Calcium	mg/Kg	61500	7700	6020	26900	7240	21700	16000	
Chromium	mg/Kg	18.1	25.5	22.7	24.7	25.8	20.1	18.4	
Cobalt	mg/Kg	10.6	15.2	9.6 J	14.5	14.3	10.8	11.5	
Copper	mg/Kg	19.4	31.4	34.7	26.4	22.8	10.3	38.4	
Iron	mg/Kg	23400	34600	25200	30000	31000	25800	19000	
Lead	mg/Kg	9.5	12.4	18.3	8.2	8.7	2.9	59	
Magnesium	mg/Kg	7780	6090	4210	6060	6200	5520	4270	
Manganese	mg/Kg	495	818	337	757	676	476	400	
Mercury	mg/Kg	0.05 U	0.05 U	0.05 U	0.04 U	0.04 U	0.05 U	0.04 J	
Nickel	mg/Kg	31	44.1	26	41.3	39.9	31.1	34.3	
Potassium	mg/Kg	965	1300	1540	1680	1320	1000	1250	
Selenium	mg/Kg	0.53 J	0.19 J	0.41 J	0.21 U	0.16 U	0.22 U	0.19 J	
Silver	mg/Kg	0.48 U	0.65 U	1.1 U	0.66 U	0.55 U	0.75 U	0.61 U	
Sodium	mg/Kg	184 J	77.3 U	137 U	102 U	85.9 U	89.2 J	102 J	
Thallium	mg/Kg	0.81 U	0.43 U	0.88 U	0.82 U	0.49 U	0.65 U	0.42 U	
Vanadium	mg/Kg	15.3	23.8	24.1	22.7	21.4	14.9	15.3	
Zinc	mg/Kg	75.7	111	96.7	90	84.5	66.4	4070	
Cyanide	mg/Kg	0.58 U	0.59 U	0.85 U	0.7 U	0.65 U	0.66 U	0.68 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-38	B-38	B-38	B-38	B-39	B-39	B-39	B-39
	DEPTH (FT.)	2-4	4-6	6-8	4-6	0-2	0-2	3-4	3-4
	DATE	04/28/93	04/28/93	04/28/93	04/28/93	12/15/92	12/15/92	12/15/92	12/15/92
	ES ID	B38-2	B38-3	B38-4	B38-6	B39-1	B39-1RE	B39-2	B39-2RE
	LAB ID	183186	183187	183188	183169	176445	176445R1	176446	176446R1
	UNITS				DUP B38-3				
VOCs									
Chloromethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Bromomethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Vinyl Chloride	ug/Kg	2 J	11 U	9 J	9 J	1300 U		1000	
Chloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Methylene Chloride	ug/Kg	12 U	11 U	12 U	12 U	1300 U		9 J	
Acetone	ug/Kg	140	11 U	12 U	12 U	1300 U		60 J	
Carbon Disulfide	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,1-Dichloroethene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		30 J	
1,1-Dichloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,2-Dichloroethene (total)	ug/Kg	7 J	46	190	95	38000		7300 J	
Chloroform	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,2-Dichloroethane	ug/Kg	12 U	11 U	12 U	12 U	210 J		60 U	
2-Butanone	ug/Kg	22	11 U	12 U	12 U	1300 U		60 U	
1,1,1-Trichloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Carbon Tetrachloride	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,2-Dichloropropane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
cis-1,3-Dichloropropene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Trichloroethene	ug/Kg	28	47	150	64	150000 J		700	
Dibromochloromethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,1,2-Trichloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Benzene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
trans-1,3-Dichloropropene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Bromoform	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
4-Methyl-2-Pentanone	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
2-Hexanone	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Tetrachloroethene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
1,1,2,2-Tetrachloroethane	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Toluene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Chlorobenzene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Ethylbenzene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Styrene	ug/Kg	12 U	11 U	12 U	12 U	1300 U		60 U	
Xylene (total)	ug/Kg	12 U	11 U	12 U	12 U	1300 U		30 J	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-38	B-38	B-38	B-38	B-39	B-39	B-39	B-39
	DEPTH (FT.)	2-4	4-6	6-8	4-6	0-2	0-2	3-4	3-4
	DATE	04/28/93	04/28/93	04/28/93	04/28/93	12/15/92	12/15/92	12/15/92	12/15/92
	ES ID	B38-2	B38-3	B38-4	B38-6	B39-1	B39-1RE	B39-2	B39-2RE
	LAB ID	183186	183187	183188	183169	176445	176445R1	176446	176446R1
	UNITS				DUP B38-3				
Semivolatiles									
Phenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
bis(2-Chloroethyl) ether	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2-Chlorophenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
1,3-Dichlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
1,4-Dichlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2-Methylphenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Methylphenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
N-Nitroso-di-n-propylamine	ug/Kg	400 U	370 U	380 U	380 U	360 UJ	380 UJ	400 UJ	400 UJ
Hexachloroethane	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Nitrobenzene	ug/Kg	400 U	370 U	380 U	380 U	360 UJ	360 UJ	400 UJ	400 UJ
Isophorone	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2-Nitrophenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4-Dimethylphenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	400 U	370 U	380 U	380 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4-Dichlorophenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
1,2,4-Trichlorobenzene	ug/Kg	400 U	370 U	380 U	380 U	360 UJ	360 UJ	400 UJ	400 UJ
Naphthalene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Chloroaniline	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Hexachlorobutadiene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Chloro-3-methylphenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	400 UJ	400 UJ	390 UJ
2-Methylnaphthalene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	15 J
Hexachlorocyclopentadiene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4,6-Trichlorophenol	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4,5-Trichlorophenol	ug/Kg	980 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
2-Chloronaphthalene	ug/Kg	400 U	370 U	380 U	380 U	360 UJ	360 UJ	400 UJ	400 UJ
2-Nitroaniline	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
Dimethylphthalate	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Acenaphthylene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,6-Dinitrotoluene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
3-Nitroaniline	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
Acenaphthene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4-Dinitrophenol	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
4-Nitrophenol	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
Dibenzofuran	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
2,4-Dinitrotoluene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Diethylphthalate	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Chlorophenyl-phenylether	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Fluorene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Nitroaniline	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
N-Nitrosodiphenylamine	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
4-Bromophenyl-phenylether	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Hexachlorobenzene	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Pentachlorophenol	ug/Kg	960 U	910 U	920 U	880 U	870 UJ	870 UJ	980 UJ	980 UJ
Phenanthrene	ug/Kg	200 J	370 U	380 U	360 U	96 J	91 J	31 J	28 J
Anthracene	ug/Kg	58 J	370 U	380 U	360 U	360 UJ	13 J	400 UJ	400 UJ
Carbazole	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Di-n-butylphthalate	ug/Kg	190 J	160 J	110 J	280 J	360 UJ	60 J	400 UJ	400 UJ
Fluoranthene	ug/Kg	530	370 U	380 U	33 J	110 J	110 J	17 J	400 UJ
Pyrene	ug/Kg	460	370 U	380 U	24 J	140 J	130 J	28 J	400 UJ
Butylbenzylphthalate	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
3,3'-Dichlorobenzidine	ug/Kg	400 U	370 U	380 U	360 U	360 UJ	360 UJ	400 UJ	400 UJ
Benzo(a)anthracene	ug/Kg	280 J	370 U	380 U	360 U	38 J	51 J	400 UJ	400 UJ
Chrysene	ug/Kg	220 J	370 U	380 U	360 U	63 J	68 J	400 UJ	400 UJ
bis(2-Ethylhexyl)phthalate	ug/Kg	360 J	520	240 J	550	410 UJ	340 J	800 UJ	590 UJ
Di-n-octylphthalate	ug/Kg	400 U	370 U	380 U	23 J	360 UJ	360 UJ	400 UJ	400 UJ
Benzo(b)fluoranthene	ug/Kg	260 J	370 U	380 U	360 U	41 J	50 J	400 UJ	400 UJ
Benzo(k)fluoranthene	ug/Kg	200 J	370 U	360 U	360 U	40 J	47 J	400 UJ	400 UJ
Benzo(a)pyrene	ug/Kg	220 J	370 U	360 U	360 U	360 UJ	24 J	400 UJ	400 UJ
Indeno(1,2,3-cd)pyrene	ug/Kg	400 U	370 U	380 U	360 U	380 UJ	360 UJ	400 UJ	400 UJ
Dibenz(a,h)anthracene	ug/Kg	400 U	370 U	380 U	380 U	360 UJ	360 UJ	400 UJ	400 UJ
Benzo(g,h,i)perylene	ug/Kg	400 U	370 U	380 U	380 U	360 UJ	360 UJ	400 UJ	400 UJ

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-38	B-38	B-38	B-38	B-39	B-39	B-39	B-39
	DEPTH (FT.)	2-4	4-6	6-8	4-6	0-2	0-2	3-4	3-4
	DATE	04/28/93	04/28/93	04/28/93	04/28/93	12/15/92	12/15/92	12/15/92	12/15/92
	ES ID	B38-2	B38-3	B38-4	B38-6	B39-1	B39-1RE	B39-2	B39-2RE
	LAB ID	183186	183187	183188	183189	176445	176445R1	176446	176446R1
COMPOUND	UNITS				DUP B38-3				
Pesticides/PCBs									
alpha-BHC	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
beta-BHC	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
delta-BHC	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
gamma-BHC (Lindane)	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Heptachlor	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Aldrin	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Heptachlor epoxide	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Endosulfan I	ug/Kg	1.9 J	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Dieldrin	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
4,4'-DDE	ug/Kg	3.2 J	3.7 U	3.8 U	3.6 U	6.9 J		4.1 U	
Endrin	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
Endosulfan II	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
4,4'-DDD	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
Endosulfan sulfate	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
4,4'-DDT	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	4.1 J		4.1 U	
Methoxychlor	ug/Kg	20 U	19 U	20 U	19 U	18 U		21 U	
Endrin ketone	ug/Kg	3.8 J	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
Endrin aldehyde	ug/Kg	4 U	3.7 U	3.8 U	3.6 U	3.6 U		4.1 U	
alpha-Chlordane	ug/Kg	1.4 J	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
gamma-Chlordane	ug/Kg	2 U	1.9 U	2 U	1.9 U	1.8 U		2.1 U	
Toxaphene	ug/Kg	200 U	190 U	200 U	190 U	180 U		210 U	
Aroclor-1016	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1221	ug/Kg	81 U	76 U	78 U	74 U	73 U		82 U	
Aroclor-1232	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1242	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1248	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Aroclor-1254	ug/Kg	40 U	37 U	38 U	36 U	38 U		41 U	
Aroclor-1260	ug/Kg	40 U	37 U	38 U	36 U	36 U		41 U	
Herbicides									
2,4-D	ug/Kg	61 U	57 U	58 U	57 U	54 U		61 U	
2,4-DB	ug/Kg	81 U	57 U	58 U	57 U	54 U		61 U	
2,4,5-T	ug/Kg	6.1 U	5.7 U	5.8 U	5.7 U	5.4 U		6.1 U	
2,4,5-TP (Silvex)	ug/Kg	6.1 U	5.7 U	5.8 U	5.7 U	5.4 U		6.1 U	
Dalapon	ug/Kg	150 U	140 U	140 U	140 U	130 U		150 U	
Dicamba	ug/Kg	6.1 U	5.7 U	5.8 U	5.7 U	5.4 U		6.1 U	
Dichloroprop	ug/Kg	81 U	57 U	58 U	57 U	54 U		61 U	
Dinoseb	ug/Kg	31 U	29 U	29 U	29 U	27 U		30 U	
MCPA	ug/Kg	6100 U	5700 U	5800 U	5700 U	5400 U		6100 U	
MCPP	ug/Kg	6100 U	5700 U	5800 U	5700 U	5400 U		6100 U	
Metals									
Aluminum	mg/Kg	13500	10600	14800	10500	7410		11100	
Antimony	mg/Kg	5.3 UJ	5.5 UJ	6.3 UJ	4.4 UJ	6.4 UJ		6.9 UJ	
Arsenic	mg/Kg	4.6	2.9	3.5	4.5	2.3		4.4	
Barium	mg/Kg	105	47.5	51.7	48.4	88.8 J		78.8 J	
Beryllium	mg/Kg	0.69 J	0.51 J	0.72 J	0.53 J	0.38 J		0.57 J	
Cadmium	mg/Kg	0.39 U	4.4	0.47 U	0.32 U	0.63		0.4 U	
Calcium	mg/Kg	53900	64500	11500	61900	139000		124000	
Chromium	mg/Kg	25	17.8	24.6	17.3	17.4 J		15.9 J	
Cobalt	mg/Kg	12.1	10.4	14.8	10.2	7		6.9	
Copper	mg/Kg	31	24.5	15.6	27.5	38.4		22.5	
Iron	mg/Kg	27600	22900	30000	21800	16900		17700	
Lead	mg/Kg	55.9	59.1 J	6.2	8.2 J	165		11	
Magnesium	mg/Kg	7270	8610	6290	9180	23400		10300	
Manganese	mg/Kg	1040	488	855	454	436		573	
Mercury	mg/Kg	0.04 U	0.02 U	0.04 U	0.03 U	0.1 R		0.08 R	
Nickel	mg/Kg	36.9	30	39.8	30.4	24.8		18.4	
Potassium	mg/Kg	1340	867 J	1130 J	1020	1400		1320	
Selenium	mg/Kg	0.54 J	0.11 U	0.14 U	0.19 U	1.8		1.6	
Silver	mg/Kg	0.83 U	0.88 U	1 U	0.7 U	0.38 U		0.41 U	
Sodium	mg/Kg	257 J	226 J	119 U	245 J	225 J		442 J	
Thallium	mg/Kg	0.49 U	0.34 U	0.42 U	0.58 U	1.6 U		1.7 U	
Vanadium	mg/Kg	23.7	15.1	18.6	16.1	12.9		18.4	
Zinc	mg/Kg	1110	88.5	64	104	3540		88.2 J	
Cyanide	mg/Kg	0.72 U	0.66 U	0.69 U	0.55 U	1.4		0.73 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-39	B-39	B-39	BK-1	BK-2	BK-2RE	B-40	B-40
	DEPTH(FT.)	4-6	4-6	6-6.5	0-2	0-2	0-2	0-2	2-3.4
	DATE	12/15/92	12/15/92	12/15/92	12/16/92	12/16/92	12/18/92	12/08/92	12/08/92
	ES ID	B39-3	B39-3RE	B39-4	BK-1	BK-2	BK-2RE	B40-1	B40-2
	LAB ID	176447	176447R1	176448	176440	176441	176441R1	175786	175787
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Bromomethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Vinyl Chloride	ug/Kg	160		240 E	14 U	13 U		13 U	12 U
Chloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Methylene Chloride	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Acetone	ug/Kg	57 U		21 U	14 U	13 U		13 U	12 U
Carbon Disulfide	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,1-Dichloroethene	ug/Kg	130		140	14 U	13 U		13 U	12 U
1,1-Dichloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,2-Dichloroethene (total)	ug/Kg	1600		1700	13 U	13 U		13 U	12 U
Chloroform	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,2-Dichloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
2-Butanone	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,1,1-Trichloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Carbon Tetrachloride	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,2-Dichloropropane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
cis-1,3-Dichloropropene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Trichloroethene	ug/Kg	1000		2200 J	14 U	13 U		13 U	12 U
Dibromochloromethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,1,2-Trichloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Benzene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
trans-1,3-Dichloropropene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Bromoform	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
4-Methyl-2-Pentanone	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
2-Hexanone	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Tetrachloroethene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Toluene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Chlorobenzene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Ethylbenzene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Styrene	ug/Kg	57 U		12 U	14 U	13 U		13 U	12 U
Xylene (total)	ug/Kg	57 U		5 J	14 U	13 U		13 U	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-39	B-39	B-39	BK-1	BK-2	BK-2RE	B-40	B-40
	DEPTH(FT.)	4-6	4-6	6-6.5	0-2	0-2	0-2	0-2	2-3.4
	DATE	12/15/92	12/15/92	12/15/92	12/16/92	12/16/92	12/16/92	12/08/92	12/08/92
	ES ID	B39-3	B39-3RE	B39-4	BK-1	BK-2	BK-2RE	B40-1	B40-2
	LAB ID	176447	176447R1	176448	176440	176441	176441R1	175786	175787
	UNITS								
Semivolatiles									
Phenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
bis(2-Chloroethyl) ether	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2-Chlorophenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
1,3-Dichlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
1,4-Dichlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2-Methylphenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Methylphenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
N-Nitroso-di-n-propylamine	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Hexachloroethane	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Nitrobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Isophorone	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2-Nitrophenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4-Dimethylphenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4-Dichlorophenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
1,2,4-Trichlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Naphthalene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Chloroaniline	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Hexachlorobutadiene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Chloro-3-methylphenol	ug/Kg	390 U	370 U	420 U	430 U	430 UJ	430 UJ	390 U	400 U
2-Methylnaphthalene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Hexachlorocyclopentadiene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4,6-Trichlorophenol	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4,5-Trichlorophenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
2-Chloronaphthalene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2-Nitroaniline	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
Dimethylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Acenaphthylene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	13 J	400 U
2,6-Dinitrotoluene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
3-Nitroaniline	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
Acenaphthene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4-Dinitrophenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
4-Nitrophenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
Dibenzofuran	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
2,4-Dinitrotoluene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Diethylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Chlorophenyl-phenylether	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Fluorene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Nitroaniline	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
4,6-Dinitro-2-methylphenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
N-Nitrosodiphenylamine	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
4-Bromophenyl-phenylether	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Hexachlorobenzene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Pentachlorophenol	ug/Kg	940 U	940 U	900 U	1000 U	1000 UJ	1000 UJ	950 U	960 U
Phenanthrene	ug/Kg	390 U	390 U	370 U	420 U	29 J	130 J	53 J	16 J
Anthracene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	31 J	15 J	400 U
Carbazole	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	37 J	390 U	400 U
Di-n-butylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	160 J	240 J
Fluoranthene	ug/Kg	390 U	390 U	370 U	23 J	47 J	190 J	92 J	26 J
Pyrene	ug/Kg	390 U	390 U	370 U	21 J	41 J	140 J	110 J	24 J
Butylbenzylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
3,3'-Dichlorobenzidine	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Benzo(a)anthracene	ug/Kg	390 U	390 U	370 U	420 U	21 J	77 J	46 J	400 U
Chrysene	ug/Kg	390 U	390 U	370 U	420 U	28 J	80 J	74 J	400 U
bis(2-Ethylhexyl)phthalate	ug/Kg	1500	1300	540 U	670 U	430 UJ	280 J	600	320 J
Di-n-octylphthalate	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 J	390 U	400 U
Benzo(b)fluoranthene	ug/Kg	390 U	390 U	370 U	420 U	20 J	66 J	62 J	400 U
Benzo(k)fluoranthene	ug/Kg	390 U	390 U	370 U	420 U	20 J	70 J	65 J	400 U
Benzo(a)pyrene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	48 J	48 J	400 U
Indeno(1,2,3-cd)pyrene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	34 J	36 J	400 U
Dibenz(a,h)anthracene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	390 U	400 U
Benzo(g,h,i)perylene	ug/Kg	390 U	390 U	370 U	420 U	430 UJ	430 UJ	37 J	400 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH (FT.) DATE ES ID LAB ID UNITS	SOIL B-39 4-6 12/15/92 B39-3 176447	SOIL B-39 4-6 12/15/92 B39-3RE 176447R1	SOIL B-39 8-6.5 12/15/92 B39-4 176448	SOIL BK-1 0-2 12/16/92 BK-1 176440	SOIL BK-2 0-2 12/16/92 BK-2 176441	SOIL BK-2RE 0-2 12/16/92 BK-2RE 176441R1	SOIL B-40 0-2 12/08/92 B40-1 175786	SOIL B-40 2-3.4 12/08/92 B40-2 175787
Pesticides/PCBs									
alpha-BHC	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
beta-BHC	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
delta-BHC	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
gamma-BHC (Lindane)	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Heptachlor	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Aldrin	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Heptachlor epoxide	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Endosulfan I	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Dieldrin	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
4,4'-DDE	ug/Kg	3.9 U		3.7 U	4.3 U	2.2 J		3.9 U	3.9 U
Endrin	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
Endosulfan II	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
4,4'-DDD	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
Endosulfan sulfate	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
4,4'-DDT	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
Methoxychlor	ug/Kg	20 U		19 U	22 U	22 U		20 U	20 U
Endrin ketone	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
Endrin aldehyde	ug/Kg	3.9 U		3.7 U	4.3 U	4.3 U		3.9 U	3.9 U
alpha-Chlordane	ug/Kg	2 U		1.9 U	2.2 U	1.3 J		2 U	2 U
gamma-Chlordane	ug/Kg	2 U		1.9 U	2.2 U	2.2 U		2 U	2 U
Toxaphene	ug/Kg	200 U		190 U	220 U	220 U		200 U	200 U
Aroclor-1016	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1221	ug/Kg	79 U		76 U	88 U	88 U		79 U	79 U
Aroclor-1232	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1242	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1248	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1254	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Aroclor-1260	ug/Kg	39 U		37 U	43 U	43 U		39 U	39 U
Herbicides									
2,4-D	ug/Kg	58 U		57 U	64 U	65 U		59 U	60 U
2,4-DB	ug/Kg	58 U		57 U	64 U	65 U		59 U	60 U
2,4,5-T	ug/Kg	5.8 U		5.7 U	6.4 U	6.5 U		5.9 U	6 U
2,4,5-TP (Silvex)	ug/Kg	5.8 U		5.7 U	6.4 U	6.5 U		5.9 U	6 U
Dalapon	ug/Kg	140 U		140 U	150 U	160 U		140 U	144 U
Dicamba	ug/Kg	5.8 U		5.7 U	6.4 U	6.5 U		5.9 U	6 U
Dichloroprop	ug/Kg	58 U		57 U	64 U	65 U		59 U	60 U
Dinoseb	ug/Kg	29 U		28 U	32 U	33 U		30 U	30 U
MCPA	ug/Kg	5800 U		5700 U	6400 U	6500 U		5900 U	6000 U
MCPP	ug/Kg	5800 U		5700 U	6400 U	6500 U		5900 U	6000 U
Metals									
Aluminum	mg/Kg	11000		10800	19400	14400		16900	14900
Antimony	mg/Kg	6.5 UJ		7.8 UJ	7.9 U	7.2 U		9.9 UJ	10.5 UJ
Arsenic	mg/Kg	2.2		3.4	3	2.7		4.6	5
Barium	mg/Kg	54.1 J		59 J	159	106		73.1	70.3
Beryllium	mg/Kg	0.47 J		0.45 J	1.1	0.81		0.7 J	0.69 J
Cadmium	mg/Kg	0.37 U		0.45 U	0.45 U	0.41 U		0.57 U	0.6 U
Calcium	mg/Kg	102000		54700	4590	22500		3500	56900
Chromium	mg/Kg	16.6 J		17.9 J	30	22.3		27	24.2
Cobalt	mg/Kg	9.2		10.2	14.4	12.3		11.6	12.8
Copper	mg/Kg	20.9		23.2	26.9	18.8		16.9	25.4
Iron	mg/Kg	20800		21100	38600	26600		32700	29200
Lead	mg/Kg	19		17	15.8	18.9		17.3	12.1
Magnesium	mg/Kg	8430		17500	5980	7910		5570	8690
Manganese	mg/Kg	488		758	2380	800		723	623
Mercury	mg/Kg	0.08 R		0.08 R	0.13 J	0.11		0.09 J	0.03 J
Nickel	mg/Kg	27.4		27.2	47.7	31		32.9	38.8
Potassium	mg/Kg	1140		1200	1720	1210		1060	1420
Selenium	mg/Kg	0.26 J		0.5 J	0.73 J	0.94		0.45 J	0.56 J
Silver	mg/Kg	0.38 U		0.46 U	0.47 U	0.43 U		0.59 U	0.62 U
Sodium	mg/Kg	407 J		342 J	49.1 J	61.1 J		54.8 U	110 J
Thallium	mg/Kg	1.7 U		0.34 U	0.42 U	0.38 U		0.5 U	0.4 U
Vanadium	mg/Kg	15.9		17.2	28	22.4		24.3	21.4
Zinc	mg/Kg	108 J		434	98.6	63.7		83.1	99.8
Cyanide	mg/Kg	0.68 U		0.65 U	0.57 U	0.61 U		0.57 U	0.58 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-40	B-40	B-41	B-41	B-41	B-41	B-41	B-41
	DEPTH(FT.)	6-8	8-10	0-2	0-2	2-4	2-4	5.5-6.5	5.5-6.5
	DATE	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92
	ES ID	B40-4	B40-5	B41-1	B41-1RE	B41-2	B41-2RE	B41-3	B41-3RE
	LAB ID	175789	175790	176001	176001R1	176002	176002R1	176003	176003R1
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Bromomethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Vinyl Chloride	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Chloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Methylene Chloride	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Acetone	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Carbon Disulfide	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1-Dichloroethene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1-Dichloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,2-Dichloroethene (total)	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Chloroform	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,2-Dichloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
2-Butanone	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1,1-Trichloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Carbon Tetrachloride	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,2-Dichloropropane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
cis-1,3-Dichloropropene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Trichloroethene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Dibromochloromethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1,2-Trichloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Benzene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
trans-1,3-Dichloropropene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Bromoform	ug/Kg	11 U	12 U	11 U		12 U		11 U	
4-Methyl-2-Pentanone	ug/Kg	11 U	12 U	11 U		12 U		11 U	
2-Hexanone	ug/Kg	11 U	12 U	11 J		12 U		11 U	
Tetrachloroethene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
1,1,2,2-Tetrachloroethane	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Toluene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Chlorobenzene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Ethylbenzene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Styrene	ug/Kg	11 U	12 U	11 U		12 U		11 U	
Xylene (total)	ug/Kg	11 U	12 U	11 U		12 U		11 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-40	B-40	B-41	B-41	B-41	B-41	B-41	B-41
	DEPTH(FT.)	6-8	8-10	0-2	0-2	2-4	2-4	5.5-6.5	5.5-6.5
	DATE	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92
	ES ID	B40-4	B40-5	B41-1	B41-1RE	B41-2	B41-2RE	B41-3	B41-3RE
	LAB ID	175789	175790	176001	176001R1	176002	176002R1	176003	176003R1
COMPOUND	UNITS								
Semivolatiles									
Phenol	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
bis(2-Chloroethyl) ether	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Chlorophenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
1,3-Dichlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
1,4-Dichlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Methylphenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
4-Methylphenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
N-Nitroso-di-n-propylamine	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Hexachloroethane	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Nitrobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Isophorone	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Nitrophenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,4-Dimethylphenol	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,4-Dichlorophenol	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
1,2,4-Trichlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Naphthalene	ug/Kg	360 U	380 U	380 UJ	39 J	400 UJ	400 UJ	390 UJ	400 UJ
4-Chloroaniline	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Hexachlorobutadiene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
4-Chloro-3-methylphenol	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Methylnaphthalene	ug/Kg	360 U	380 U	380 UJ	21 J	400 UJ	400 UJ	390 UJ	400 UJ
Hexachlorocyclopentadiene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,4,6-Trichlorophenol	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2,4,5-Trichlorophenol	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
2-Chloronaphthalene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
2-Nitroaniline	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
Dimethylphthalate	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Acenaphthylene	ug/Kg	360 U	380 U	380 UJ	81 J	400 UJ	400 UJ	390 UJ	400 UJ
2,6-Dinitrotoluene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
3-Nitroaniline	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
Acenaphthene	ug/Kg	360 U	380 U	380 UJ	72 J	400 UJ	400 UJ	390 UJ	400 UJ
2,4-Dinitrophenol	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
4-Nitrophenol	ug/Kg	930 U	910 U	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ	860 UJ
Dibenzofuran	ug/Kg	360 U	380 U	380 UJ	26 J	400 UJ	400 UJ	390 UJ	400 UJ
2,4-Dinitrotoluene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Diethylphthalate	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
4-Chlorophenyl-phenylether	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Fluorene	ug/Kg	360 U	380 U	380 UJ	54 J	400 UJ	400 UJ	390 UJ	400 UJ
4-Nitroaniline	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
N-Nitrosodiphenylamine	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
4-Bromophenyl-phenylether	ug/Kg	380 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Hexachlorobenzene	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Pentachlorophenol	ug/Kg	890 U	930 U	910 UJ	920 UJ	960 UJ	960 UJ	950 UJ	960 UJ
Phenanthrene	ug/Kg	360 U	380 U	130 J	760 J	40 J	60 J	390 UJ	16 J
Anthracene	ug/Kg	360 U	380 U	17 J	150 J	400 UJ	400 UJ	390 UJ	400 UJ
Carbazole	ug/Kg	360 U	380 U	110 J	490 J	400 UJ	400 UJ	390 UJ	400 UJ
Di-n-butylphthalate	ug/Kg	360 J	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Fluoranthene	ug/Kg	360 U	380 U	280 J	1300 J	78 J	120 J	390 UJ	30 J
Pyrene	ug/Kg	360 U	380 U	220 J	1300 J	63 J	94 J	390 UJ	400 UJ
Butylbenzylphthalate	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
3,3'-Dichlorobenzidine	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Benzo(a)anthracene	ug/Kg	360 U	380 U	93 J	590 J	27 J	45 J	390 UJ	400 UJ
Chrysene	ug/Kg	360 U	380 U	150 J	850 J	45 J	65 J	390 UJ	18 J
bis(2-Ethylhexyl)phthalate	ug/Kg	280 J	380 U	380 UJ	380 UJ	400 UJ	400 UJ	690 J	1100 J
Di-n-octylphthalate	ug/Kg	360 U	380 U	380 UJ	380 UJ	400 UJ	400 UJ	390 UJ	400 UJ
Benzo(b)fluoranthene	ug/Kg	360 U	380 U	160 J	1100 J	43 J	63 J	390 UJ	400 UJ
Benzo(k)fluoranthene	ug/Kg	360 U	380 U	150 J	670 J	45 J	65 J	390 UJ	400 UJ
Benzo(a)pyrene	ug/Kg	360 U	380 U	48 J	650 J	15 J	46 J	390 UJ	400 UJ
Indeno(1,2,3-cd)pyrene	ug/Kg	360 U	380 U	93 J	290 J	30 J	45 J	390 UJ	400 UJ
Dibenz(a,h)anthracene	ug/Kg	360 U	380 U	380 UJ	120 J	400 UJ	400 UJ	390 UJ	400 UJ
Benzo(g,h,i)perylene	ug/Kg	360 U	380 U	74 J	280 J	26 J	400 UJ	390 UJ	400 UJ

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-40	B-40	B-41	B-41	B-41	B-41	B-41	B-41
	DEPTH(FT.)	6-8	8-10	0-2	0-2	2-4	2-4	5.5-6.5	5.5-6.5
	DATE	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92	12/08/92
	ES ID	B40-4	B40-5	B41-1	B41-1RE	B41-2	B41-2RE	B41-3	B41-3RE
	LAB ID	175789	175790	176001	176001R1	176002	176002R1	176003	176003R1
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
beta-BHC	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
delta-BHC	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
gamma-BHC (Lindane)	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Heptachlor	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Aldrin	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Heptachlor epoxide	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Endosulfan I	ug/Kg	1.9 U	2 U	19 U		20 U		10 U	
Dieldrin	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
4,4'-DDE	ug/Kg	3.7 U	3.8 U	91 J		66		74	
Endrin	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
Endosulfan II	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
4,4'-DDD	ug/Kg	3.7 U	3.8 U	260 J		350		170	
Endosulfan sulfate	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
4,4'-DDT	ug/Kg	3.7 U	3.8 U	39 J		27 J		29	
Methoxychlor	ug/Kg	19 U	20 U	190 U		200 U		100 U	
Endrin ketone	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
Endrin aldehyde	ug/Kg	3.7 U	3.8 U	37 U		39 U		20 U	
alpha-Chlordane	ug/Kg	1.9 U	2 U	12 J		9.7 J		14 J	
gamma-Chlordane	ug/Kg	1.9 U	2 U	11 J		11 J		15	
Toxaphene	ug/Kg	190 U	200 U	1900 U		2000 U		1000 U	
Aroclor-1016	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1221	ug/Kg	74 U	78 U	760 U		790 U		400 U	
Aroclor-1232	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1242	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1248	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1254	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Aroclor-1260	ug/Kg	37 U	38 U	370 U		390 U		200 U	
Herbicides									
2,4-D	ug/Kg	56 U	59 U	56 U		60 U		60 U	
2,4-DB	ug/Kg	56 U	59 U	56 U		60 U		60 U	
2,4,5-T	ug/Kg	5.6 U	5.9 U	5.6 U		6 U		6 U	
2,4,5-TP (Silvex)	ug/Kg	5.6 U	5.9 U	5.6 U		6 U		6 U	
Dalapon	ug/Kg	130 U	140 U	140 U		140 U		140 U	
Dicamba	ug/Kg	5.6 U	5.9 U	5.6 U		6 U		6 U	
Dichloroprop	ug/Kg	56 U	59 U	56 U		60 U		60 U	
Dinoseb	ug/Kg	28 U	29 U	28 U		30 U		30 U	
MCPA	ug/Kg	5600 U	5900 U	5600 U		6000 U		6000 U	
MCPP	ug/Kg	5600 U	5900 U	5600 U		6000 U		6000 U	
Metals									
Aluminum	mg/Kg	11600	9270	10100		12000		18700	
Antimony	mg/Kg	11.8 UJ	12.2 UJ	9.9 UJ		8.8 UJ		6.7 UJ	
Arsenic	mg/Kg	4.1	4.5	4.9		3.2		4.4	
Barium	mg/Kg	82.7	43.3 J	88.9		87.8		105	
Beryllium	mg/Kg	0.51 J	0.49 J	0.57 J		0.55 J		0.84	
Cadmium	mg/Kg	0.87 U	0.7 U	0.7 J		0.5 U		0.38 U	
Calcium	mg/Kg	50500	57300	89100		42500		7920	
Chromium	mg/Kg	19.9	16.3	19		19.4		30.3	
Cobalt	mg/Kg	10.4 J	8.5 J	9.7		8.2		17	
Copper	mg/Kg	25.4	25.1	29.2		32.2		25.1	
Iron	mg/Kg	25200	22300	20000		20000		40900	
Lead	mg/Kg	14.2	8.9	81.4		52.5		26.9	
Magnesium	mg/Kg	9810	6790	16200		8600		7250	
Manganese	mg/Kg	523	590	462		299		528	
Mercury	mg/Kg	0.03 U	0.03 J	0.04 J		0.06 J		0.06 J	
Nickel	mg/Kg	34.5	26.2	29		28.5		45.9	
Potassium	mg/Kg	1290	941 J	1200		1320		1140	
Selenium	mg/Kg	0.67 J	0.45 J	0.58 J		0.82		0.54 J	
Silver	mg/Kg	0.69 U	0.72 U	0.59 U		0.52 U		0.4 U	
Sodium	mg/Kg	78.5 J	67.2 U	108 J		91.3 J		40.3 J	
Thallium	mg/Kg	0.45 U	0.38 U	0.33 U		0.36 U		0.31 U	
Vanadium	mg/Kg	17.3	13.8	27		23.6		26.4	
Zinc	mg/Kg	76.9	98.3	139		223		123	
Cyanide	mg/Kg	0.53 U	0.47 U	0.89 U		0.7 U		0.66 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-41	B-41	B-42	B-42	B-42	B-42	B-42	B-42
	DEPTH(FT.)	6.5-8	6.5-8	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/08/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B41-4	B41-4RE	B42-1	B42-1RE	B42-2	B42-2RE	B42-3	B42-3RE
	LAB ID	176004	176004R1	176005	176005R1	176006	176006R1	176007	176007R1
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Bromomethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Vinyl Chloride	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Chloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Methylene Chloride	ug/Kg	11 U		5 J	11 UJ	12 UJ	12 UJ	15 U	
Acetone	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Carbon Disulfide	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1-Dichloroethene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1-Dichloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,2-Dichloroethene (total)	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Chloroform	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,2-Dichloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
2-Butanone	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1,1-Trichloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Carbon Tetrachloride	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,2-Dichloropropane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
cis-1,3-Dichloropropene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Trichloroethene	ug/Kg	11 U		90 J	98 J	170 J	230 J	38	
Dibromochloromethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1,2-Trichloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Benzene	ug/Kg	11 U		11 UJ	11 UJ	2 J	3 J	15 U	
trans-1,3-Dichloropropene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Bromoform	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
4-Methyl-2-Pentanone	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
2-Hexanone	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Tetrachloroethene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
1,1,2,2-Tetrachloroethane	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Toluene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Chlorobenzene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Ethylbenzene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Styrene	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	
Xylene (total)	ug/Kg	11 U		11 UJ	11 UJ	12 UJ	12 UJ	15 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-41	B-41	B-42	B-42	B-42	B-42	B-42	B-42
	DEPTH(FT.)	6.5-8	6.5-8	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/08/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B41-4	B41-4RE	B42-1	B42-1RE	B42-2	B42-2RE	B42-3	B42-3RE
	LAB ID	176004	176004R1	176005	176005R1	176006	176006R1	176007	176007R1
COMPOUND	UNITS								
Semivolatiles									
Phenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
bis(2-Chloroethyl) ether	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Chlorophenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
1,3-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
1,4-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Methylphenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
4-Methylphenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
N-Nitroso-di-n-propylamine	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Hexachloroethane	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Nitrobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Isophorone	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Nitrophenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,4-Dimethylphenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,4-Dichlorophenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
1,2,4-Trichlorobenzene	ug/Kg	360 UJ	380 UJ	360 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Naphthalene	ug/Kg	360 UJ	360 UJ	360 UJ	44 J	120 J	150 J	410 UJ	410 UJ
4-Chloroaniline	ug/Kg	360 UJ	360 UJ	380 UJ	360 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Hexachlorobutadiene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
4-Chloro-3-methylphenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Methylnaphthalene	ug/Kg	360 UJ	360 UJ	14 J	15 J	40 J	71 J	410 UJ	410 UJ
Hexachlorocyclopentadiene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,4,6-Trichlorophenol	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2,4,5-Trichlorophenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
2-Chloronaphthalene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
2-Nitroaniline	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
Dimethylphthalate	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Acenaphthylene	ug/Kg	360 UJ	360 UJ	41 J	44 J	390 UJ	23 J	410 UJ	410 UJ
2,6-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
3-Nitroaniline	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
Acenaphthene	ug/Kg	360 UJ	380 UJ	54 J	48 J	240 J	390 J	410 UJ	410 UJ
2,4-Dinitrophenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
4-Nitrophenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
Dibenzofuran	ug/Kg	360 UJ	360 UJ	32 J	25 J	110 J	180 J	410 UJ	410 UJ
2,4-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Diethylphthalate	ug/Kg	380 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
4-Chlorophenyl-phenylether	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Fluorene	ug/Kg	360 UJ	360 UJ	49 J	39 J	200 J	320 J	410 UJ	410 UJ
4-Nitroaniline	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
N-Nitrosodiphenylamine	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
4-Bromophenyl-phenylether	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Hexachlorobenzene	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Pentachlorophenol	ug/Kg	860 UJ	870 UJ	920 UJ	920 UJ	950 UJ	950 UJ	990 UJ	990 UJ
Phenanthrene	ug/Kg	360 UJ	360 UJ	570 J	530 J	1900 J	2200 J	22 J	76 J
Anthracene	ug/Kg	360 UJ	360 UJ	120 J	130 J	310 J	560 J	410 UJ	19 J
Carbazole	ug/Kg	360 UJ	360 UJ	370 J	280 J	1000 J	910 J	410 UJ	410 UJ
Di-n-butylphthalate	ug/Kg	110 J	430 J	1100 J	820 J	390 UJ	390 UJ	410 UJ	410 UJ
Fluoranthene	ug/Kg	380 UJ	360 UJ	1100 J	920 J	2700 J	2800 J	32 J	100 J
Pyrene	ug/Kg	360 UJ	360 UJ	810 J	890 J	2100 J	2400 J	35 J	77 J
Butylbenzylphthalate	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
3,3'-Dichlorobenzidine	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Benzo(a)anthracene	ug/Kg	360 UJ	360 UJ	490 J	560 J	1100 J	1500 J	14 J	39 J
Chrysene	ug/Kg	360 UJ	360 UJ	600 J	710 J	1300 J	1600 J	22 J	49 J
bis(2-Ethylhexyl)phthalate	ug/Kg	380 J	1100 J	2200 J	1100 J	800 J	550 J	260 UJ	370 J
Di-n-octylphthalate	ug/Kg	360 UJ	360 UJ	380 UJ	380 UJ	390 UJ	390 UJ	410 UJ	410 UJ
Benzo(b)fluoranthene	ug/Kg	360 UJ	360 UJ	770 J	800 J	1400 J	1700 J	27 J	59 J
Benzo(k)fluoranthene	ug/Kg	360 UJ	360 UJ	870 J	730 J	1000 J	1200 J	27 J	50 J
Benzo(a)pyrene	ug/Kg	360 UJ	360 UJ	580 J	660 J	780 J	1300 J	410 UJ	38 J
Indeno(1,2,3-cd)pyrene	ug/Kg	360 UJ	360 UJ	370 J	460 J	510 J	810 J	21 J	39 J
Dibenz(a,h)anthracene	ug/Kg	360 UJ	360 UJ	130 J	170 J	200 J	360 J	410 UJ	410 UJ
Benzo(g,h,i)perylene	ug/Kg	360 UJ	360 UJ	290 J	300 J	320 J	620 J	60 J	46 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-41	B-41	B-42	B-42	B-42	B-42	B-42	B-42
	DEPTH(FT.)	6.5-8	6.5-8	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/08/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B41-4	B41-4RE	B42-1	B42-1RE	B42-2	B42-2RE	B42-3	B42-3RE
	LAB ID	176004	176004R1	176005	176005R1	176006	176006R1	176007	176007R1
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
beta-BHC	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
delta-BHC	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
gamma-BHC (Lindane)	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Heptachlor	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Aldrin	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Heptachlor epoxide	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Endosulfan I	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Dieldrin	ug/Kg	3.6 U		19 U		20 U		4.1 U	
4,4'-DDE	ug/Kg	3.6 U		90 J		290		14	
Endrin	ug/Kg	3.6 U		19 U		20 U		4.1 U	
Endosulfan II	ug/Kg	3.6 U		19 U		20 U		4.1 U	
4,4'-DDD	ug/Kg	3.6 U		8.4 J		15 J		1.3 J	
Endosulfan sulfate	ug/Kg	3.6 U		19 U		20 U		4.1 U	
4,4'-DDT	ug/Kg	3.6 U		260 J		240		30	
Methoxychlor	ug/Kg	18 U		98 U		100 U		21 U	
Endrin ketone	ug/Kg	3.6 U		19 U		20 U		4.1 U	
Endrin aldehyde	ug/Kg	3.6 U		19 U		20 U		4.1 U	
alpha-Chlordane	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
gamma-Chlordane	ug/Kg	1.8 U		9.8 U		10 U		2.1 U	
Toxaphene	ug/Kg	180 U		980 U		1000 U		210 U	
Aroclor-1016	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1221	ug/Kg	72 U		390 U		400 U		84 U	
Aroclor-1232	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1242	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1248	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1254	ug/Kg	36 U		190 U		200 U		41 U	
Aroclor-1260	ug/Kg	36 U		190 U		200 U		41 U	
Herbicides									
2,4-D	ug/Kg	54 U	53 U	58 U		60 U		62 U	
2,4-DB	ug/Kg	54 U	53 U	58 U		60 U		62 U	
2,4,5-T	ug/Kg	5.4 U	5.3 U	5.8 U		6 U		6.2 U	
2,4,5-TP (Silvex)	ug/Kg	5.4 U	5.3 U	5.8 U		6 U		6.2 U	
Dalapon	ug/Kg	130 U	130 U	140 U		140 U		150 U	
Dicamba	ug/Kg	5.4 U	5.3 U	5.8 U		6 U		6.2 U	
Dichloroprop	ug/Kg	54 U	53 U	58 U		60 U		62 U	
Dinoseb	ug/Kg	27 U	27 U	29 U		30 U		31 U	
MCPA	ug/Kg	5400 U	5300 U	5800 U		6000 U		6200 U	
MCPP	ug/Kg	5400 U	5300 U	5800 U		6000 U		6200 U	
Metals									
Aluminum	mg/Kg	7460		12500		12500		20600	
Antimony	mg/Kg	9.8 UJ		15.2 J		8.6 UJ		8.9 UJ	
Arsenic	mg/Kg	2.4		8.7		10.5		7.1	
Barium	mg/Kg	20.4 J		168		218		104	
Beryllium	mg/Kg	0.29 J		0.45 J		0.45 J		1.1	
Cadmium	mg/Kg	0.56 U		2.8		3.7		0.51 U	
Calcium	mg/Kg	12100		31200		32300		6320	
Chromium	mg/Kg	12.2		48.6		52.4		41.5	
Cobalt	mg/Kg	6 J		12.8		25.1		15.2	
Copper	mg/Kg	5.4 R		177		311		51.6	
Iron	mg/Kg	15300		43800		49300		40900	
Lead	mg/Kg	4.2		1170		672		158	
Magnesium	mg/Kg	3300		8470		6760		6500	
Manganese	mg/Kg	267 R		630		589		641	
Mercury	mg/Kg	0.06		1.2		0.89		0.38	
Nickel	mg/Kg	18		66		2520		76.8	
Potassium	mg/Kg	405 J		1420		1730		1950	
Selenium	mg/Kg	0.38 J		1 J		2.1		0.88	
Silver	mg/Kg	0.58 U		10.5		2		0.53 U	
Sodium	mg/Kg	54.1 U		309 J		375 J		87.6 J	
Thallium	mg/Kg	0.38 U		0.59 U		0.51 U		0.4 U	
Vanadium	mg/Kg	8.3 J		27.1		27.7		30.3	
Zinc	mg/Kg	40.5		849		907		171	
Cyanide	mg/Kg	0.62 U		0.52 U		0.51 U		0.58 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-42	B-42	B-43	B-43	B-43	B-43	B-43	B-43
	DEPTH(FT.)	6-7.2	6-7.2	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B42-4	B42-4RE	B43-1	B43-1RE	B43-2	B43-2RE	B43-3	B43-3RE
	LAB ID	176008	176008R2	176009	176009R1	176010	176010R1	176011	176011R1
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Bromomethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Vinyl Chloride	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Chloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Methylene Chloride	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Acetone	ug/Kg	11 U		11 U		13 U		36 UJ	48 UJ
Carbon Disulfide	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,1-Dichloroethene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,1-Dichloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,2-Dichloroethene (total)	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Chloroform	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,2-Dichloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
2-Butanone	ug/Kg	11 U		11 U		13 U		7 J	7 J
1,1,1-Trichloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Carbon Tetrachloride	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,2-Dichloropropane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
cis-1,3-Dichloropropene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Trichloroethene	ug/Kg	2 J		8 J		8 J		11 J	9 J
Dibromochloromethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,1,2-Trichloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Benzene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
trans-1,3-Dichloropropene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Bromoform	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
4-Methyl-2-Pentanone	ug/Kg	11 U		5 J		13 U		12 UJ	12 UJ
2-Hexanone	ug/Kg	11 U		9 J		13 U		12 UJ	12 UJ
Tetrachloroethene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
1,1,2,2-Tetrachloroethane	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Toluene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Chlorobenzene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Ethylbenzene	ug/Kg	11 U		3 J		13 U		12 UJ	12 UJ
Styrene	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ
Xylene (total)	ug/Kg	11 U		11 U		13 U		12 UJ	12 UJ

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-42	B-42	B-43	B-43	B-43	B-43	B-43	B-43
	DEPTH (FT.)	6-7.2	6-7.2	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B42-4	B42-4RE	B43-1	B43-1RE	B43-2	B43-2RE	B43-3	B43-3RE
	LAB ID	176008	176008R2	176009	176009R1	176010	176010R1	176011	176011R1
COMPOUND	UNITS								
Semivolatiles									
Phenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 J	2800 UJ	1000 UJ	1000 UJ
bis(2-Chloroethyl) ether	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Chlorophenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
1,3-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
1,4-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Methylphenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
4-Methylphenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
N-Nitroso-di-n-propylamine	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Hexachloroethane	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Nitrobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Isophorone	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Nitrophenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,4-Dimethylphenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,4-Dichlorophenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
1,2,4-Trichlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Naphthalene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	500 J	2800 UJ	1000 UJ	1000 UJ
4-Chloroaniline	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Hexachlorobutadiene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
4-Chloro-3-methylphenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Methylnaphthalene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	350 J	2800 UJ	1000 UJ	1000 UJ
Hexachlorocyclopentadiene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,4,6-Trichlorophenol	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,4,5-Trichlorophenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
2-Chloronaphthalene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2-Nitroaniline	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
Dimethylphthalate	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Acenaphthylene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
2,6-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
3-Nitroaniline	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
Acenaphthene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 J	250 J	66 J	1000 UJ
2,4-Dinitrophenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
4-Nitrophenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
Dibenzofuran	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	990 J	120 J	1000 UJ	1000 UJ
2,4-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Diethylphthalate	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	1300 J	2800 UJ	1000 UJ	1000 UJ
4-Chlorophenyl-phenylether	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Fluorene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	1900 J	230 J	53 J	1000 UJ
4-Nitroaniline	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
N-Nitrosodiphenylamine	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
4-Bromophenyl-phenylether	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Hexachlorobenzene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Pentachlorophenol	ug/Kg	870 UJ	880 UJ	6200 UJ	62000 UJ	5200 UJ	6700 UJ	2500 UJ	2500 UJ
Phenanthrene	ug/Kg	360 UJ	360 UJ	160 J	820 J	15000 J	2600 J	320 J	240 J
Anthracene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2900 J	880 J	95 J	79 J
Carbazole	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	18000 J	1300 J	430 J	180 J
Di-n-butylphthalate	ug/Kg	390 J	90 J	82 J	25000 UJ	200 J	320 J	1000 UJ	1000 UJ
Fluoranthene	ug/Kg	360 UJ	18 J	240 J	1300 J	15000 J	4300 J	410 J	460 J
Pyrene	ug/Kg	360 UJ	13 J	270 J	1100 J	14000 J	3600 J	500 J	340 J
Butylbenzylphthalate	ug/Kg	14 J	14 J	2500 UJ	25000 UJ	300 J	300 J	1000 UJ	1000 UJ
3,3'-Dichlorobenzidine	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Benzo(a)anthracene	ug/Kg	360 UJ	360 UJ	140 J	25000 UJ	8000 J	2200 J	250 J	200 J
Chrysene	ug/Kg	360 UJ	360 UJ	170 J	25000 UJ	8600 J	2400 J	300 J	230 J
bis(2-Ethylhexyl)phthalate	ug/Kg	1500	1200 J	33000 J	230000 J	13000 J	21000 J	3000 J	5600 J
Di-n-octylphthalate	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 UJ	2800 UJ	1000 UJ	1000 UJ
Benzo(b)fluoranthene	ug/Kg	360 UJ	360 UJ	170 J	25000 UJ	7200 J	1900 J	260 J	250 J
Benzo(k)fluoranthene	ug/Kg	360 UJ	360 UJ	180 J	25000 UJ	5900 J	1600 J	290 J	200 J
Benzo(a)pyrene	ug/Kg	360 UJ	360 UJ	94 J	25000 UJ	6400 J	1800 J	210 J	210 J
Indeno(1,2,3-cd)pyrene	ug/Kg	360 UJ	360 UJ	120 J	25000 UJ	4700 J	1400 J	200 J	150 J
Dibenz(a,h)anthracene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2100 J	480 J	1000 UJ	1000 UJ
Benzo(g,h,i)perylene	ug/Kg	360 UJ	360 UJ	2500 UJ	25000 UJ	2300 J	950 J	260 J	140 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-42	B-42	B-43	B-43	B-43	B-43	B-43	B-43
	DEPTH(FT.)	6-7.2	6-7.2	0-2	0-2	2-4	2-4	4-6	4-6
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	ES ID	B42-4	B42-4RE	B43-1	B43-1RE	B43-2	B43-2RE	B43-3	B43-3RE
	LAB ID	176008	176008R2	176009	176009R1	176010	176010R1	176011	176011R1
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
beta-BHC	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
delta-BHC	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
gamma-BHC (Lindane)	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Heptachlor	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Aldrin	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Heptachlor epoxide	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Endosulfan I	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Dieldrin	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
4,4'-DDE	ug/Kg	3.6 UJ		17 J		64		22	
Endrin	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
Endosulfan II	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
4,4'-DDD	ug/Kg	3.6 UJ		18 J		88		24	
Endosulfan sulfate	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
4,4'-DDT	ug/Kg	3.6 UJ		5.5 J		22 J		6.7 J	
Methoxychlor	ug/Kg	19 UJ		20 UJ		110 U		21 U	
Endrin ketone	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
Endrin aldehyde	ug/Kg	3.6 UJ		3.9 UJ		21 U		4.2 U	
alpha-Chlordane	ug/Kg	1.9 UJ		1.3 UJ		6 J		5 J	
gamma-Chlordane	ug/Kg	1.9 UJ		2 UJ		11 U		2.1 U	
Toxaphene	ug/Kg	190 UJ		200 UJ		1100 U		210 U	
Aroclor-1016	ug/Kg	36 UJ		39 UJ		210 U		42 U	
Aroclor-1221	ug/Kg	73 UJ		79 UJ		430 U		85 U	
Aroclor-1232	ug/Kg	36 UJ		39 UJ		210 U		42 U	
Aroclor-1242	ug/Kg	36 UJ		45 J		260		96	
Aroclor-1248	ug/Kg	36 UJ		39 UJ		210 U		42 U	
Aroclor-1254	ug/Kg	36 UJ		43 J		180 J		66	
Aroclor-1260	ug/Kg	36 UJ		39 UJ		210 U		42 U	
Herbicides									
2,4-D	ug/Kg	55 U		58 U		64 U		63 U	
2,4-DB	ug/Kg	55 U		58 U		64 U		63 U	
2,4,5-T	ug/Kg	5.5 U		5.8 U		6.4 U		6.3 U	
2,4,5-TP (Silvex)	ug/Kg	5.5 U		5.8 U		6.4 U		6.3 U	
Dalapon	ug/Kg	130 U		140 U		150 U		150 U	
Dicamba	ug/Kg	5.5 U		5.8 U		6.4 U		6.3 U	
Dichloroprop	ug/Kg	55 U		56 U		64 U		63 U	
Dinoseb	ug/Kg	27 U		29 U		32 U		31 U	
MCPA	ug/Kg	5500 U		5800 U		6400 U		6300 U	
MCPP	ug/Kg	5500 U		5800 U		6400 U		6300 U	
Metals									
Aluminum	mg/Kg	12900		13600		11100		16300	
Antimony	mg/Kg	7.7 UJ		8.5 UJ		10.2 UJ		7.8 UJ	
Arsenic	mg/Kg	3.9		7.4		8.4		7.5	
Barium	mg/Kg	61		116		114		166	
Beryllium	mg/Kg	0.57 J		0.57 J		0.44 J		0.55 J	
Cadmium	mg/Kg	0.44 U		1.8		11.4		3.9	
Calcium	mg/Kg	65200		37700		21100		54400	
Chromium	mg/Kg	21.9		33.8		35.6		36.8	
Cobalt	mg/Kg	11.9		10.8		21.8		12.2	
Copper	mg/Kg	24.4		79.4		91.8		89.3	
Iron	mg/Kg	25100		35000		85100		67500	
Lead	mg/Kg	17.3		151		2610		233	
Magnesium	mg/Kg	9910		6630		4900		9960	
Manganese	mg/Kg	435		476		405		860	
Mercury	mg/Kg	0.04 J		0.42		0.38		0.38	
Nickel	mg/Kg	36.5		36.5		43.3		51	
Potassium	mg/Kg	1480		1250		1140		1420	
Selenium	mg/Kg	0.67 J		1 J		1.2		0.82 J	
Silver	mg/Kg	0.45 U		0.83 J		1.3 J		0.9 J	
Sodium	mg/Kg	119 J		98.5 J		118 J		216 J	
Thallium	mg/Kg	0.45 U		0.55 U		0.35 U		0.54 U	
Vanadium	mg/Kg	19.4		26.1		20.5		29.3	
Zinc	mg/Kg	61.5		745		1410		3100	
Cyanide	mg/Kg	0.55 U		0.59 U		0.62 U		0.95	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-43	B-43	B-44	B-44	B-44	B-44	B-44	B-44
	DEPTH(FT.)	8-10	8-10	8-8.2	8-8.2	0-2	0-2	2-4	2-4
	DATE	12/09/92	12/09/92	12/10/92	12/10/92	12/10/92	12/10/92	12/10/92	12/10/92
	ES ID	B43-4	B43-4RE	B44A-3	B44A-3RE	B44B-1	B44B-1RE	B44B-2	B44B-2RE
	LAB ID	176012	176012R1	176013	176013R1	176014	176014R1	176015	176015R1
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Bromomethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Vinyl Chloride	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Chloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Methylene Chloride	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Acetone	ug/Kg	24 UJ	14 UJ	93 J	19 J	12 U		12 U	12 U
Carbon Disulfide	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,1-Dichloroethene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,1-Dichloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,2-Dichloroethene (total)	ug/Kg	13 UJ	13 UJ	5 J	12 U	12 U		12 U	12 U
Chloroform	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,2-Dichloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
2-Butanone	ug/Kg	13 UJ	13 UJ	16 J	6 J	12 U		12 U	12 U
1,1,1-Trichloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Carbon Tetrachloride	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,2-Dichloropropane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
cis-1,3-Dichloropropene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Trichloroethene	ug/Kg	15 J	15 J	5 J	5 J	12 U		12 U	2 J
Dibromochloromethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,1,2-Trichloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Benzene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
trans-1,3-Dichloropropene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Bromoform	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
4-Methyl-2-Pentanone	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
2-Hexanone	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Tetrachloroethene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Toluene	ug/Kg	2 J	2 J	10 J	10 J	12 U		12 U	12 U
Chlorobenzene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Ethylbenzene	ug/Kg	13 UJ	13 UJ	48 J	44 J	12 U		12 U	12 U
Styrene	ug/Kg	13 UJ	13 UJ	12 UJ	12 U	12 U		12 U	12 U
Xylene (total)	ug/Kg	13 UJ	13 UJ	250 J	240 J	12 U		12 U	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-43	B-43	B-44	B-44	B-44	B-44	B-44	B-44
	DEPTH (FT.)	8-10	8-10	8-8.2	8-8.2	0-2	0-2	2-4	2-4
	DATE	12/09/92	12/09/92	12/10/92	12/10/92	12/10/92	12/10/92	12/10/92	12/10/92
	ES ID	B43-4	B43-4RE	B44A-3	B44A-3RE	B44B-1	B44B-1RE	B44B-2	B44B-2RE
	LAB ID	176012	176012R1	176013	176013R1	176014	176014R1	176015	176015R1
	UNITS								
Semivolatiles									
Phenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
bis(2-Chloroethyl) ether	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Chlorophenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
1,3-Dichlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
1,4-Dichlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Methylphenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,2'-oxybis (1-Chloropropane)	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
4-Methylphenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
N-Nitroso-di-n-propylamine	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Hexachloroethane	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Nitrobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Isophorone	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Nitrophenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,4-Dimethylphenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,4-Dichlorophenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
1,2,4-Trichlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Naphthalene	ug/Kg	1300 J	770 J	150 J	5100 UJ	410 UJ	420 UJ	400 UJ	100 J
4-Chloroaniline	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Hexachlorobutadiene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
4-Chloro-3-methylphenol	ug/Kg	5600 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Methylnaphthalene	ug/Kg	1600 J	1300 J	68 J	5100 UJ	410 UJ	420 UJ	400 UJ	100 J
Hexachlorocyclopentadiene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,4,6-Trichlorophenol	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2,4,5-Trichlorophenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
2-Chloronaphthalene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
2-Nitroaniline	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
Dimethylphthalate	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Acenaphthylene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	13 J	400 UJ	76 J
2,6-Dinitrotoluene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
3-Nitroaniline	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
Acenaphthene	ug/Kg	9500 J	14000 J	120 J	5100 UJ	18 J	420 UJ	400 UJ	280 J
2,4-Dinitrophenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
4-Nitrophenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
Dibenzofuran	ug/Kg	5600 J	7000 J	71 J	5100 UJ	410 UJ	420 UJ	400 UJ	120 J
2,4-Dinitrotoluene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Diethylphthalate	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
4-Chlorophenyl-phenylether	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Fluorene	ug/Kg	12000 J	11000 J	130 J	5100 UJ	17 J	420 UJ	400 UJ	250 J
4-Nitroaniline	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
N-Nitrosodiphenylamine	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
4-Bromophenyl-phenylether	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Hexachlorobenzene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Pentachlorophenol	ug/Kg	14000 UJ	17000 UJ	2500 UJ	12000 UJ	1000 UJ	1000 UJ	970 UJ	980 UJ
Phenanthrene	ug/Kg	43000 J	35000 J	610 J	850 J	140 J	93 J	87 J	2000 J
Anthracene	ug/Kg	13000 J	15000 J	140 J	260 J	32 J	22 J	14 J	550 J
Carbazole	ug/Kg	37000 J	14000 J	660 J	350 J	200 J	38 J	110 J	1400 J
Di-n-butylphthalate	ug/Kg	5800 UJ	7000 UJ	120 J	25000 J	40 J	420 UJ	18 J	400 UJ
Fluoranthene	ug/Kg	25000 J	29000 J	440 J	1000 J	200 J	220 J	120 J	2600 J
Pyrene	ug/Kg	24000 J	16000 J	510 J	820 J	180 J	160 J	140 J	2200 J
Butylbenzylphthalate	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
3,3'-Dichlorobenzidine	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Benzo(a)anthracene	ug/Kg	5600 J	4300 J	250 J	470 J	97 J	88 J	62 J	1400 J
Chrysene	ug/Kg	5700 J	4100 J	250 J	520 J	110 J	130 J	81 J	1500 J
bis(2-Ethylhexyl)phthalate	ug/Kg	5800 J	3500 J	610 J	25000 J	410 UJ	420 UJ	400 UJ	400 UJ
Di-n-octylphthalate	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	410 UJ	420 UJ	400 UJ	400 UJ
Benzo(b)fluoranthene	ug/Kg	2700 J	1400 J	210 J	5100 UJ	110 J	120 J	88 J	1500 J
Benzo(k)fluoranthene	ug/Kg	2600 J	1400 J	230 J	5100 UJ	99 J	100 J	81 J	1200 J
Benzo(a)pyrene	ug/Kg	2100 J	1200 J	170 J	350 J	97 J	82 J	51 J	1200 J
Indeno(1,2,3-cd)pyrene	ug/Kg	1000 J	450 J	150 J	250 J	79 J	70 J	62 J	610 J
Dibenz(a,h)anthracene	ug/Kg	5800 UJ	7000 UJ	1000 UJ	5100 UJ	23 J	420 UJ	400 UJ	270 J
Benzo(g,h,i)perylene	ug/Kg	590 J	7000 UJ	130 J	280 J	57 J	60 J	44 J	430 J

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-43	B-43	B-44	B-44	B-44	B-44	B-44	B-44
	DEPTH(FT.)	8-10	8-10	8-8.2	8-8.2	0-2	0-2	2-4	2-4
	DATE	12/09/92	12/09/92	12/10/92	12/10/92	12/10/92	12/10/92	12/10/92	12/10/92
	ES ID	B43-4	B43-4RE	B44A-3	B44A-3RE	B44B-1	B44B-1RE	B44B-2	B44B-2RE
	LAB ID	176012	176012R1	176013	176013R1	176014	176014R1	176015	176015R1
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
beta-BHC	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
delta-BHC	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
gamma-BHC (Lindane)	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Heptachlor	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Aldrin	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Heptachlor epoxide	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Endosulfan I	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Dieldrin	ug/Kg	4.1 U		8.1 U		4.1 U		4 U	
4,4'-DDE	ug/Kg	7.8 J		37		2.9 J		14	
Endrin	ug/Kg	8.2 J		8.1 U		2 J		4 U	
Endosulfan II	ug/Kg	4.1 U		8.1 U		4.1 U		4 U	
4,4'-DDD	ug/Kg	11 J		34		4.1 U		17	
Endosulfan sulfate	ug/Kg	2.8 J		8.1 U		4.1 U		4 U	
4,4'-DDT	ug/Kg	4.1 J		7.8 J		4.1 U		14	
Methoxychlor	ug/Kg	4.4 J		42 U		21 U		21 U	
Endrin ketone	ug/Kg	4.1 U		8.1 U		4.1 U		4 U	
Endrin aldehyde	ug/Kg	4.1 U		8.1 U		4.1 U		4 U	
alpha-Chlordane	ug/Kg	15 J		2 J		5 J		3.2 J	
gamma-Chlordane	ug/Kg	2.1 U		4.2 U		2.1 U		2.1 U	
Toxaphene	ug/Kg	210 U		420 U		210 U		210 U	
Aroclor-1016	ug/Kg	41 U		81 U		41 U		40 U	
Aroclor-1221	ug/Kg	83 U		160 U		84 U		82 U	
Aroclor-1232	ug/Kg	41 U		81 U		41 U		40 U	
Aroclor-1242	ug/Kg	68 J		50 J		41 U		40 U	
Aroclor-1248	ug/Kg	41 U		81 U		41 U		40 U	
Aroclor-1254	ug/Kg	90 J		89		41 U		40 U	
Aroclor-1260	ug/Kg	41 U		81 U		41 U		40 U	
Herbicides									
2,4-D	ug/Kg	62 U				62 U		61 U	
2,4-DB	ug/Kg	62 U				62 U		61 U	
2,4,5-T	ug/Kg	6.2 U				6.2 U		6.1 U	
2,4,5-TP (Silvex)	ug/Kg	6.2 U				8.2 U		6.1 U	
Dalapon	ug/Kg	150 U				150 U		150 U	
Dicamba	ug/Kg	6.2 U				6.2 U		6.1 U	
Dichloroprop	ug/Kg	62 U				62 U		61 U	
Dinoseb	ug/Kg	31 U				31 U		30 U	
MCPA	ug/Kg	6200 U				6200 U		6100 U	
MCPP	ug/Kg	6200 U				6200 U		6100 U	
Metals									
Aluminum	mg/Kg	13500		11600		15000		13400	
Antimony	mg/Kg	13.5 UJ		8.5 UJ		10.7 UJ		10.2 UJ	
Arsenic	mg/Kg	8.5		6.1		5.3		5.4	
Barium	mg/Kg	108		113		73.3		91	
Beryllium	mg/Kg	0.58 J		0.44 J		0.63 J		0.68 J	
Cadmium	mg/Kg	7.8		1.5		0.61 U		0.58 U	
Calcium	mg/Kg	38500		37500		9720		36300	
Chromium	mg/Kg	35.1		32		35.8		25.1	
Cobalt	mg/Kg	10.9 J		9		12.3		11.8	
Copper	mg/Kg	68.1		224		24.2		27.9	
Iron	mg/Kg	60800		46700		28700		26100	
Lead	mg/Kg	150		250		21.1		31.8	
Magnesium	mg/Kg	7940		9020		6190		9120	
Manganese	mg/Kg	792		585		634		583	
Mercury	mg/Kg	0.26		0.65		0.04 J		0.07	
Nickel	mg/Kg	42.8		35.3		46.6		37.7	
Potassium	mg/Kg	1440		1340		1220		982	
Selenium	mg/Kg	0.77 J		1.1 J		0.7 J		0.58 J	
Silver	mg/Kg	1.8 J		2.4		0.63 U		0.6 U	
Sodium	mg/Kg	127 J		1010		58.9 U		136 J	
Thallium	mg/Kg	0.65 U		0.59 U		0.44 U		0.37 U	
Vanadium	mg/Kg	26.1		18.2		22.9		25.1	
Zinc	mg/Kg	1710		525		75.7		102	
Cyanide	mg/Kg	0.77 U		0.74 U		0.75 U		0.74 U	

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-44	B-44	B-44	B-44	B-45	B-45	B-45	B-45
	DEPTH(FT.)	8-10	8-10	12-13.5	12-13.5	0-2	2-4	4-6	4-6
	DATE	12/10/92	12/10/92	12/10/92	12/10/92	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B44B-3	B44B-3RE	B44B-4	B44B-4RE	B45-1	B45-2	B45-3	B45-6
	LAB ID	176016	176016R1	176017	176017R1	183170	183171	183172	183173
COMPOUND	UNITS								DUP B45-3
VOCs									
Chloromethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Bromomethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Vinyl Chloride	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Chloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Methylene Chloride	ug/Kg	12 U		11 U		12 U	12 U	12 U	1 J
Acetone	ug/Kg	45		11 U		12 U	12 U	12 U	12 U
Carbon Disulfide	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,1-Dichloroethene	ug/Kg	12 U		14		12 U	12 U	12 U	12 U
1,1-Dichloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,2-Dichloroethene (total)	ug/Kg	2 J		38		3 J	3 J	210 J	4 J
Chloroform	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,2-Dichloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
2-Butanone	ug/Kg	6 J		11 U		12 U	12 U	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Carbon Tetrachloride	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,2-Dichloropropane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
cis-1,3-Dichloropropene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Trichloroethene	ug/Kg	12 U		11 U		12 U	12 U	71 J	12 U
Dibromochloromethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,1,2-Trichloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Benzene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
trans-1,3-Dichloropropene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Bromoform	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
4-Methyl-2-Pentanone	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
2-Hexanone	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Tetrachloroethene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Toluene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Chlorobenzene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Ethylbenzene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Styrene	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U
Xylene (total)	ug/Kg	12 U		11 U		12 U	12 U	12 U	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-44	B-44	B-44	B-44	B-45	B-45	B-45	B-45
	DEPTH(FT.)	8-10	8-10	12-13.5	12-13.5	0-2	2-4	4-6	4-6
	DATE	12/10/92	12/10/92	12/10/92	12/10/92	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B44B-3	B44B-3RE	B44B-4	B44B-4RE	B45-1	B45-2	B45-3	B45-6
	LAB ID	176018	176016R1	176017	176017R1	183170	183171	183172	183173
	UNITS								DUP B45-3
Semivolatiles									
Phenol	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
bis(2-Chloroethyl) ether	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Chlorophenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
1,3-Dichlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
1,4-Dichlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Methylphenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Methylphenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
N-Nitroso-di-n-propylamine	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Hexachloroethane	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Nitrobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Isophorone	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Nitrophenol	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4-Dimethylphenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4-Dichlorophenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
1,2,4-Trichlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Naphthalene	ug/Kg	67 J	86 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Chloroaniline	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Hexachlorobutadiene	ug/Kg	380 UJ	390 UJ	380 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Chloro-3-methylphenol	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Methylnaphthalene	ug/Kg	33 J	48 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Hexachlorocyclopentadiene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4,6-Trichlorophenol	ug/Kg	380 UJ	390 UJ	380 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4,5-Trichlorophenol	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
2-Chloronaphthalene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2-Nitroaniline	ug/Kg	930 UJ	950 UJ	660 UJ	670 UJ	1000 U	1000 U	930 U	970 U
Dimethylphthalate	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Acenaphthylene	ug/Kg	380 UJ	44 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,6-Dinitrotoluene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
3-Nitroaniline	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
Acenaphthene	ug/Kg	120 J	140 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4-Dinitrophenol	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
4-Nitrophenol	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
Dibenzofuran	ug/Kg	47 J	69 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
2,4-Dinitrotoluene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Diethylphthalate	ug/Kg	360 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Chlorophenyl-phenylether	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Fluorene	ug/Kg	89 J	130 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Nitroaniline	ug/Kg	930 UJ	950 UJ	660 UJ	870 UJ	1000 U	1000 U	930 U	970 U
4,6-Dinitro-2-methylphenol	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
N-Nitrosodiphenylamine	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
4-Bromophenyl-phenylether	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Hexachlorobenzene	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Pentachlorophenol	ug/Kg	930 UJ	950 UJ	860 UJ	870 UJ	1000 U	1000 U	930 U	970 U
Phenanthrene	ug/Kg	640 J	1000 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Anthracene	ug/Kg	140 J	260 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Carbazole	ug/Kg	780 J	540 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Di-n-butylphthalate	ug/Kg	72 J	390 UJ	73 J	360 UJ	430 U	25 J	140 J	42 J
Fluoranthene	ug/Kg	700 J	1200 J	360 UJ	13 J	430 U	410 U	380 U	400 U
Pyrene	ug/Kg	560 J	1200 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Butylbenzylphthalate	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
3,3'-Dichlorobenzidine	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzo(a)anthracene	ug/Kg	340 J	550 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Chrysene	ug/Kg	370 J	660 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
bis(2-Ethylhexyl)phthalate	ug/Kg	400 J	740 J	470 J	860 J	260 J	320 J	450	530
Di-n-octylphthalate	ug/Kg	380 UJ	390 UJ	360 UJ	360 UJ	430 U	410 U	47 J	400 U
Benzo(b)fluoranthene	ug/Kg	360 J	610 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzo(k)fluoranthene	ug/Kg	300 J	490 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzo(a)pyrene	ug/Kg	270 J	460 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Indeno(1,2,3-cd)pyrene	ug/Kg	170 J	150 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Dibenz(a,h)anthracene	ug/Kg	63 J	22 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U
Benzo(g,h,i)perylene	ug/Kg	90 J	120 J	360 UJ	360 UJ	430 U	410 U	380 U	400 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-44	B-44	B-44	B-44	B-45	B-45	B-45	B-45
	DEPTH(FT.)	8-10	8-10	12-13.5	12-13.5	0-2	2-4	4-6	4-6
	DATE	12/10/92	12/10/92	12/10/92	12/10/92	04/28/93	04/28/93	04/28/93	04/28/93
	ES ID	B44B-3	B44B-3RE	B44B-4	B44B-4RE	B45-1	B45-2	B45-3	B45-6
	LAB ID	178016	176016R1	176017	176017R1	183170	183171	183172	183173
COMPOUND	UNITS								DUP B45-3
Pesticides/PCBs									
alpha-BHC	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
beta-BHC	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
delta-BHC	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
gamma-BHC (Lindane)	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Heptachlor	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Aldrin	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Heptachlor epoxide	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Endosulfan I	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Dieldrin	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
4,4'-DDE	ug/Kg	7.3 J		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Endrin	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Endosulfan II	ug/Kg	3.9 U		3.8 U		4.3 U	4.2 U	3.8 U	4 U
4,4'-DDD	ug/Kg	3.8 J		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Endosulfan sulfate	ug/Kg	3.9 U		3.8 U		4.3 U	4.2 U	3.8 U	4 U
4,4'-DDT	ug/Kg	5.8		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Methoxychlor	ug/Kg	20 U		19 U		22 U	22 U	20 U	21 U
Endrin ketone	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
Endrin aldehyde	ug/Kg	3.9 U		3.6 U		4.3 U	4.2 U	3.8 U	4 U
alpha-Chlordane	ug/Kg	3 J		1.9 U		2.2 U	2.2 U	2 U	2.1 U
gamma-Chlordane	ug/Kg	2 U		1.9 U		2.2 U	2.2 U	2 U	2.1 U
Toxaphene	ug/Kg	200 U		190 U		220 U	220 U	200 U	210 U
Aroclor-1016	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1221	ug/Kg	80 U		73 U		88 U	85 U	78 U	82 U
Aroclor-1232	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1242	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1248	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1254	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Aroclor-1260	ug/Kg	39 U		36 U		43 U	42 U	38 U	40 U
Herbicides									
2,4-D	ug/Kg	59 U		55 U		68 U	64 U	59 U	62 U
2,4-DB	ug/Kg	59 U		55 U		68 U	64 U	59 U	62 U
2,4,5-T	ug/Kg	5.9 U		5.5 U		6.8 U	6.4 U	5.9 U	6.2 U
2,4,5-TP (Silvex)	ug/Kg	5.9 U		5.5 U		6.8 U	6.4 U	5.9 U	6.2 U
Dalapon	ug/Kg	140 U		130 U		170 U	160 U	150 U	150 U
Dicamba	ug/Kg	5.9 U		5.5 U		6.8 U	6.4 U	5.9 U	6.2 U
Dichloroprop	ug/Kg	59 U		55 U		68 U	64 U	59 U	62 U
Dinoseb	ug/Kg	30 U		27 U		34 U	32 U	30 U	31 U
MCPA	ug/Kg	5900 U		5500 U		6800 U	6400 U	5900 U	6200 U
MCPP	ug/Kg	5900 U		5500 U		6800 U	6400 U	5900 U	6200 U
Metals									
Aluminum	mg/Kg	9850		15400		19700	14800	15200	16900
Antimony	mg/Kg	12.1 UJ		11.9 UJ		5.3 UJ	5.4 UJ	10.1 J	5.7 UJ
Arsenic	mg/Kg	5.1		4.7		4.6	5.2	2.7	5.6
Barium	mg/Kg	58.5		59.3		114	71.4	64.8	87.1
Beryllium	mg/Kg	0.53 J		0.72 J		0.96 J	0.73 J	0.7 J	0.84 J
Cadmium	mg/Kg	0.69 U		0.68 U		0.39 U	0.39 U	0.37 U	0.41 U
Calcium	mg/Kg	44500		7260		4870	16300	2690	6710
Chromium	mg/Kg	17.8		26.9		31.2	23.3	25.5	27
Cobalt	mg/Kg	9.1 J		13.7		16.8	12.7	13.7	15.8
Copper	mg/Kg	29.8		18.2		31.6	27.7	19.5	29.4
Iron	mg/Kg	20600		32100		38300	30200	31700	34400
Lead	mg/Kg	192		8.6		11.1	10.5	5.9	8.4
Magnesium	mg/Kg	8820		6280		7320	6770	5960	6530
Manganese	mg/Kg	415		511		1020	621	601	736
Mercury	mg/Kg	0.07 J		0.03 J		0.05 U	0.04 U	0.05 U	0.03 U
Nickel	mg/Kg	30.8		39.5		50	37.9	39.5	44.9
Potassium	mg/Kg	1060 J		1110		1320	1130	925 J	1110
Selenium	mg/Kg	0.54 J		0.59 J		0.18 U	0.2 U	0.16 U	0.17 U
Silver	mg/Kg	0.71 U		0.71 U		0.83 U	0.84 U	0.8 U	0.89 U
Sodium	mg/Kg	160 J		65.9 U		98.8 U	100 U	95.1 U	106 U
Thallium	mg/Kg	0.37 U		0.48 U		0.53 U	0.59 U	0.47 U	0.51 U
Vanadium	mg/Kg	17.4		19.7		29.8	21.3	19.7	24.8
Zinc	mg/Kg	83.9		107		86.6	94.1	98.8	108
Cyanide	mg/Kg	0.67 U		0.68 U		0.81 U	0.77 U	0.69 U	0.74 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-46	B-46	B-46	B-46	B-46	B-47	B-47	B-47
	DEPTH(FT.)	0-2	0-2	2-4	4-6	6-7.1	0-2	0-2	2-4
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B46-1	B46-1RE	B46-2	B46-3	B46-4	B47-1	B47-1RE	B47-2
	LAB ID	183303	183303R1	183304	183305	183306	183307	183307R1	183308
COMPOUND	UNITS								
VOCs									
Chloromethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Bromomethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Vinyl Chloride	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Chloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Methylene Chloride	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Acetone	ug/Kg	12 U		100	75	12 U	10 UJ	10 UJ	42
Carbon Disulfide	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,1-Dichloroethene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	13
1,1-Dichloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,2-Dichloroethene (total)	ug/Kg	12 U		2 J	12 U	12 U	2 J	1 J	170
Chloroform	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,2-Dichloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
2-Butanone	ug/Kg	12 U		22	17	12 U	10 UJ	10 UJ	7 J
1,1,1-Trichloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Carbon Tetrachloride	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Vinyl acetate	ug/Kg								
Bromodichloromethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,2-Dichloropropane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
cis-1,3-Dichloropropene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Trichloroethene	ug/Kg	12 U		3 J	1 J	12 U	110 J	39 J	2 J
Dibromochloromethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,1,2-Trichloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Benzene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
trans-1,3-Dichloropropene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Bromoform	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
4-Methyl-2-Pentanone	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
2-Hexanone	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Tetrachloroethene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Toluene	ug/Kg	12 U		12 U	12 U	12 U	4 J	2 J	12 U
Chlorobenzene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Ethylbenzene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Styrene	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U
Xylene (total)	ug/Kg	12 U		12 U	12 U	12 U	10 UJ	10 UJ	12 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-46	B-46	B-48	B-46	B-46	B-47	B-47	B-47
	DEPTH (FT.)	0-2	0-2	2-4	4-6	6-7.1	0-2	0-2	2-4
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B46-1	B46-1RE	B48-2	B48-3	B48-4	B47-1	B47-1RE	B47-2
	LAB ID	183303	183303R1	183304	183305	183306	183307	183307R1	183308
	UNITS								
Semivolatiles									
Phenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
bis(2-Chloroethyl) ether	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2-Chlorophenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
1,3-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
1,4-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Benzyl alcohol	ug/Kg								
1,2-Dichlorobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2-Methylphenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 UJ	380 UJ	380 U	370 U	380 U	350 U		380 U
4-Methylphenol	ug/Kg	380 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
N-Nitroso-di-n-propylamine	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Hexachloroethane	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Nitrobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Isophorone	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2-Nitrophenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,4-Dimethylphenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Benzoic acid	ug/Kg								
bis(2-Chloroethoxy) methane	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,4-Dichlorophenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
1,2,4-Trichlorobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Naphthalene	ug/Kg	21 J	20 J	39 J	370 U	380 U	350 U		380 U
4-Chloroaniline	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Hexachlorobutadiene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
4-Chloro-3-methylphenol	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2-Methylnaphthalene	ug/Kg	360 UJ	360 UJ	70 J	370 U	380 U	350 U		380 U
Hexachlorocyclopentadiene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,4,6-Trichlorophenol	ug/Kg	380 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2,4,5-Trichlorophenol	ug/Kg	860 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
2-Chloronaphthalene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
2-Nitroaniline	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
Dimethylphthalate	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Acenaphthylene	ug/Kg	42 J	32 J	27 J	370 U	380 U	350 U		380 U
2,6-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
3-Nitroaniline	ug/Kg	660 UJ	860 UJ	920 U	900 U	920 U	840 U		930 U
Acenaphthene	ug/Kg	38 J	36 J	180 J	370 U	380 U	350 U		380 U
2,4-Dinitrophenol	ug/Kg	660 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
4-Nitrophenol	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
Dibenzofuran	ug/Kg	18 J	18 J	130 J	370 U	380 U	350 U		380 U
2,4-Dinitrotoluene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Diethylphthalate	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
4-Chlorophenyl-phenylether	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Fluorene	ug/Kg	39 J	41 J	280 J	22 J	380 U	350 U		380 U
4-Nitroaniline	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
4,6-Dinitro-2-methylphenol	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
N-Nitrosodiphenylamine	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
4-Bromophenyl-phenylether	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Hexachlorobenzene	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Pentachlorophenol	ug/Kg	880 UJ	880 UJ	920 U	900 U	920 U	840 U		930 U
Phenanthrene	ug/Kg	530 J	520 J	1100	91 J	380 U	90 J		380 U
Anthracene	ug/Kg	140 J	130 J	340 J	32 J	380 U	18 J		380 U
Carbazole	ug/Kg	50 J	42 J	93 J	370 U	380 U	350 U		380 U
Di-n-butylphthalate	ug/Kg	68 J	62 J	87 J	68 J	170 J	180 J		260 J
Fluoranthene	ug/Kg	1100 J	900 J	900	160 J	18 J	170 J		28 J
Pyrene	ug/Kg	1200 J	1300 J	630	130 J	380 U	140 J		23 J
Butylbenzylphthalate	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
3,3'-Dichlorobenzidine	ug/Kg	360 UJ	360 UJ	380 U	370 U	380 U	350 U		380 U
Benzo(a)anthracene	ug/Kg	840 J	640 J	330 J	68 J	380 U	70 J		380 U
Chrysene	ug/Kg	670 J	660 J	300 J	64 J	380 U	91 J		22 J
bis(2-Ethylhexyl)phthalate	ug/Kg	190 J	190 J	220 J	200 J	340 J	340 J		580
Di-n-octylphthalate	ug/Kg	360 UJ	360 UJ	380 U	370 U	29 J	350 U		27 J
Benzo(b)fluoranthene	ug/Kg	560 J	580 J	210 J	55 J	380 U	87 J		380 U
Benzo(k)fluoranthene	ug/Kg	540 J	600 J	240 J	53 J	380 U	52 J		18 J
Benzo(a)pyrene	ug/Kg	660 J	670 J	270 J	68 J	380 U	52 J		380 U
Indeno(1,2,3-cd)pyrene	ug/Kg	410 J	400 J	140 J	40 J	380 U	31 J		380 U
Dibenz(a,h)anthracene	ug/Kg	120 J	75 J	30 J	370 U	380 U	350 U		380 U
Benzo(g,h,i)perylene	ug/Kg	200 J	200 J	71 J	23 J	380 U	21 J		380 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-46	B-46	B-46	B-46	B-46	B-47	B-47	B-47
	DEPTH(FT.)	0-2	0-2	2-4	4-6	6-7.1	0-2	0-2	2-4
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B46-1	B46-1RE	B46-2	B46-3	B46-4	B47-1	B47-1RE	B47-2
	LAB ID	183303	183303R1	183304	183305	183306	183307	183307R1	183308
	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
beta-BHC	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
delta-BHC	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
gamma-BHC (Lindane)	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Heptachlor	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Aldrin	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Heptachlor epoxide	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Endosulfan I	ug/Kg	9.3 U		1.9 U	0.95 J	1.9 U	3.1		2 U
Dieldrin	ug/Kg	18 U		3.8 U	3.6 U	3.8 U	3.4 U		3.9 U
4,4'-DDE	ug/Kg	45		3.7 J	6.6	3.8 U	240 J		4.4
Endrin	ug/Kg	18 U		3.8 U	3.6 U	3.8 U	3.4 U		3.9 U
Endosulfan II	ug/Kg	18 U		3.6 U	3.6 U	3.6 U	3.4 U		3.9 U
4,4'-DDD	ug/Kg	42 J		3.8 U	1.8 J	3.8 U	3.4 U		3.9 U
Endosulfan sulfate	ug/Kg	18 U		3.6 U	3.6 U	3.6 U	3.4 U		3.9 U
4,4'-DDT	ug/Kg	160		2.2 J	3 J	3.8 U	23		3.9 U
Methoxychlor	ug/Kg	93 U		19 U	19 U	19 U	18 U		20 U
Endrin ketone	ug/Kg	18 U		3.8 U	3.8 U	3.8 U	3.4 U		3.9 U
Endrin aldehyde	ug/Kg	18 U		3.8 U	3.6 U	3.8 U	3.4 U		3.9 U
alpha-Chlordane	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
gamma-Chlordane	ug/Kg	9.3 U		1.9 U	1.9 U	1.9 U	1.8 U		2 U
Toxaphene	ug/Kg	930 U		190 U	190 U	190 U	180 U		200 U
Aroclor-1016	ug/Kg	180 U		38 U	36 U	38 U	34 U		39 U
Aroclor-1221	ug/Kg	370 U		76 U	74 U	76 U	70 U		78 U
Aroclor-1232	ug/Kg	180 U		36 U	36 U	38 U	34 U		39 U
Aroclor-1242	ug/Kg	180 U		36 U	36 U	38 U	34 U		39 U
Aroclor-1248	ug/Kg	180 U		38 U	36 U	38 U	34 U		39 U
Aroclor-1254	ug/Kg	180 U		38 U	36 U	38 U	34 U		39 U
Aroclor-1260	ug/Kg	180 U		38 U	36 U	38 U	34 U		39 U
Herbicides									
2,4-D	ug/Kg	55 U		58 U	56 U	58 U	53 U		59 U
2,4-DB	ug/Kg	55 U		58 U	56 U	58 U	53 U		59 U
2,4,5-T	ug/Kg	5.5 U		5.8 U	5.6 U	5.8 U	5.3 U		5.9 U
2,4,5-TP (Silvex)	ug/Kg	5.5 U		5.8 U	5.6 U	5.8 U	5.3 U		5.9 U
Dalapon	ug/Kg	140 U		140 U	140 U	140 U	130 U		150 U
Dicamba	ug/Kg	5.5 U		5.8 U	5.6 U	5.8 U	5.3 U		5.9 U
Dichloroprop	ug/Kg	55 U		58 U	56 U	58 U	53 U		59 U
Dinoseb	ug/Kg	28 U		29 U	28 U	29 U	27 U		30 U
MCPA	ug/Kg	5500 U		5800 U	5600 U	5800 U	5300 U		5900 U
MCPP	ug/Kg	5500 U		5800 U	5600 U	5800 U	5300 U		5900 U
Metals									
Aluminum	mg/Kg	12100		15300	9600	14400	10100		17500
Antimony	mg/Kg	4.5 UJ		4.1 UJ	5.9 UJ	5.1 UJ	4 UJ		3.5 UJ
Arsenic	mg/Kg	4.8		7.3	4.7	3.9	3.1		4.8
Barium	mg/Kg	109		96.4	69.9	66.4	55.8		79.3
Beryllium	mg/Kg	0.64 J		0.78	0.52 J	0.78 J	0.5 J		0.85
Cadmium	mg/Kg	0.33 U		0.3 U	0.54 J	0.37 U	0.29 U		0.28 U
Calcium	mg/Kg	39300		20200	172000	90500	69400		8640
Chromium	mg/Kg	18.7		28	15.3	24.1	19.9		26.3
Cobalt	mg/Kg	13.3		12	7.3 J	11.7	9.9		16.4
Copper	mg/Kg	19.8		34	19.2	18.7	30.3		21.6
Iron	mg/Kg	24600		27200	16200	27700	22800		32700
Lead	mg/Kg	45.4		64	19.1	8.7	40.9		12
Magnesium	mg/Kg	6520		6760	9270	10900	8850		5460
Manganese	mg/Kg	1570		526	445	898	370		942
Mercury	mg/Kg	0.05 J		0.07 J	0.05 J	0.04 U	0.06 J		0.05 U
Nickel	mg/Kg	29.9		35.9	22.9	37	35.3		38.2
Potassium	mg/Kg	1330		1570	1440	1470	1170		973
Selenium	mg/Kg	0.14 U		0.2 U	0.54 J	0.2 U	0.15 U		0.2 U
Silver	mg/Kg	0.71 U		0.65 U	0.92 U	0.8 U	0.63 U		0.56 U
Sodium	mg/Kg	230 J		249 J	232 J	141 J	137 J		68 J
Thallium	mg/Kg	0.43 U		0.61 U	2.9 U	0.59 U	0.46 U		0.8 U
Vanadium	mg/Kg	18.9		23.1	17.3	19.1	15.4		22.3
Zinc	mg/Kg	136		235	88.7	65.8	472		84.3
Cyanide	mg/Kg	0.56 U		0.56 U	0.55 U	0.57 U	0.53 U		0.71 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-47	B-48	B-48	B-48	B-48
	DEPTH(FT.)	4-5.3	0-2	2-4	4-6	4-6
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B47-3	B48-1	B48-2	B48-3	B48-6
	LAB ID	183309	183310	183311	183312	183313
	UNITS					DUP B48-3
VOCs						
Chloromethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Bromomethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Vinyl Chloride	ug/Kg	53 U	12 U	12 U	19 U	18 U
Chloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Methylene Chloride	ug/Kg	53 U	12 U	12 U	19 U	18 U
Acetone	ug/Kg	53 U	12 U	12 U	19 U	18 U
Carbon Disulfide	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,1-Dichloroethene	ug/Kg	28 J	12 U	12 U	5 J	5 J
1,1-Dichloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,2-Dichloroethene (total)	ug/Kg	650	12 U	12 U	110	130
Chloroform	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,2-Dichloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
2-Butanone	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,1,1-Trichloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Carbon Tetrachloride	ug/Kg	53 U	12 U	12 U	19 U	18 U
Vinyl acetate	ug/Kg					
Bromodichloromethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,2-Dichloropropane	ug/Kg	53 U	12 U	12 U	19 U	18 U
cis-1,3-Dichloropropene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Trichloroethene	ug/Kg	98	75	10 J	200	200
Dibromochloromethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,1,2-Trichloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Benzene	ug/Kg	53 U	12 U	12 U	19 U	18 U
trans-1,3-Dichloropropene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Bromoform	ug/Kg	53 U	12 U	12 U	19 U	18 U
4-Methyl-2-Pentanone	ug/Kg	53 U	12 U	12 U	19 U	18 U
2-Hexanone	ug/Kg	53 U	12 U	12 U	19 U	18 U
Tetrachloroethene	ug/Kg	53 U	12 U	12 U	19 U	18 U
1,1,2,2-Tetrachloroethane	ug/Kg	53 U	12 U	12 U	19 U	18 U
Toluene	ug/Kg	53 U	2 J	12 U	19 U	18 U
Chlorobenzene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Ethylbenzene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Styrene	ug/Kg	53 U	12 U	12 U	19 U	18 U
Xylene (total)	ug/Kg	53 U	12 U	12 U	19 U	18 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	B-47	B-48	B-48	B-48	B-48
	DEPTH (FT.)	4-5.3	0-2	2-4	4-6	4-6
	DATE	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
	ES ID	B47-3	B48-1	B48-2	B48-3	B48-6
	LAB ID	183309	183310	183311	183312	183313
	UNITS					DUP B48-3
Semivolatiles						
Phenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
bis(2-Chloroethyl) ether	ug/Kg	360 U	410 U	390 U	380 U	400 U
2-Chlorophenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
1,3-Dichlorobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
1,4-Dichlorobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Benzyl alcohol	ug/Kg					
1,2-Dichlorobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
2-Methylphenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Methylphenol	ug/Kg	380 U	410 U	390 U	380 U	400 U
N-Nitroso-di-n-propylamine	ug/Kg	360 U	410 U	390 U	380 U	400 U
Hexachloroethane	ug/Kg	360 U	410 U	390 U	380 U	400 U
Nitrobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Isophorone	ug/Kg	360 U	410 U	390 U	380 U	400 U
2-Nitrophenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4-Dimethylphenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
Benzoic acid	ug/Kg					
bis(2-Chloroethoxy) methane	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4-Dichlorophenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
1,2,4-Trichlorobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Naphthalene	ug/Kg	380 U	410 U	390 U	380 U	400 U
4-Chloroaniline	ug/Kg	380 U	410 U	390 U	380 U	400 U
Hexachlorobutadiene	ug/Kg	380 U	410 U	390 U	380 U	400 U
4-Chloro-3-methylphenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
2-Methylnaphthalene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Hexachlorocyclopentadiene	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4,6-Trichlorophenol	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4,5-Trichlorophenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
2-Chloronaphthalene	ug/Kg	380 U	410 U	390 U	380 U	400 U
2-Nitroaniline	ug/Kg	880 U	1000 U	950 U	930 U	960 U
Dimethylphthalate	ug/Kg	360 U	410 U	390 U	380 U	400 U
Acenaphthylene	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,6-Dinitrotoluene	ug/Kg	360 U	410 U	390 U	380 U	400 U
3-Nitroaniline	ug/Kg	880 U	1000 U	950 U	930 U	960 U
Acenaphthene	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4-Dinitrophenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
4-Nitrophenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
Dibenzofuran	ug/Kg	360 U	410 U	390 U	380 U	400 U
2,4-Dinitrotoluene	ug/Kg	380 U	410 U	390 U	380 U	400 U
Diethylphthalate	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Chlorophenyl-phenylether	ug/Kg	360 U	410 U	390 U	380 U	400 U
Fluorene	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Nitroaniline	ug/Kg	880 U	1000 U	950 U	930 U	960 U
4,6-Dinitro-2-methylphenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
N-Nitrosodiphenylamine	ug/Kg	360 U	410 U	390 U	380 U	400 U
4-Bromophenyl-phenylether	ug/Kg	360 U	410 U	390 U	380 U	400 U
Hexachlorobenzene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Pentachlorophenol	ug/Kg	880 U	1000 U	950 U	930 U	960 U
Phenanthrene	ug/Kg	360 U	110 J	390 U	380 U	400 U
Anthracene	ug/Kg	360 U	21 J	390 U	380 U	400 U
Carbazole	ug/Kg	360 U	20 J	390 U	380 U	400 U
Di-n-butylphthalate	ug/Kg	160 J	100 J	130 J	110 J	72 J
Fluoranthene	ug/Kg	360 U	180 J	390 U	380 U	400 U
Pyrene	ug/Kg	380 U	130 J	390 U	380 U	400 U
Butylbenzylphthalate	ug/Kg	360 U	410 U	390 U	380 U	400 U
3,3'-Dichlorobenzidine	ug/Kg	360 U	410 U	390 U	380 U	400 U
Benzo(a)anthracene	ug/Kg	360 U	78 J	390 U	380 U	400 U
Chrysene	ug/Kg	360 U	98 J	390 U	380 U	400 U
bis(2-Ethylhexyl)phthalate	ug/Kg	250 J	320 J	520	240 J	170 J
Di-n-octylphthalate	ug/Kg	360 U	410 U	390 U	380 U	400 U
Benzo(b)fluoranthene	ug/Kg	380 U	93 J	390 U	380 U	400 U
Benzo(k)fluoranthene	ug/Kg	360 U	85 J	390 U	380 U	400 U
Benzo(a)pyrene	ug/Kg	360 U	75 J	390 U	380 U	400 U
Indeno(1,2,3-cd)pyrene	ug/Kg	360 U	59 J	390 U	380 U	400 U
Dibenz(a,h)anthracene	ug/Kg	360 U	410 U	390 U	380 U	400 U
Benzo(g,h,i)perylene	ug/Kg	360 U	35 J	390 U	380 U	400 U

SENECA ARMY DEPOT, ASH LANDFILL
SOIL ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH (FT.) DATE ES ID LAB ID UNITS	SOIL B-47 4-5.3 04/29/93 B47-3 183309	SOIL B-48 0-2 04/29/93 B48-1 183310	SOIL B-48 2-4 04/29/93 B48-2 183311	SOIL B-48 4-6 04/29/93 B48-3 183312	SOIL B-48 4-6 04/29/93 B48-6 183313 DUP B48-3
Pesticides/PCBs						
alpha-BHC	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
beta-BHC	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
delta-BHC	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
gamma-BHC (Lindane)	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Heptachlor	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Aldrin	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Heptachlor epoxide	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Endosulfan I	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Dieldrin	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
4,4'-DDE	ug/Kg	3.6 U	70	5.4	5.8	4 U
Endrin	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
Endosulfan II	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
4,4'-DDD	ug/Kg	3.6 U	15 J	2.7 J	2.5 J	4 U
Endosulfan sulfate	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
4,4'-DDT	ug/Kg	3.6 U	26	2 J	4.9	4 U
Methoxychlor	ug/Kg	19 U	42 U	20 U	20 U	20 U
Endrin ketone	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
Endrin aldehyde	ug/Kg	3.6 U	8.2 U	3.9 U	3.9 U	4 U
alpha-Chlordane	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
gamma-Chlordane	ug/Kg	1.9 U	4.2 U	2 U	2 U	2 U
Toxaphene	ug/Kg	190 U	420 U	200 U	200 U	200 U
Aroclor-1016	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1221	ug/Kg	73 U	170 U	79 U	79 U	80 U
Aroclor-1232	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1242	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1248	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1254	ug/Kg	36 U	82 U	39 U	39 U	40 U
Aroclor-1260	ug/Kg	36 U	82 U	39 U	39 U	40 U
Herbicides						
2,4-D	ug/Kg	56 U	63 U	60 U	59 U	61 U
2,4-DB	ug/Kg	56 U	63 U	60 U	59 U	61 U
2,4,5-T	ug/Kg	5.6 U	6.3 U	6 U	5.9 U	6.1 U
2,4,5-TP (Silvex)	ug/Kg	5.6 U	6.3 U	6 U	5.9 U	6.1 U
Dalapon	ug/Kg	140 U	150 U	150 U	150 U	150 U
Dicamba	ug/Kg	5.6 U	6.3 U	6 U	5.9 U	6.1 U
Dichloroprop	ug/Kg	56 U	63 U	60 U	59 U	61 U
Dinoseb	ug/Kg	28 U	32 U	30 U	30 U	31 U
MCPA	ug/Kg	5600 U	6300 U	6000 U	5900 U	6100 U
MCPP	ug/Kg	5600 U	6300 U	6000 U	5900 U	6100 U
Metals						
Aluminum	mg/Kg	17300	10800	14000	12100	11100
Antimony	mg/Kg	6.1 UJ	5.6 J	4.8 UJ	4.4 J	4 UJ
Arsenic	mg/Kg	3.2	4.9	4.9	4.9	5.1
Barium	mg/Kg	68.8	82.2	115	50.6	41.1
Beryllium	mg/Kg	0.81 J	0.61 J	0.76 J	0.55 J	0.53 J
Cadmium	mg/Kg	0.44 U	0.34 J	0.35 U	1.3	0.29 U
Calcium	mg/Kg	37100	18200	3780	60100 J	16000 J
Chromium	mg/Kg	31	21.8	21.2	19.9	18.6
Cobalt	mg/Kg	12.6	9	13.3	11.4	11
Copper	mg/Kg	23.3	48	28.1	24.1	19.9
Iron	mg/Kg	33400	22700	26900	24800	23100
Lead	mg/Kg	6	82.5	15.5	8.4	9.2
Magnesium	mg/Kg	7330	4410	4310	8210	7090
Manganese	mg/Kg	643	520	1290	571	501
Mercury	mg/Kg	0.05 U	0.1	0.04 U	0.04 U	0.03 U
Nickel	mg/Kg	43.6	31.4	29.8	34.1	31.3
Potassium	mg/Kg	1420	1090	1540	1110	894
Selenium	mg/Kg	0.82 J	0.71 J	0.37 J	0.87 J	0.25 J
Silver	mg/Kg	0.95 U	0.61 U	0.75 U	0.53 U	0.62 U
Sodium	mg/Kg	187 J	75 J	89.8 U	176 J	121 J
Thallium	mg/Kg	0.51 U	0.54 U	0.62 U	0.62 U	0.67 U
Vanadium	mg/Kg	22.4	18.1	26.4	16.7	15.2
Zinc	mg/Kg	74.9	308	115	103	83.5
Cyanide	mg/Kg	0.67 U	0.75 U	0.71 U	0.66 U	0.69 U

GROUNDWATER

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-10	PT-10	PT-10	PT10	PT-11	PT-11	PT11
	DATE	01/06/92	01/06/92	01/06/92	06/23/93	01/15/92	01/15/92	07/10/93
	ES ID	PT-1(1)	PT-10(2)	PT-10(2)Filtered	PT10	PT-11	PT-11Filter	PT11
	LAB ID	152259	152156	152199	157234	152574	152593	166726
COMPOUND	UNITS							
Chloromethane	ug/L		10 U			10 U		10 U
Bromomethane	ug/L		10 U			10 U		10 U
Vinyl Chloride	ug/L		10 U			10 U		10 U
Chloroethane	ug/L		10 U			10 U		10 U
Methylene Chloride	ug/L		5 U			5 U		10 U
Acetone	ug/L		10 U			10 U		10 U
Carbon Disulfide	ug/L		5 U			5 U		10 U
1,1-Dichloroethene	ug/L		5 U			5 U		10 U
1,1-Dichloroethane	ug/L		5 U			5 U		10 U
1,2-Dichloroethene (total)	ug/L		5 U			5 U		10 U
Chloroform	ug/L		5 U			5 U		10 U
1,2-Dichloroethane	ug/L		5 U			5 U		10 U
2-Butanone	ug/L		10 U			10 U		10 U
1,1,1-Trichloroethane	ug/L		5 U			5 U		10 U
Carbon Tetrachloride	ug/L		5 U			5 U		10 U
Vinyl Acetate	ug/L		10 U			10 U		
Bromodichloromethane	ug/L		5 U			5 U		10 U
1,2-Dichloropropane	ug/L		5 U			5 U		10 U
cis-1,3-Dichloropropene	ug/L		5 U			5 U		10 U
Trichloroethene	ug/L		5 U			5 U		10 U
Dibromochloromethane	ug/L		5 U			5 U		10 U
1,1,2-Trichloroethane	ug/L		5 U			5 U		10 U
Benzene	ug/L		5 U			5 U		10 U
trans-1,3-Dichloropropene	ug/L		5 U			5 U		10 U
Bromoform	ug/L		5 U			5 U		10 U
4-Methyl-2-Pentanone	ug/L		10 U			10 U		10 U
2-Hexanone	ug/L		10 U			10 U		10 U
Tetrachloroethene	ug/L		5 U			5 U		10 U
1,1,2,2-Tetrachloroethane	ug/L		5 U			5 U		10 U
Toluene	ug/L		5 U			5 U		10 U
Chlorobenzene	ug/L		5 U			5 U		10 U
Ethylbenzene	ug/L		5 U			5 U		10 U
Styrene	ug/L		5 U			5 U		10 U
Xylene (total)	ug/L		5 U			4 J		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3

COMPOUND	MATRIX / LOCATION / DATE / ES ID / LAB ID / UNITS	PHASE I WATER PT-10 01/08/92 PT-1(1) 152259	PHASE I WATER PT-10 01/06/92 PT-10(2) 152156	PHASE I WATER PT-10 01/06/92 PT-10(2)Filtered 152199	PHASE II WATER PT10 06/23/93 PT10 187234	PHASE I WATER PT-11 01/15/92 PT-11 152574	PHASE I WATER PT-11 01/15/92 PT-11Filter 152593	PHASE II WATER PT11 07/10/93 PT11 188728
VOC's (524.2)								
Dichlorodifluoromethane	ug/L				0.5 U			
Chloromethane	ug/L				0.5 U			
Vinyl Chloride	ug/L				0.5 U			
Bromomethane	ug/L				0.5 U			
Chloroethane	ug/L				0.5 U			
Trichlorofluoromethane	ug/L				0.5 U			
1,1-Dichloroethene	ug/L				0.5 U			
Acetone	ug/L				5 U			
Carbon Disulfide	ug/L				0.5 U			
Methylene Chloride	ug/L				0.5 U			
trans-1,2-Dichloroethene	ug/L				0.5 U			
1,1-Dichloroethane	ug/L				0.5 U			
2,2-Dichloropropane	ug/L				0.5 U			
cis-1,2-Dichloroethene	ug/L				0.5 U			
2-Butanone	ug/L				5 U			
Bromochloromethane	ug/L				0.5 U			
Chloroform	ug/L				0.5 U			
1,1,1-Trichloroethane	ug/L				0.5 U			
Carbon Tetrachloride	ug/L				0.5 U			
1,1-Dichloropropene	ug/L				0.5 U			
Benzene	ug/L				0.5 U			
1,2-Dichloroethane	ug/L				0.5 U			
Trichloroethene	ug/L				0.5 U			
1,2-Dichloropropane	ug/L				0.5 U			
Dibromomethane	ug/L				0.5 U			
Bromodichloromethane	ug/L				0.5 U			
cis-1,3-Dichloropropene	ug/L				0.5 U			
4-Methyl-2-Pentanone	ug/L				5 U			
Toluene	ug/L				0.5 U			
trans-1,3-Dichloropropene	ug/L				0.5 U			
1,1,2-Trichloroethane	ug/L				0.5 U			
Tetrachloroethene	ug/L				0.5 U			
1,3-Dichloropropane	ug/L				0.5 U			
2-Hexanone	ug/L				5 U			
Dibromochloromethane	ug/L				0.5 U			
1,2-Dibromoethane	ug/L				0.5 U			
Chlorobenzene	ug/L				0.5 U			
1,1,1,2-Tetrachloroethane	ug/L				0.5 U			
Ethylbenzene	ug/L				0.5 U			
Styrene	ug/L				0.5 U			
Bromoform	ug/L				0.5 U			
Isopropylbenzene	ug/L				0.5 U			
Bromobenzene	ug/L				0.5 U			
1,1,2,2-Tetrachloroethane	ug/L				0.5 U			
1,2,3-Trichloropropane	ug/L				0.5 U			
n-Propylbenzene	ug/L				0.5 U			
2-Chlorotoluene	ug/L				0.5 U			
4-Chlorotoluene	ug/L				0.5 U			
1,3,5-Trimethylbenzene	ug/L				0.5 U			
tert-Butylbenzene	ug/L				0.5 U			
1,2,4-Trimethylbenzene	ug/L				0.5 U			
sec-Butylbenzene	ug/L				0.5 U			
1,3-Dichlorobenzene	ug/L				0.5 U			
1,4-Dichlorobenzene	ug/L				0.5 U			
p-Isopropyltoluene	ug/L				0.5 U			
1,2-Dichlorobenzene	ug/L				0.5 U			
n-Butylbenzene	ug/L				0.5 U			
1,2-Dibromo-3-Chloropropane	ug/L				0.5 U			
1,2,4-Trichlorobenzene	ug/L				0.5 U			
Hexachlorobutadiene	ug/L				0.5 U			
Naphthalene	ug/L				0.5 U			
1,2,3-Trichlorobenzene	ug/L				0.5 U			
Xylene (total)	ug/L				0.5 U			

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX LOCATION DATE ES ID LAB ID	PHASE I WATER PT-10 01/06/92 PT-1(1) 152259	PHASE I WATER PT-10 01/06/92 PT-10(2) 152156	PHASE I WATER PT-10 01/06/92 PT-10(2)Filtered 152199	PHASE II WATER PT10 06/23/93 PT10 187234	PHASE I WATER PT-11 01/15/92 PT-11 152574	PHASE I WATER PT-11 01/15/92 PT-11Filter 152593	PHASE II WATER PT11 07/10/93 PT11 188728
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	11 U	10 U		10 U	11 U		10 U
bis(2-Chloroethyl) ether	ug/L	11 U	10 U		10 U	11 U		10 U
2-Chlorophenol	ug/L	11 U	10 U		10 U	11 U		10 U
1,3-Dichlorobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
1,4-Dichlorobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
Benzyl Alcohol	ug/L	11 U	10 U			11 U		
1,2-Dichlorobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
2-Methylphenol	ug/L	11 U	10 U		10 U	11 U		10 U
bis(2-Chloroisopropyl) ether	ug/L	11 U	10 U		10 U	11 U		10 U
4-Methylphenol	ug/L	11 U	10 U		10 U	11 U		10 U
N-Nitroso-di-n-propylamine	ug/L	11 U	10 U		10 U	11 U		10 U
Hexachloroethane	ug/L	11 U	10 U		10 U	11 U		10 U
Nitrobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
Isophorone	ug/L	11 U	10 U		10 U	11 U		10 U
2-Nitrophenol	ug/L	11 U	10 U		10 U	11 U		10 U
2,4-Dimethylphenol	ug/L	11 U	10 U		10 U	11 U		10 U
Benzoic acid	ug/L	54 U	52 U			55 U		
bis(2-Chloroethoxy) methane	ug/L	11 U	10 U		10 U	11 U		10 U
2,4-Dichlorophenol	ug/L	11 U	10 U		10 U	11 U		10 U
1,2,4-Trichlorobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
Naphthalene	ug/L	11 U	10 U		10 U	11 U		10 U
4-Chloroaniline	ug/L	11 U	10 U		10 U	11 U		10 U
Hexachlorobutadiene	ug/L	11 U	10 U		10 U	11 U		10 U
4-Chloro-3-methylphenol	ug/L	11 U	10 U		10 U	11 U		10 U
2-Methylnaphthalene	ug/L	11 U	10 U		10 U	11 U		10 U
Hexachlorocyclopentadiene	ug/L	11 U	10 U		10 U	11 U		10 U
2,4,6-Trichlorophenol	ug/L	11 U	10 U		10 U	11 U		10 U
2,4,5-Trichlorophenol	ug/L	54 U	52 U		25 U	55 U		25 U
2-Chloronaphthalene	ug/L	11 U	10 U		10 U	11 U		10 U
2-Nitroaniline	ug/L	54 U	52 U		25 U	55 U		25 U
Dimethylphthalate	ug/L	11 U	10 U		10 U	11 U		10 U
Acenaphthylene	ug/L	11 U	10 U		10 U	11 U		10 U
2,6-Dinitrotoluene	ug/L	11 U	10 U		10 U	11 U		10 U
3-Nitroaniline	ug/L		52 U		25 U	55 U		25 U
Acenaphthene	ug/L		10 U		10 U	11 U		10 U
2,4-Dinitrophenol	ug/L		52 U		25 U	55 U		25 U
4-Nitrophenol	ug/L		52 U		25 U	55 U		25 U
Dibenzofuran	ug/L		10 U		10 U	11 U		10 U
2,4-Dinitrotoluene	ug/L		10 U		10 U	11 U		10 U
Diethylphthalate	ug/L		10 U		10 U	11 U		10 U
4-Chlorophenyl-phenylether	ug/L		10 U		10 U	11 U		10 U
Fluorene	ug/L		10 U		10 U	11 U		10 U
4-Nitroaniline	ug/L		52 U		25 U	55 U		25 U
4,6-Dinitro-2-methylphenol	ug/L		52 U		25 U	55 U		25 U
N-Nitrosodiphenylamine (1)	ug/L		10 U		10 U	11 U		10 U
4-Bromophenyl-phenylether	ug/L		10 U		10 U	11 U		10 U
Hexachlorobenzene	ug/L		10 U		10 U	11 U		10 U
Pentachlorophenol	ug/L		52 U		25 U	55 U		25 U
Phenanthrene	ug/L		10 U		10 U	11 U		10 U
Anthracene	ug/L		10 U		10 U	11 U		10 U
Carbazole	ug/L				10 U			10 U
Di-n-butylphthalate	ug/L		10 U		18	11 U		10 U
Fluoranthene	ug/L		10 U		10 U	11 U		10 U
Pyrene	ug/L		10 U		10 U	11 U		10 U
Butylbenzylphthalate	ug/L		10 U		10 U	11 U		10 U
3,3'-Dichlorobenzidine	ug/L		21 U		10 U	22 U		10 U
Benzo(a)anthracene	ug/L		10 U		10 U	11 U		10 U
Chrysene	ug/L		10 U		10 U	11 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L		10 U		30 U	11 U		10 U
Di-n-octylphthalate	ug/L		10 U		10 U	11 U		10 U
Benzo(b)fluoranthene	ug/L		10 U		10 U	11 U		10 U
Benzo(k)fluoranthene	ug/L		10 U		10 U	11 U		10 U
Benzo(a)pyrene	ug/L		10 U		10 U	11 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L		10 U		10 U	11 U		10 U
Dibenz(a,h)anthracene	ug/L		10 U		10 U	11 U		10 U
Benzo(g,h,i)perylene	ug/L		10 U		10 U	11 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	PT-10	PT-10	PT-10	PT10	PT-11	PT-11	PT11
	DATE	01/08/92	01/08/92	01/08/92	06/23/93	01/15/92	01/15/92	07/10/93
	ES ID	PT-1(1)	PT-10(2)	PT-10(2)Filtered	PT10	PT-11	PT-11Filter	PT11
	LAB ID	152259	152156	152199	187234	152574	152593	188726
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
beta-BHC	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
delta-BHC	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
gamma-BHC (Lindane)	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Heptachlor	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Aldrin	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Heptachlor epoxide	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Endosulfan I	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Dieldrin	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
4,4'-DDE	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Endrin	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Endosulfan II	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
4,4'-DDD	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Endosulfan sulfate	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
4,4'-DDT	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Methoxychlor	ug/L	0.58 U	0.5 U		0.5 U	0.55 U		
Endrin ketone	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Endrin aldehyde	ug/L				0.1 U			
alpha-Chlordane	ug/L	0.58 U	0.5 U		0.05 U	0.55 U		
gamma-Chlordane	ug/L	0.58 U	0.5 U		0.05 U	0.55 U		
Toxaphene	ug/L	1.2 U	1 U		5 U	1.1 U		
Aroclor-1016	ug/L	0.58 U	0.5 U		1 U	0.55 U		
Aroclor-1221	ug/L	0.58 U	0.5 U		2 U	0.55 U		
Aroclor-1232	ug/L	0.58 U	0.5 U		1 U	0.55 U		
Aroclor-1242	ug/L	0.56 U	0.5 U		1 U	0.55 U		
Aroclor-1248	ug/L	0.58 U	0.5 U		1 U	0.55 U		
Aroclor-1254	ug/L	1.2 U	1 U		1 U	1.1 U		
Aroclor-1260	ug/L	1.2 U	1 U		1 U	1.1 U		
HERBICIDES								
2,4-D	ug/L		1 U		1.1 U	1.2 U		
2,4-DB	ug/L		1 U		1.1 U	1.2 U		
2,4,5-T	ug/L		0.1 U		0.11 U	0.1 U		
2,4,5-TP (Silvex)	ug/L		0.1 U		0.11 U	0.1 U		
Dalapon	ug/L		2.3 U		2.4 U	2.7 U		
Dicamba	ug/L		0.1 U		0.11 U	0.1 U		
Dichloroprop	ug/L		1 U		1.1 U	1.2 U		
Dinoseb	ug/L		0.5 U		0.51 U	0.5 U		
MCPA	ug/L		100 U		110 U	120 U		
MCPP	ug/L		100 U		110 U	120 U		
METALS								
Aluminum	ug/L		96.1 U	24.4 U	72 U	2960	24.4 U	
Antimony	ug/L		55.9 U	53 U	49.5 UJ	53.3 U	52.9 U	
Arsenic	ug/L		3.5 U J	3.5 U	1.4 UJ	3.5 U	3.5 U	
Barium	ug/L		196 J	203	193 J	121 J	77 J	
Beryllium	ug/L		1.4 R	2.6 R	0.89 U	2 R	1.3 R	
Cadmium	ug/L		2.9 U	3 U	2.8 U	3 U	3 U	
Calcium	ug/L		96500 J	86900	79100	124000	114000	
Chromium	ug/L		6.2 U	6.2 U	2.7 UJ	6.6 J	6.1 U	
Cobalt	ug/L		20 U	20.3 U	5.4 U	20.5 U	20.3 U	
Copper	ug/L		14.5 U	10.1 U	4.7 U	10.2 U	10.1 U	
Iron	ug/L		109	6.9 U	65.6 J	3270	6.9 U	
Lead	ug/L		1.2 U	1.4 J	0.79 U	1.2 U	1.2 U	
Magnesium	ug/L		32700 J	39600	34200	37300	33600	
Manganese	ug/L		99.6	43.8	124	59.1	4.6 U	
Mercury	ug/L		0.13 R	0.09 R	0.09 UJ	0.09 R	0.1 R	
Nickel	ug/L		16 U	14.7 U	7.4 UJ	14.8 U	14.7 U	
Potassium	ug/L		1300 J	1630 J	2870 J	3460 J	1880 J	
Selenium	ug/L		1 U	1 U	0.99 UJ	1.3 U	1 U	
Silver	ug/L		9.1 U	3.4 U	5.4 U	3.4 U	3.4 U	
Sodium	ug/L		37700 J	35900	41100	40300	37600	
Thallium	ug/L		3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	
Vanadium	ug/L		30.5 U	9.4 U	6.7 UJ	9.5 U	9.4 U	
Zinc	ug/L		19.2 J	6.4 U	6.6 J	16.5 R	6.4 U	
Cyanide	ug/L		11.2 J		10 UJ	10 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3								
	MATRIX	PHASE II WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	ASH	ASH	PT-12	PT-12	PT-12	PT-12	PT12
	DATE	07/13/93	07/10/93	01/17/92	01/17/92	01/17/92	01/17/92	07/15/93
	ES ID	PT11	PT11	PT-12	PT-12Filtered	PT-3(1)	PT-3(1)Filt	PT12
	LAB ID	166805	166795	152704	152711	152703	152710	169112
COMPOUND	UNITS							
Chloromethane	ug/L			10 U		10 U		10 U
Bromomethane	ug/L			10 U		10 U		10 U
Vinyl Chloride	ug/L			4 J		4 J		66
Chloroethane	ug/L			10 U		10 U		10 U
Methylene Chloride	ug/L			5 U		5 U		10 U
Acetone	ug/L			10 U		10 U		10 U
Carbon Disulfide	ug/L			5 U		5 U		10 U
1,1-Dichloroethene	ug/L			5 U		5 U		3 J
1,1-Dichloroethane	ug/L			5 U		5 U		10 U
1,2-Dichloroethene (total)	ug/L			190		200		1400
Chloroform	ug/L			5 U		5 U		10 U
1,2-Dichloroethane	ug/L			5 U		5 U		10 U
2-Butanone	ug/L			10 U		10 U		10 U
1,1,1-Trichloroethane	ug/L			5 U		5 U		10 U
Carbon Tetrachloride	ug/L			5 U		5 U		10 U
Vinyl Acetate	ug/L			10 U		10 U		
Bromodichloromethane	ug/L			5 U		5 U		10 U
1,2-Dichloropropane	ug/L			5 U		5 U		10 U
cis-1,3-Dichloropropene	ug/L			5 U		5 U		10 U
Trichloroethene	ug/L			160		160		970
Dibromochloromethane	ug/L			5 U		5 U		10 U
1,1,2-Trichloroethane	ug/L			5 U		5 U		10 U
Benzene	ug/L			5 U		5 U		10 U
trans-1,3-Dichloropropene	ug/L			5 U		5 U		10 U
Bromoform	ug/L			5 U		5 U		10 U
4-Methyl-2-Pentanone	ug/L			10 U		10 U		10 U
2-Hexanone	ug/L			10 U		10 U		10 U
Tetrachloroethene	ug/L			5 U		5 U		10 U
1,1,2,2-Tetrachloroethane	ug/L			5 U		5 U		10 U
Toluene	ug/L			5 U		5 U		2 J
Chlorobenzene	ug/L			5 U		5 U		10 U
Ethylbenzene	ug/L			5 U		5 U		10 U
Styrene	ug/L			5 U		5 U		10 U
Xylene (total)	ug/L			5 U		5 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3								
		PHASE II	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	ASH	ASH	PT-12	PT-12	PT-12	PT-12	PT12
	DATE	07/13/93	07/10/93	01/17/92	01/17/92	01/17/92	01/17/92	07/15/93
	ES ID	PT11	PT11	PT-12	PT-12Filtered	PT-3(1)	PT-3(1)Filt	PT12
	LAB ID	188805	166795	152704	152711	152703	152710	189112
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	ASH	ASH	PT-12	PT-12	PT-12	PT-12	PT12
	DATE	07/13/93	07/10/93	01/17/92	01/17/92	01/17/92	01/17/92	07/15/93
	ES ID	PT11	PT11	PT-12	PT-12Filtered	PT-3(1)	PT-3(1)Filt	PT12
	LAB ID	165805	166795	152704	152711	152703	152710	169112
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L			11 U		11 U		10 U
bis(2-Chloroethyl) ether	ug/L			11 U		11 U		10 U
2-Chlorophenol	ug/L			11 U		11 U		10 U
1,3-Dichlorobenzene	ug/L			11 U		11 U		10 U
1,4-Dichlorobenzene	ug/L			11 U		11 U		10 U
Benzyl Alcohol	ug/L			11 U		11 U		
1,2-Dichlorobenzene	ug/L			11 U		11 U		10 U
2-Methylphenol	ug/L			11 U		11 U		10 U
bis(2-Chloroisopropyl) ether	ug/L			11 U		11 U		10 U
4-Methylphenol	ug/L			11 U		11 U		10 U
N-Nitroso-di-n-propylamine	ug/L			11 U		11 U		10 U
Hexachloroethane	ug/L			11 U		11 U		10 U
Nitrobenzene	ug/L			11 U		11 U		10 U
Isophorone	ug/L			11 U		11 U		10 U
2-Nitrophenol	ug/L			11 U		11 U		10 U
2,4-Dimethylphenol	ug/L			11 U		11 U		10 U
Benzoic acid	ug/L			55 U		55 U		
bis(2-Chloroethoxy) methane	ug/L			11 U		11 U		10 U
2,4-Dichlorophenol	ug/L			11 U		11 U		10 U
1,2,4-Trichlorobenzene	ug/L			11 U		11 U		10 U
Naphthalene	ug/L			11 U		11 U		10 U
4-Chloroaniline	ug/L			11 U		11 U		10 U
Hexachlorobutadiene	ug/L			11 U		11 U		10 U
4-Chloro-3-methylphenol	ug/L			11 U		11 U		10 U
2-Methylnaphthalene	ug/L			11 U		11 U		10 U
Hexachlorocyclopentadiene	ug/L			11 U		11 U		10 U
2,4,6-Trichlorophenol	ug/L			11 U		11 U		10 U
2,4,5-Trichlorophenol	ug/L			55 U		55 U		25 U
2-Chloronaphthalene	ug/L			11 U		11 U		10 U
2-Nitroaniline	ug/L			55 U		55 U		25 U
Dimethylphthalate	ug/L			11 U		11 U		10 U
Acenaphthylene	ug/L			11 U		11 U		10 U
2,6-Dinitrotoluene	ug/L			11 U		11 U		10 U
3-Nitroaniline	ug/L			55 U		55 U		25 U
Acenaphthene	ug/L			11 U		11 U		10 U
2,4-Dinitrophenol	ug/L			55 U		55 U		25 U
4-Nitrophenol	ug/L			55 U		55 U		25 U
Dibenzofuran	ug/L			11 U		11 U		10 U
2,4-Dinitrotoluene	ug/L			11 U		11 U		10 U
Diethylphthalate	ug/L			11 U		11 U		10 U
4-Chlorophenyl-phenylether	ug/L			11 U		11 U		10 U
Fluorene	ug/L			11 U		11 U		10 U
4-Nitroaniline	ug/L			55 U		55 U		25 U
4,6-Dinitro-2-methylphenol	ug/L			55 U		55 U		25 U
N-Nitrosodiphenylamine (1)	ug/L			11 U		11 U		10 U
4-Bromophenyl-phenylether	ug/L			11 U		11 U		10 U
Hexachlorobenzene	ug/L			11 U		11 U		10 U
Pentachlorophenol	ug/L			55 U		55 U		25 U
Phenanthrene	ug/L			11 U		11 U		10 U
Anthracene	ug/L			11 U		11 U		10 U
Carbazole	ug/L							10 U
Di-n-butylphthalate	ug/L			11 U		11 U		3 J
Fluoranthene	ug/L			11 U		11 U		10 U
Pyrene	ug/L			11 U		11 U		10 U
Butylbenzylphthalate	ug/L			11 U		11 U		10 U
3,3'-Dichlorobenzidine	ug/L			22 U		22 U		10 U
Benzo(a)anthracene	ug/L			11 U		11 U		10 U
Chrysene	ug/L			11 U		11 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L			30 U		11 U		10 U
Di-n-octylphthalate	ug/L			11 U		11 U		10 U
Benzo(b)fluoranthene	ug/L			11 U		11 U		10 U
Benzo(k)fluoranthene	ug/L			11 U		11 U		10 U
Benzo(a)pyrene	ug/L			11 U		11 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L			11 U		11 U		10 U
Dibenz(a,h)anthracene	ug/L			11 U		11 U		10 U
Benzo(g,h,i)perylene	ug/L			11 U		11 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	ASH	ASH	PT-12	PT-12	PT-12	PT-12	PT12
	DATE	07/13/93	07/10/93	01/17/92	01/17/92	01/17/92	01/17/92	07/15/93
	ES ID	PT11	PT11	PT-12	PT-12Filtered	PT-3(1)	PT-3(1)Filt	PT12
	LAB ID	188605	188795	152704	152711	152703	152710	189112
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
beta-BHC	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
delta-BHC	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
gamma-BHC (Lindane)	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
Heptachlor	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
Aldrin	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
Heptachlor epoxide	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
Endosulfan I	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
Dieldrin	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
4,4'-DDE	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Endrin	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Endosulfan II	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
4,4'-DDD	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Endosulfan sulfate	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
4,4'-DDT	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Methoxychlor	ug/L	0.5 UJ		0.53 U		0.56 U		0.5 U
Endrin ketone	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Endrin aldehyde	ug/L	0.1 UJ						0.1 U
alpha-Chlordane	ug/L	0.05 UJ		0.53 U		0.56 U		0.05 U
gamma-Chlordane	ug/L	0.05 UJ		0.53 U		0.56 U		0.05 U
Toxaphene	ug/L	5 UJ		1.1 U		1.2 U		5 U
Aroclor-1016	ug/L	1 UJ		0.53 U		0.56 U		1 U
Aroclor-1221	ug/L	2 UJ		0.53 U		0.56 U		2 U
Aroclor-1232	ug/L	1 UJ		0.53 U		0.56 U		1 U
Aroclor-1242	ug/L	1 UJ		0.53 U		0.56 U		1 U
Aroclor-1248	ug/L	1 UJ		0.53 U		0.56 U		1 U
Aroclor-1254	ug/L	1 UJ		1.1 U		1.2 U		1 U
Aroclor-1260	ug/L	1 UJ		1.1 U		1.2 U		1 U
HERBICIDES								
2,4-D	ug/L		1 R	1.4 U		1 U		1.1 U
2,4-DB	ug/L		1 R	1.4 U		1 U		1.1 U
2,4,5-T	ug/L		0.1 R	0.1 U		0.1 U		0.11 U
2,4,5-TP (Silvex)	ug/L		0.1 R	0.1 U		0.1 U		0.11 U
Dalapon	ug/L		2.3 R	3.2 U		2.3 U		3.9
Dicamba	ug/L		0.1 R	0.1 U		0.1 U		0.11 U
Dichloroprop	ug/L		1 R	1.4 U		1 U		1.1 U
Dinoseb	ug/L		0.5 R	0.7 U		0.5 U		0.53 U
MCPA	ug/L		100 R	140 U		100 U		110 U
MCPP	ug/L		100 R	140 U		100 U		110 U
METALS								
Aluminum	ug/L		3530	27300 J	24.8 U	18400 J	24.4 U	10100 J
Antimony	ug/L		49.7 U	53.2 U	53.2 U	53.1 U	53 U	49.9 U
Arsenic	ug/L		1.4 U	4.5 J	3.5 U	7.5 J	3.5 U	2.4 J
Barium	ug/L		143 J	258	55.7 R	255	53.2 R	115 J
Beryllium	ug/L		0.69 U	2.3 R	1.1 U	1.9 R	1.1 U	0.9 U
Cadmium	ug/L		2.8 U	4.5 J	3 U	3.6 J	3 U	2.8 U
Calcium	ug/L		128000	274000 J	180000	246000 J	175000	285000
Chromium	ug/L		6.1 J	36.8	6.2 U	28.3	6.1 U	13.6 J
Cobalt	ug/L		5.5 U	20.4 U	20.4 U	20.4 U	20.3 U	6.7 J
Copper	ug/L		6.2 J	32.6	10.2 U	24.7 J	10.1 U	4.7 UJ
Iron	ug/L		4370 J	36400 J	7 U	28900 J	6.9 U	14200 J
Lead	ug/L		2.3 J	16.9 R	1.2 U	10 R	1.2 U	2.9 J
Magnesium	ug/L		36200	41800 J	20800	37000 J	20000	38800
Manganese	ug/L		191	1270 J	4.8 U	970 J	4.8 U	608
Mercury	ug/L		0.09 UJ	0.03 U	0.03 U	0.03 U	0.03 U	0.09 U
Nickel	ug/L		7.4 U	46.3	14.7 U	30 J	14.7 U	18 J
Potassium	ug/L		3910 J	8120	1800 J	5690	1430 J	4900 J
Selenium	ug/L		1.5 U	1 U J	1.7 J	1.3 J	1 U	0.99 UJ
Silver	ug/L		5.5 U	3.4 U	3.4 U	3.4 U	3.4 U	5.5 U
Sodium	ug/L		33300	33900	34900	33800	27200	133000
Thallium	ug/L		2.6 U	3.2 U	3.2 U	3.2 U	3.2 U	2.6 U
Vanadium	ug/L		6.3 J	35.6 J	9.5 U	25.3 J	9.4 U	14.8 J
Zinc	ug/L		31.4	201 J	22.3 R	159 J	24.5 R	86.1 R
Cyanide	ug/L		4.3 J	10 U J		10 U J		4.1 J

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT12	PT-15	PT-15	PT-15	PT-15	PT-15	PT-15
	DATE	07/13/93	01/10-13/9:	01/10-13/92	1/10-13/92	1/10-13/92	01/11/92	01/10-13/9:
	ES ID	PT12	PT-15	PT-15	PT-15	PT-15RE(4)	PT-15	PT-15Filter
	LAB ID	189113	152157	152167	152411	152411	152260	152293
COMPOUND	UNITS							
Chloromethane	ug/L		10 U					
Bromomethane	ug/L		10 U					
Vinyl Chloride	ug/L		10 U					
Chloroethane	ug/L		10 U					
Methylene Chloride	ug/L		5 U					
Acetone	ug/L		10 U					
Carbon Disulfide	ug/L		5 U					
1,1-Dichloroethene	ug/L		5 U					
1,1-Dichloroethane	ug/L		5 U					
1,2-Dichloroethene (total)	ug/L		5 U					
Chloroform	ug/L		5 U					
1,2-Dichloroethane	ug/L		5 U					
2-Butanone	ug/L		10 U					
1,1,1-Trichloroethane	ug/L		5 U					
Carbon Tetrachloride	ug/L		5 U					
Vinyl Acetate	ug/L		10 U					
Bromodichloromethane	ug/L		5 U					
1,2-Dichloropropane	ug/L		5 U					
cis-1,3-Dichloropropene	ug/L		5 U					
Trichloroethene	ug/L		5 U					
Dibromochloromethane	ug/L		5 U					
1,1,2-Trichloroethane	ug/L		5 U					
Benzene	ug/L		5 U					
trans-1,3-Dichloropropene	ug/L		5 U					
Bromoform	ug/L		5 U					
4-Methyl-2-Pentanone	ug/L		10 U					
2-Hexanone	ug/L		10 U					
Tetrachloroethene	ug/L		5 U					
1,1,2,2-Tetrachloroethane	ug/L		5 U					
Toluene	ug/L		5 U					
Chlorobenzene	ug/L		5 U					
Ethylbenzene	ug/L		5 U					
Styrene	ug/L		5 U					
Xylene (total)	ug/L		5 U					

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER
SUMGW.WK3	LOCATION	PT12	PT-15	PT-15	PT-15	PT-15	PT-15	PT-15
	DATE	07/13/93	01/10-13/9:	01/10-13/92	1/10-13/92	1/10-13/92	01/11/92	01/10-13/9:
	ES ID	PT12	PT-15	PT-15	PT-15	PT-15RE(4)	PT-15	PT-15Filter
	LAB ID	189113	152157	152167	152411	152411	152260	152293
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT12	PT-15	PT-15	PT-15	PT-15	PT-15	PT-15
	DATE	07/13/93	01/10-13/9:	01/10-13/92	1/10-13/92	1/10-13/92	01/11/92	01/10-13/9:
	ES ID	PT12	PT-15	PT-15	PT-15	PT-15RE(4)	PT-15	PT-15Filter
	LAB ID	189113	152157	152167	152411	152411	152260	152293
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L		12 U					
bis(2-Chloroethyl) ether	ug/L		12 U					
2-Chlorophenol	ug/L		12 U					
1,3-Dichlorobenzene	ug/L		12 U					
1,4-Dichlorobenzene	ug/L		12 U					
Benzyl Alcohol	ug/L		12 U					
1,2-Dichlorobenzene	ug/L		12 U					
2-Methylphenol	ug/L		12 U					
bis(2-Chloroisopropyl) ether	ug/L		12 U					
4-Methylphenol	ug/L		12 U					
N-Nitroso-di-n-propylamine	ug/L		12 U					
Hexachloroethane	ug/L		12 U					
Nitrobenzene	ug/L		12 U					
Isophorone	ug/L		12 U					
2-Nitrophenol	ug/L		12 U					
2,4-Dimethylphenol	ug/L		12 U					
Benzoic acid	ug/L		60 U					
bis(2-Chloroethoxy) methane	ug/L		12 U					
2,4-Dichlorophenol	ug/L		12 U					
1,2,4-Trichlorobenzene	ug/L		12 U					
Naphthalene	ug/L		12 U					
4-Chloroaniline	ug/L		12 U					
Hexachlorobutadiene	ug/L		12 U					
4-Chloro-3-methylphenol	ug/L		12 U					
2-Methylnaphthalene	ug/L		12 U					
Hexachlorocyclopentadiene	ug/L		12 U					
2,4,6-Trichlorophenol	ug/L		12 U					
2,4,5-Trichlorophenol	ug/L		60 U					
2-Chloronaphthalene	ug/L		12 U					
2-Nitroaniline	ug/L		60 U					
Dimethylphthalate	ug/L		12 U					
Acenaphthylene	ug/L		12 U					
2,6-Dinitrotoluene	ug/L		12 U					
3-Nitroaniline	ug/L		60 U					
Acenaphthene	ug/L		12 U					
2,4-Dinitrophenol	ug/L		60 U					
4-Nitrophenol	ug/L		60 U					
Dibenzofuran	ug/L		12 U					
2,4-Dinitrotoluene	ug/L		12 U					
Diethylphthalate	ug/L		12 U					
4-Chlorophenyl-phenylether	ug/L		12 U					
Fluorene	ug/L		12 U					
4-Nitroaniline	ug/L		60 U					
4,6-Dinitro-2-methylphenol	ug/L		60 U					
N-Nitrosodiphenylamine (1)	ug/L		12 U					
4-Bromophenyl-phenylether	ug/L		12 U					
Hexachlorobenzene	ug/L		12 U					
Pentachlorophenol	ug/L		60 U					
Phenanthrene	ug/L		12 U					
Anthracene	ug/L		12 U					
Carbazole	ug/L							
Di-n-butylphthalate	ug/L		12 U					
Fluoranthene	ug/L		12 U					
Pyrene	ug/L		12 U					
Butylbenzylphthalate	ug/L		12 U					
3,3'-Dichlorobenzidine	ug/L		24 U					
Benzo(a)anthracene	ug/L		12 U					
Chrysene	ug/L		12 U					
bis(2-Ethylhexyl)phthalate	ug/L		12 U					
Di-n-octylphthalate	ug/L		12 U					
Benzo(b)fluoranthene	ug/L		12 U					
Benzo(k)fluoranthene	ug/L		12 U					
Benzo(a)pyrene	ug/L		12 U					
Indeno(1,2,3-cd)pyrene	ug/L		12 U					
Dibenz(a,h)anthracene	ug/L		12 U					
Benzo(g,h,i)perylene	ug/L		12 U					

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT12	PT-15	PT-15	PT-15	PT-15	PT-15	PT-15
	DATE	07/13/93	01/10-13/9:	01/10-13/92	1/10-13/92	1/10-13/92	01/11/92	01/10-13/9:
	ES ID	PT12	PT-15	PT-15	PT-15	PT-15RE(4)	PT-15	PT-15Filter
	LAB ID	159113	152157	152167	152411	152411	152260	152293
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L				0.05 U R	0.05 U J		
beta-BHC	ug/L				0.05 U R	0.05 U J		
delta-BHC	ug/L				0.05 U R	0.05 U J		
gamma-BHC (Lindane)	ug/L				0.05 U R	0.05 U J		
Heptachlor	ug/L				0.05 U R	0.05 U J		
Aldrin	ug/L				0.05 U R	0.05 U J		
Heptachlor epoxide	ug/L				0.05 U R	0.05 U J		
Endosulfan I	ug/L				0.05 U R	0.05 U J		
Dieldrin	ug/L				0.1 U R	0.1 U J		
4,4'-DDE	ug/L				0.1 U R	0.1 U J		
Endrin	ug/L				0.1 U R	0.1 U J		
Endosulfan II	ug/L				0.1 U R	0.1 U J		
4,4'-DDD	ug/L				0.1 U R	0.1 U J		
Endosulfan sulfate	ug/L				0.1 U R	0.1 U J		
4,4'-DDT	ug/L				0.1 U R	0.1 U J		
Methoxychlor	ug/L				0.5 U R	0.5 U J		
Endrin ketone	ug/L				0.1 U R	0.1 U J		
Endrin aldehyde	ug/L							
alpha-Chlordane	ug/L				0.5 U R	0.5 U J		
gamma-Chlordane	ug/L				0.5 U R	0.5 U J		
Toxaphene	ug/L				1 U R	1 U J		
Aroclor-1016	ug/L				0.5 U R	0.5 U J		
Aroclor-1221	ug/L				0.5 U R	0.5 U J		
Aroclor-1232	ug/L				0.5 U R	0.5 U J		
Aroclor-1242	ug/L				0.5 U R	0.5 U J		
Aroclor-1248	ug/L				0.5 U R	0.5 U J		
Aroclor-1254	ug/L				1 U R	1 U J		
Aroclor-1260	ug/L				1 U R	1 U J		
HERBICIDES								
2,4-D	ug/L	1 U			1 U			
2,4-DB	ug/L	1 U			1 U			
2,4,5-T	ug/L	0.1 U			0.1 U			
2,4,5-TP (Silvex)	ug/L	0.1 U			0.1 U			
Dalapon	ug/L	2.3 U			2.3 U			
Dicamba	ug/L	0.1 U			0.1 U			
Dichloroprop	ug/L	1 U			1 U			
Dinoseb	ug/L	0.5 U			0.5 U			
MCPA	ug/L	100 U			100 U			
MCPP	ug/L	100 U			100 U			
METALS								
Aluminum	ug/L						389	24.6 U
Antimony	ug/L						55.6 U J	53.4 U
Arsenic	ug/L						3.5 U	3.5 U
Barium	ug/L						93.5 J	79.7 J
Beryllium	ug/L						1.7 R	2.4 R
Cadmium	ug/L						2.9 U	3 U
Calcium	ug/L						56500 J	59700
Chromium	ug/L						6.2 U	6.2 U
Cobalt	ug/L						19.9 U	20.5 U
Copper	ug/L						14.5 U	10.2 U
Iron	ug/L						673	7 U
Lead	ug/L						1.2 U	1.2 U
Magnesium	ug/L						16000 J	17600
Manganese	ug/L						60.8	6 J
Mercury	ug/L						0.13 R	0.1 R
Nickel	ug/L						15.9 U	14.6 U
Potassium	ug/L						1620 J	2030 J
Selenium	ug/L						1 U	1 U
Silver	ug/L						9.1 U	3.4 U
Sodium	ug/L						29900	29800
Thallium	ug/L						3.2 U	3.2 U
Vanadium	ug/L						30.5 U	9.5 U
Zinc	ug/L						17.4 B	6.5 U
Cyanide	ug/L						10 U J	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3			PHASE II	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION		PT15	ASH	PT-16	PT-16	PT16	PT-17	PT-17
	DATE	2	06/24/93	06/30/93	01/08/92	01/06/92	07/03/93	01/16/92	01/16/92
	ES ID	ed	PT15	PT-15	PT-16	PT-16Filter	PT16	PT-17	PT-17Filter
	LAB ID		187343	187934	152158	152200	188260	152647	152671
COMPOUND	UNITS								
Chloromethane	ug/L				10 U			14 U	
Bromomethane	ug/L				10 U			14 U	
Vinyl Chloride	ug/L				10 U			14 U	
Chloroethane	ug/L				10 U			14 U	
Methylene Chloride	ug/L				5 U			6 U	
Acetone	ug/L				10 U			10 U	
Carbon Disulfide	ug/L				5 U			7 U	
1,1-Dichloroethene	ug/L				5 U			7 U	
1,1-Dichloroethane	ug/L				5 U			7 U	
1,2-Dichloroethene (total)	ug/L				5 U			53	
Chloroform	ug/L				5 U			3 J	
1,2-Dichloroethane	ug/L				5 U			7 U	
2-Butanone	ug/L				10 U			14 U	
1,1,1-Trichloroethane	ug/L				5 U			7 U	
Carbon Tetrachloride	ug/L				5 U			7 U	
Vinyl Acetate	ug/L				10 U			14 U	
Bromodichloromethane	ug/L				5 U			7 U	
1,2-Dichloropropane	ug/L				5 U			7 U	
cis-1,3-Dichloropropene	ug/L				5 U			7 U	
Trichloroethene	ug/L				5 U			260	
Dibromochloromethane	ug/L				5 U			7 U	
1,1,2-Trichloroethane	ug/L				5 U			7 U	
Benzene	ug/L				5 U			7 U	
trans-1,3-Dichloropropene	ug/L				5 U			7 U	
Bromoform	ug/L				5 U			7 U	
4-Methyl-2-Pentanone	ug/L				10 U			14 U	
2-Hexanone	ug/L				10 U			14 U	
Tetrachloroethene	ug/L				5 U			7 U	
1,1,2,2-Tetrachloroethane	ug/L				5 U			7 U	
Toluene	ug/L				5 U			7 U	
Chlorobenzene	ug/L				5 U			7 U	
Ethylbenzene	ug/L				5 U			7 U	
Styrene	ug/L				5 U			7 U	
Xylene (total)	ug/L				5 U			7 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE II	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT15	ASH	PT-16	PT-16	PT16	PT-17	PT-17
	DATE 2	06/24/93	06/30/93	01/08/92	01/08/92	07/03/93	01/16/92	01/16/92
	ES ID ed	PT15	PT-15	PT-16	PT-16Filter	PT16	PT-17	PT-17Filter
	LAB ID	157343	167934	152158	152200	168260	152647	152671
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L	0.5 U				0.5 U		
Chloromethane	ug/L	0.5 U				0.5 U		
Vinyl Chloride	ug/L	0.5 U				0.5 U		
Bromomethane	ug/L	0.5 U				0.5 U		
Chloroethane	ug/L	0.5 U				0.5 U		
Trichlorofluoromethane	ug/L	0.5 U				0.5 U		
1,1-Dichloroethene	ug/L	0.5 U				0.5 U		
Acetone	ug/L	5 U				5 U		
Carbon Disulfide	ug/L	0.5 U				0.5 U		
Methylene Chloride	ug/L	0.5 U				0.5 U		
trans-1,2-Dichloroethene	ug/L	0.5 U				0.5 U		
1,1-Dichloroethane	ug/L	0.5 U				0.5 U		
2,2-Dichloropropane	ug/L	0.5 U				0.5 U		
cis-1,2-Dichloroethene	ug/L	0.5 U				0.5 U		
2-Butanone	ug/L	5 U				5 U		
Bromochloromethane	ug/L	0.5 U				0.5 U		
Chloroform	ug/L	0.5 U				0.5 U		
1,1,1-Trichloroethane	ug/L	0.5 U				0.5 U		
Carbon Tetrachloride	ug/L	0.5 U				0.5 U		
1,1-Dichloropropene	ug/L	0.5 U				0.5 U		
Benzene	ug/L	0.5 U				0.5 U		
1,2-Dichloroethane	ug/L	0.5 U				0.5 U		
Trichloroethene	ug/L	0.5 U				0.5 U		
1,2-Dichloropropane	ug/L	0.5 U				0.5 U		
Dibromomethane	ug/L	0.5 U				0.5 U		
Bromodichloromethane	ug/L	0.5 U				0.5 U		
cis-1,3-Dichloropropene	ug/L	0.5 U				0.5 U		
4-Methyl-2-Pentanone	ug/L	5 U				5 U		
Toluene	ug/L	0.5 U				0.5 U		
trans-1,3-Dichloropropene	ug/L	0.5 U				0.5 U		
1,1,2-Trichloroethane	ug/L	0.5 U				0.5 U		
Tetrachloroethene	ug/L	0.5 U				0.5 U		
1,3-Dichloropropane	ug/L	0.5 U				0.5 U		
2-Hexanone	ug/L	5 U				5 U		
Dibromochloromethane	ug/L	0.5 U				0.5 U		
1,2-Dibromoethane	ug/L	0.5 U				0.5 U		
Chlorobenzene	ug/L	0.5 U				0.5 U		
1,1,1,2-Tetrachloroethane	ug/L	0.5 U				0.5 U		
Ethylbenzene	ug/L	0.5 U				0.5 U		
Styrene	ug/L	0.5 U				0.5 U		
Bromoform	ug/L	0.5 U				0.5 U		
Isopropylbenzene	ug/L	0.5 U				0.5 U		
Bromobenzene	ug/L	0.5 U				0.5 U		
1,1,2,2-Tetrachloroethane	ug/L	0.5 U				0.5 U		
1,2,3-Trichloropropane	ug/L	0.5 U				0.5 U		
n-Propylbenzene	ug/L	0.5 U				0.5 U		
2-Chlorotoluene	ug/L	0.5 U				0.5 U		
4-Chlorotoluene	ug/L	0.5 U				0.5 U		
1,3,5-Trimethylbenzene	ug/L	0.5 U				0.5 U		
tert-Butylbenzene	ug/L	0.5 U				0.5 U		
1,2,4-Trimethylbenzene	ug/L	0.5 U				0.5 U		
sec-Butylbenzene	ug/L	0.5 U				0.5 U		
1,3-Dichlorobenzene	ug/L	0.5 U				0.5 U		
1,4-Dichlorobenzene	ug/L	0.5 U				0.5 U		
p-Isopropyltoluene	ug/L	0.5 U				0.5 U		
1,2-Dichlorobenzene	ug/L	0.5 U				0.5 U		
n-Butylbenzene	ug/L	0.5 U				0.5 U		
1,2-Dibromo-3-Chloropropane	ug/L	0.5 U				0.5 U		
1,2,4-Trichlorobenzene	ug/L	0.5 U				0.5 U		
Hexachlorobutadiene	ug/L	0.5 U				0.5 U		
Naphthalene	ug/L	0.5 U				0.5 U		
1,2,3-Trichlorobenzene	ug/L	0.5 U				0.5 U		
Xylene (total)	ug/L	0.5 U				0.5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE II	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT15	ASH	PT-16	PT-16	PT16	PT-17	PT-17
	DATE 2	06/24/93	06/30/93	01/08/92	01/08/92	07/03/93	01/16/92	01/16/92
	ES ID ed	PT15	PT-15	PT-16	PT-16Filter	PT16	PT-17	PT-17Filter
	LAB ID	167343	167934	152156	152200	168260	152647	152671
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U		11 U		10 U	11 U	
bis(2-Chloroethyl) ether	ug/L	10 U		11 U		10 U	11 U	
2-Chlorophenol	ug/L	10 U		11 U		10 U	11 U	
1,3-Dichlorobenzene	ug/L	10 U		11 U		10 U	11 U	
1,4-Dichlorobenzene	ug/L	10 U		11 U		10 U	11 U	
Benzyl Alcohol	ug/L			11 U			11 U	
1,2-Dichlorobenzene	ug/L	10 U		11 U		10 U	11 U	
2-Methylphenol	ug/L	10 U		11 U		10 U	11 U	
bis(2-Chloroisopropyl) ether	ug/L	10 U		11 U		10 U	11 U	
4-Methylphenol	ug/L	10 U		11 U		10 U	11 U	
N-Nitroso-di-n-propylamine	ug/L	10 U		11 U		10 U	11 U	
Hexachloroethane	ug/L	10 U		11 U		10 U	11 U	
Nitrobenzene	ug/L	10 U		11 U		10 U	11 U	
Isophorone	ug/L	10 U		11 U		10 U	11 U	
2-Nitrophenol	ug/L	10 U		11 U		10 U	11 U	
2,4-Dimethylphenol	ug/L	10 U		11 U		10 U	11 U	
Benzoic acid	ug/L			56 U			54 U	
bis(2-Chloroethoxy) methane	ug/L	10 U		11 U		10 U	11 U	
2,4-Dichlorophenol	ug/L	10 U		11 U		10 U	11 U	
1,2,4-Trichlorobenzene	ug/L	10 U		11 U		10 U	11 U	
Naphthalene	ug/L	10 U		11 U		10 U	11 U	
4-Chloroaniline	ug/L	10 U		11 U		10 U	11 U	
Hexachlorobutadiene	ug/L	10 U		11 U		10 U	11 U	
4-Chloro-3-methylphenol	ug/L	10 U		11 U		10 U	11 U	
2-Methylnaphthalene	ug/L	10 U		11 U		10 U	11 U	
Hexachlorocyclopentadiene	ug/L	10 U		11 U		10 U	11 U	
2,4,6-Trichlorophenol	ug/L	10 U		11 U		10 U	11 U	
2,4,5-Trichlorophenol	ug/L	26 U		56 U		25 U	54 U	
2-Chloronaphthalene	ug/L	10 U		11 U		10 U	11 U	
2-Nitroaniline	ug/L	26 U		56 U		25 U	54 U	
Dimethylphthalate	ug/L	10 U		11 U		10 U	11 U	
Acenaphthylene	ug/L	10 U		11 U		10 U	11 U	
2,6-Dinitrotoluene	ug/L	10 U		11 U		10 U	11 U	
3-Nitroaniline	ug/L	26 U		56 U		25 U	54 U	
Acenaphthene	ug/L	10 U		11 U		10 U	11 U	
2,4-Dinitrophenol	ug/L	26 U		56 U		25 U	54 U	
4-Nitrophenol	ug/L	26 U		56 U		25 U	54 U	
Dibenzofuran	ug/L	10 U		11 U		10 U	11 U	
2,4-Dinitrotoluene	ug/L	10 U		11 U		10 U	11 U	
Diethylphthalate	ug/L	10 U		11 U		10 U	11 U	
4-Chlorophenyl-phenylether	ug/L	10 U		11 U		10 U	11 U	
Fluorene	ug/L	10 U		11 U		10 U	11 U	
4-Nitroaniline	ug/L	26 U		56 U		25 U	54 U	
4,6-Dinitro-2-methylphenol	ug/L	26 U		56 U		25 U	54 U	
N-Nitrosodiphenylamine (1)	ug/L	10 U		11 U		10 U	11 U	
4-Bromophenyl-phenylether	ug/L	10 U		11 U		10 U	11 U	
Hexachlorobenzene	ug/L	10 U		11 U		10 U	11 U	
Pentachlorophenol	ug/L	26 U		56 U		25 U	54 U	
Phenanthrene	ug/L	10 U		11 U		10 U	11 U	
Anthracene	ug/L	10 U		11 U		10 U	11 U	
Carbazole	ug/L	10 U				10 U		
Di-n-butylphthalate	ug/L	10 U		11 U		10 U	11 U	
Fluoranthene	ug/L	10 U		11 U		10 U	11 U	
Pyrene	ug/L	10 U		11 U		10 U	11 U	
Butylbenzylphthalate	ug/L	10 U		11 U		10 U	11 U	
3,3'-Dichlorobenzidine	ug/L	10 U		22 U		10 U	21 U	
Benzo(a)anthracene	ug/L	10 U		11 U		10 U	11 U	
Chrysene	ug/L	10 U		11 U		10 U	11 U	
bis(2-Ethylhexyl)phthalate	ug/L	10 U		11 U		10 U	20 U	
Di-n-octylphthalate	ug/L	10 U		11 U		10 U	11 U	
Benzo(b)fluoranthene	ug/L	10 U		11 U		10 U	11 U	
Benzo(k)fluoranthene	ug/L	10 U		11 U		10 U	11 U	
Benzo(a)pyrene	ug/L	10 U		11 U		10 U	11 U	
Indeno(1,2,3-cd)pyrene	ug/L	10 U		11 U		10 U	11 U	
Dibenz(a,h)anthracene	ug/L	10 U		11 U		10 U	11 U	
Benzo(g,h,i)perylene	ug/L	10 U		11 U		10 U	11 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE II	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT15	ASH	PT-16	PT-16	PT16	PT-17	PT-17
	DATE 2	06/24/93	06/30/93	01/08/92	01/08/92	07/03/93	01/16/92	01/16/92
	ES ID ed	PT15	PT-15	PT-16	PT-16Filter	PT16	PT-17	PT-17Filter
	LAB ID	187343	187934	152156	152200	188260	152647	152671
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
beta-BHC	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
delta-BHC	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
gamma-BHC (Lindane)	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Heptachlor	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Aldrin	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Heptachlor epoxide	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Endosulfan I	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Dieldrin	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDE	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endrin	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endosulfan II	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDD	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endosulfan sulfate	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDT	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Methoxychlor	ug/L		0.5 U	0.5 U		0.5 U	0.55 U	
Endrin ketone	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endrin aldehyde	ug/L		0.1 U			0.1 U		
alpha-Chlordane	ug/L		0.05 U	0.5 U		0.05 U	0.55 U	
gamma-Chlordane	ug/L		0.05 U	0.5 U		0.05 U	0.55 U	
Toxaphene	ug/L		5 U	1 U		5 U	1.1 U	
Aroclor-1016	ug/L		1 U	0.5 U		1 U	0.55 U	
Aroclor-1221	ug/L		2 U	0.5 U		2 U	0.55 U	
Aroclor-1232	ug/L		1 U	0.5 U		1 U	0.55 U	
Aroclor-1242	ug/L		1 U	0.5 U		1 U	0.55 U	
Aroclor-1248	ug/L		1 U	0.5 U		1 U	0.55 U	
Aroclor-1254	ug/L		1 U	1 U		1 U	1.1 U	
Aroclor-1260	ug/L		1 U	1 U		1 U	1.1 U	
HERBICIDES								
2,4-D	ug/L		1 U	1.2 U		1.1 U	1 U	
2,4-DB	ug/L		1 U	1.2 U		1.1 U	1 U	
2,4,5-T	ug/L		0.1 U	0.1 U		0.11 U	0.1 U	
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U		0.11 U	0.1 U	
Dalapon	ug/L		2.3 U	2.7 U		2.4 U	2.3 U	
Dicamba	ug/L		0.1 U	0.1 U		0.11 U	0.1 U	
Dichloroprop	ug/L		1 U	1.2 U		1.1 U	1 U	
Dinoseb	ug/L		0.5 U	0.6 U		0.53 U	0.5 U	
MCPA	ug/L		100 U	120 U		110 U	100 U	
MCPP	ug/L		100 U	120 U		110 U	100 U	
METALS								
Aluminum	ug/L	693		1520	24.4 U	179 J	14200	24.6 U
Antimony	ug/L	49.9 UJ		53.4 U	53 U	49.8 UJ	53.3 R	53.4 U
Arsenic	ug/L	1.4 UJ		3.5 U J	3.5 U	1.4 UJ	3.5 J	3.5 U
Barium	ug/L	100 J		75 J	36.6 R	48.5 J	131 J	69.5 R
Beryllium	ug/L	0.9 U		2.1 R	2.3 R	0.89 U	2.5 R	1.1 U
Cadmium	ug/L	2.8 U		2.9 U	3 U	2.8 U	3 U	3 U
Calcium	ug/L	68400		129000 J	100000	182000	115000	106000
Chromium	ug/L	2.7 UJ		7.2 J	6.2 U	2.7 UJ	20	6.2 U
Cobalt	ug/L	5.5 U		19.8 U	20.4 U	5.5 U	20.3 U	20.5 U
Copper	ug/L	4.7 U		14.5 U	10.1 U	4.7 U	11.9 J	10.2 U
Iron	ug/L	1400		2780	6.9 U	119	21500	7 U
Lead	ug/L	1.7 J		4.2	1.2 U	0.79 U	6.3	1.2 U
Magnesium	ug/L	17800		14300 J	14300	14900	15700	10700
Manganese	ug/L	158		483	4.8 U	24.6	520	4.8 U
Mercury	ug/L	0.09 UJ		0.12 R	0.1 R	0.09 UJ	0.1 R	0.03 U
Nickel	ug/L	7.5 UJ		16 U	14.7 U	7.4 UJ	21.3 J	14.8 U
Potassium	ug/L	2430 J		633 U	287 U	1080 J	3200 J	289 U
Selenium	ug/L	0.99 UJ		1 U	1 U	1.5 UJ	1.3 U	1 U
Silver	ug/L	5.5 U		9.1 U	3.4 U	5.5 U	3.4 U	3.4 U
Sodium	ug/L	27600		5930 J	5890	6340	29400	27600
Thallium	ug/L	2.6 U		3.2 U	3.2 U	2.6 U	3.2 U	3.2 U
Vanadium	ug/L	8.8 UJ		30.5 U	9.4 U	8.7 UJ	21.6 J	9.5 U
Zinc	ug/L	17.5 R		24.1	8.4 U	9.2 J	69.4 R	20.5 R
Cyanide	ug/L	10 UJ		10 U J		10 UJ	10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
SUMGW.WK3	LOCATION	PT17	PT-18	PT-18	PT18	PT-19	PT-19	PT-19
	DATE	07/13/93	01/09/92	01/09/92	07/15/93	01/17/92	01/17/92	06/30/93
	ES ID	PT17	PT-18	PT-18Filter	PT18	PT-19	PT-19Filtered	PT-19
	LAB ID	168606	152159	152201	189114	152705	152712	187935
COMPOUND	UNITS							
Chloromethane	ug/L	10 U	670 U		10 U	10 U		
Bromomethane	ug/L	10 U	670 U		10 U	10 U		
Vinyl Chloride	ug/L	10 U	670 U		10	10 U		
Chloroethane	ug/L	10 U	670 U		10 U	10 U		
Methylene Chloride	ug/L	10 U	330 U		10 U	5 U		
Acetone	ug/L	10 U	670 U		10 U	10 U		
Carbon Disulfide	ug/L	10 U	330 U		10 U	5 U		
1,1-Dichloroethene	ug/L	10 U	330 U		3 J	5 U		
1,1-Dichloroethane	ug/L	10 U	330 U		10 U	5 U		
1,2-Dichloroethene (total)	ug/L	43	400		730 J	5 U		
Chloroform	ug/L	10 U	160 J		210 J	5 U		
1,2-Dichloroethane	ug/L	10 U	330 U		10 U	5 U		
2-Butanone	ug/L	10 U	670 U		10 U	10 U		
1,1,1-Trichloroethane	ug/L	10 U	330 U		10 U	5 U		
Carbon Tetrachloride	ug/L	10 U	330 U		10 U	5 U		
Vinyl Acetate	ug/L		670 U			10 U		
Bromodichloromethane	ug/L	10 U	330 U		10 U	5 U		
1,2-Dichloropropane	ug/L	10 U	330 U		10 U	5 U		
cis-1,3-Dichloropropene	ug/L	10 U	330 U		10 U	5 U		
Trichloroethene	ug/L	190	11000		13000	5 U		
Dibromochloromethane	ug/L	10 U	330 U		10 U	5 U		
1,1,2-Trichloroethane	ug/L	10 U	330 U		10 U	5 U		
Benzene	ug/L	10 U	330 U		1 J	5 U		
trans-1,3-Dichloropropene	ug/L	10 U	330 U		10 U	5 U		
Bromoform	ug/L	10 U	330 U		10 U	5 U		
4-Methyl-2-Pentanone	ug/L	10 U	670 U		10 U	10 U		
2-Hexanone	ug/L	10 U	670 U		10 U	10 U		
Tetrachloroethene	ug/L	10 U	330 U		10 U	5 U		
1,1,2,2-Tetrachloroethane	ug/L	10 U	330 U		10 U	5 U		
Toluene	ug/L	10 U	330 U		10 U	5 U		
Chlorobenzene	ug/L	10 U	330 U		10 U	5 U		
Ethylbenzene	ug/L	10 U	330 U		10 U	5 U		
Styrene	ug/L	10 U	330 U		10 U	5 U		
Xylene (total)	ug/L	10 U	330 U		10 U	5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	LOCATION	PT17	PT-18	PT-18	PT18	PT-19	PT-19	PT-19
	DATE	07/13/93	01/09/92	01/09/92	07/15/93	01/17/92	01/17/92	06/30/93
	ES ID	PT17	PT-18	PT-18Filter	PT18	PT-19	PT-19Filtered	PT-19
	LAB ID	188806	152159	152201	189114	152705	152712	187935
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							0.5 U
Chloromethane	ug/L							0.5 U
Vinyl Chloride	ug/L							0.5 U
Bromomethane	ug/L							0.5 U
Chloroethane	ug/L							0.5 U
Trichlorofluoromethane	ug/L							0.5 U
1,1-Dichloroethene	ug/L							0.5 U
Acetone	ug/L							5 U
Carbon Disulfide	ug/L							0.5 U
Methylene Chloride	ug/L							0.5 U
trans-1,2-Dichloroethene	ug/L							0.5 U
1,1-Dichloroethane	ug/L							0.5 U
2,2-Dichloropropane	ug/L							0.5 U
cis-1,2-Dichloroethene	ug/L							0.5 U
2-Butanone	ug/L							5 U
Bromochloromethane	ug/L							0.5 U
Chloroform	ug/L							0.5 U
1,1,1-Trichloroethane	ug/L							0.5 U
Carbon Tetrachloride	ug/L							0.5 U
1,1-Dichloropropene	ug/L							0.5 U
Benzene	ug/L							0.5 U
1,2-Dichloroethane	ug/L							0.5 U
Trichloroethene	ug/L							0.5 U
1,2-Dichloropropane	ug/L							0.5 U
Dibromomethane	ug/L							0.5 U
Bromodichloromethane	ug/L							0.5 U
cis-1,3-Dichloropropene	ug/L							0.5 U
4-Methyl-2-Pentanone	ug/L							5 U
Toluene	ug/L							0.5 U
trans-1,3-Dichloropropene	ug/L							0.5 U
1,1,2-Trichloroethane	ug/L							0.5 U
Tetrachloroethene	ug/L							0.5 U
1,3-Dichloropropane	ug/L							0.5 U
2-Hexanone	ug/L							5 U
Dibromochloromethane	ug/L							0.5 U
1,2-Dibromoethane	ug/L							0.5 U
Chlorobenzene	ug/L							0.5 U
1,1,1,2-Tetrachloroethane	ug/L							0.5 U
Ethylbenzene	ug/L							0.5 U
Styrene	ug/L							0.5 U
Bromoform	ug/L							0.5 U
Isopropylbenzene	ug/L							0.5 U
Bromobenzene	ug/L							0.5 U
1,1,2,2-Tetrachloroethane	ug/L							0.5 U
1,2,3-Trichloropropane	ug/L							0.5 U
n-Propylbenzene	ug/L							0.5 U
2-Chlorotoluene	ug/L							0.5 U
4-Chlorotoluene	ug/L							0.5 U
1,3,5-Trimethylbenzene	ug/L							0.5 U
tert-Butylbenzene	ug/L							0.5 U
1,2,4-Trimethylbenzene	ug/L							0.5 U
sec-Butylbenzene	ug/L							0.5 U
1,3-Dichlorobenzene	ug/L							0.5 U
1,4-Dichlorobenzene	ug/L							0.5 U
p-Isopropyltoluene	ug/L							0.5 U
1,2-Dichlorobenzene	ug/L							0.5 U
n-Butylbenzene	ug/L							0.5 U
1,2-Dibromo-3-Chloropropane	ug/L							0.5 U
1,2,4-Trichlorobenzene	ug/L							0.5 U
Hexachlorobutadiene	ug/L							0.5 U
Naphthalene	ug/L							0.5 U
1,2,3-Trichlorobenzene	ug/L							0.5 U
Xylene (total)	ug/L							0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT17	PT-18	PT-18	PT18	PT-19	PT-19	PT-19
	DATE	07/13/93	01/09/92	01/09/92	07/15/93	01/17/92	01/17/92	06/30/93
	ES ID	PT17	PT-18	PT-18Filter	PT18	PT-19	PT-19Filtered	PT-19
	LAB ID	168806	152159	152201	189114	152706	152712	187935
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Chloroethyl) ether	ug/L	10 U	11 U		10 U	11 U		10 U
2-Chlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
1,3-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
1,4-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzyl Alcohol	ug/L		11 U			11 U		
1,2-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
2-Methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	11 U		10 U	11 U		10 U
4-Methylphenol	ug/L	10 U	11 U		10 U	11 U		2 J
N-Nitroso-di-n-propylamine	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachloroethane	ug/L	10 U	11 U		10 U	11 U		10 U
Nitrobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Isophorone	ug/L	10 U	11 U		10 U	11 U		10 U
2-Nitrophenol	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dimethylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
Benzoic acid	ug/L		57 U			55 U		
bis(2-Chloroethoxy) methane	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dichlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
1,2,4-Trichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Naphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chloroaniline	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorobutadiene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chloro-3-methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
2-Methylnaphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorocyclopentadiene	ug/L	10 U	11 U		10 U	11 U		10 U
2,4,6-Trichlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
2,4,5-Trichlorophenol	ug/L	25 U	57 U		25 U	55 U		25 U
2-Chloronaphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
2-Nitroaniline	ug/L	25 U	57 U		25 U	55 U		25 U
Dimethylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Acenaphthylene	ug/L	10 U	11 U		10 U	11 U		10 U
2,6-Dinitrotoluene	ug/L	10 U	11 U		10 U	11 U		10 U
3-Nitroaniline	ug/L	25 U	57 U		25 U	55 U		25 U
Acenaphthene	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dinitrophenol	ug/L	25 U	57 U		25 U	55 U		25 U
4-Nitrophenol	ug/L	25 U	57 U		25 U	55 U		25 U
Dibenzofuran	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dinitrotoluene	ug/L	10 U	11 U		10 U	11 U		10 U
Diethylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chlorophenyl-phenylether	ug/L	10 U	11 U		10 U	11 U		10 U
Fluorene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Nitroaniline	ug/L	25 U	57 U		25 U	55 U		25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	57 U		25 U	55 U		25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	11 U		10 U	11 U		10 U
4-Bromophenyl-phenylether	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Pentachlorophenol	ug/L	25 U	57 U		25 U	55 U		25 U
Phenanthrene	ug/L	10 U	11 U		10 U	11 U		10 U
Anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Carbazole	ug/L	10 U			10 U			10 U
Di-n-butylphthalate	ug/L	3 J	11 U		10 U	11 U		10 U
Fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Butylbenzylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
3,3'-Dichlorobenzidine	ug/L	10 U	23 U		10 U	22 U		10 U
Benzo(a)anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Chrysene	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Di-n-octylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(b)fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(k)fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(a)pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Dibenz(a,h)anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(g,h,i)perylene	ug/L	10 U	11 U		10 U	11 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	LOCATION	PT17	PT-18	PT-18	PT18	PT-19	PT-19	PT-19
	DATE	07/13/93	01/09/92	01/09/92	07/15/93	01/17/92	01/17/92	06/30/93
	ES ID	PT17	PT-18	PT-18Filter	PT18	PT-19	PT-19Filtered	PT-19
	LAB ID	188806	152159	152201	189114	152705	152712	187935
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
beta-BHC	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
delta-BHC	ug/L	0.06 U	0.052 U		0.05 U	0.061 U		0.05 U
gamma-BHC (Lindane)	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Heptachlor	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Aldrin	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Heptachlor epoxide	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Endosulfan I	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Dieldrin	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
4,4'-DDE	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Endrin	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Endosulfan II	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
4,4'-DDD	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Endosulfan sulfate	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
4,4'-DDT	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Methoxychlor	ug/L	0.5 U	0.52 U		0.5 U	0.61 U		0.5 U
Endrin ketone	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Endrin aldehyde	ug/L	0.1 U			0.1 U			0.1 U
alpha-Chlordane	ug/L	0.05 U	0.52 U		0.05 U	0.61 U		0.05 U
gamma-Chlordane	ug/L	0.05 U	0.52 U		0.05 U	0.61 U		0.05 U
Toxaphene	ug/L	5 U	1 U		5 U	1.2 U		5 U
Aroclor-1016	ug/L	1 U	0.52 U		1 U	0.61 U		1 U
Aroclor-1221	ug/L	2 U	0.52 U		2 U	0.61 U		2 U
Aroclor-1232	ug/L	1 U	0.52 U		1 U	0.61 U		1 U
Aroclor-1242	ug/L	1 U	0.52 U		1 U	0.61 U		1 U
Aroclor-1248	ug/L	1 U	0.52 U		1 U	0.61 U		1 U
Aroclor-1254	ug/L	1 U	1 U		1 U	1.2 U		1 U
Aroclor-1260	ug/L	1 U	1 U		1 U	1.2 U		1 U
HERBICIDES								
2,4-D	ug/L	1 U	1.1 U		1 U	1 U		1 U
2,4-DB	ug/L	1 U	1.1 U		1 U	1 U		1 U
2,4,5-T	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
Dalapon	ug/L	2.3 U	2.4 U		2.3 U	2.4 U		2.3 U
Dicamba	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
Dichloroprop	ug/L	1 U	1.1 U		1 U	1 U		1 U
Dinoseb	ug/L	0.5 U	0.5 U		0.5 U	0.5 U		0.5 U
MCPA	ug/L	100 U	110 U		100 U	100 U		100 U
MCPP	ug/L	100 U	110 U		100 U	100 U		100 U
METALS								
Aluminum	ug/L	72.6 U	1510	24.4 U	318 J	36100	24.5 U	207
Antimony	ug/L	69.8 R	55.5 U J	52.9 U	49.7 U	53.3 U	53.1 U	49.8 UJ
Arsenic	ug/L	1.4 U	3.5 U	3.5 U	1.9 U	3.5 U	3.5 U	1.4 UJ
Barium	ug/L	54.6 J	53.9 J	37.4 R	40 J	217	59.4 R	58 J
Beryllium	ug/L	0.9 U	2.1 R	2.5 R	0.9 U	2.5 R	1.1 U	0.9 U
Cadmium	ug/L	2.8 U	2.9 U	3 U	2.8 U	6.1 J	3 U	2.8 U
Calcium	ug/L	114000	329000 J	271000	203000	110000	95300	114000
Chromium	ug/L	2.7 U	6.1 U	6.1 U	2.8 J	47.2	6.2 U	2.7 UJ
Cobalt	ug/L	5.5 U	19.8 U	20.3 U	5.9 J	20.5 U	20.4 U	5.5 U
Copper	ug/L	4.7 U	14.4 U	10.1 U	4.7 UJ	41.3	10.1 U	6.6 J
Iron	ug/L	105 J	2270	6.9 U	496 J	48300	7 U	409
Lead	ug/L	0.8 U	17.8	1.2 U	0.8 U	12.6 R	1.2 U	0.8 U
Magnesium	ug/L	11100	37000 J	39400	24900	24700 J	12900	14400
Manganese	ug/L	5.1 J	1530	964	752	843 J	8.8 J	361
Mercury	ug/L	0.09 UJ	0.42 R	0.12 R	0.09 U	0.04 R	0.03 U	0.22 J
Nickel	ug/L	7.5 U	15.9 U	14.7 U	7.5 UJ	60.7	14.7 U	7.5 UJ
Potassium	ug/L	1060 J	2280 J	2010 J	1360 J	7550	288 U	1900 J
Selenium	ug/L	1.8 U	1 U	1 U	0.99 UJ	1 U	1 U	1 UJ
Silver	ug/L	5.8 U	9 U	4.3 R	5.5 U	3.4 U	3.4 U	5.5 U
Sodium	ug/L	28300	114000 J	109000	93900	19700	18300	22100
Thallium	ug/L	2.6 U	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U
Vanadium	ug/L	6.8 U	30.3 U	9.4 U	6.8 UJ	45.4 J	9.5 U	6.6 UJ
Zinc	ug/L	2.5 U	496	120	58.1 R	154 J	17.1 R	14.1 J
Cyanide	ug/L	3 J	10 U J		1.4 J	10 U J		10 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT-20	PT-20	PT-20	PT20	PT20 RE	PT-21	PT-21
	DATE	01/17/92	01/17/92	01/17/92	07/12/93	07/10/93	01/17/92	01/28/92CK
	ES ID	PT-20(2,3)	PT-20RE(2,3,4)	PT-20(2,3)Filtered	PT20	PT20 RE	PT-21	PT-21
	LAB ID	152706	152706	152713	188796	188796R1	152707	153059
COMPOUND	UNITS							
Chloromethane	ug/L	10 U			10 U		10 U	
Bromomethane	ug/L	10 U			10 U		10 U	
Vinyl Chloride	ug/L	10 U			10 U		10 U	
Chloroethane	ug/L	10 U			10 U		10 U	
Methylene Chloride	ug/L	5 U			10 U		5 U	
Acetone	ug/L	10 U			10 U		10 U	
Carbon Disulfide	ug/L	5 U			10 U		5 U	
1,1-Dichloroethene	ug/L	5 U			10 U		5 U	
1,1-Dichloroethane	ug/L	5 U			10 U		5 U	
1,2-Dichloroethene (total)	ug/L	24			53		16	
Chloroform	ug/L	5 U			10 U		5 U	
1,2-Dichloroethane	ug/L	5 U			10 U		5 U	
2-Butanone	ug/L	10 U			10 U		10 U	
1,1,1-Trichloroethane	ug/L	5 U			10 U		5 U	
Carbon Tetrachloride	ug/L	5 U			10 U		5 U	
Vinyl Acetate	ug/L	10 U					10 U	
Bromodichloromethane	ug/L	5 U			10 U		5 U	
1,2-Dichloropropane	ug/L	5 U			10 U		5 U	
cis-1,3-Dichloropropene	ug/L	5 U			10 U		5 U	
Trichloroethene	ug/L	25			37		2 J	
Dibromochloromethane	ug/L	5 U			10 U		5 U	
1,1,2-Trichloroethane	ug/L	5 U			10 U		5 U	
Benzene	ug/L	5 U			10 U		5 U	
trans-1,3-Dichloropropene	ug/L	5 U			10 U		5 U	
Bromoform	ug/L	5 U			10 U		5 U	
4-Methyl-2-Pentanone	ug/L	10 U			10 U		10 U	
2-Hexanone	ug/L	10 U			10 U		10 U	
Tetrachloroethene	ug/L	5 U			10 U		5 U	
1,1,2,2-Tetrachloroethane	ug/L	5 U			10 U		5 U	
Toluene	ug/L	5 U			10 U		5 U	
Chlorobenzene	ug/L	5 U			10 U		5 U	
Ethylbenzene	ug/L	5 U			10 U		5 U	
Styrene	ug/L	5 U			10 U		5 U	
Xylene (total)	ug/L	5 U			10 U		5 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT-20	PT-20	PT-20	PT20	PT20 RE	PT-21	PT-21
	DATE	01/17/92	01/17/92	01/17/92	07/12/93	07/10/93	01/17/92	01/25/92CK
	ES ID	PT-20(2,3)	PT-20RE(2,3,4)	PT-20(2,3)Filtered	PT20	PT20 RE	PT-21	PT-21
	LAB ID	152706	152706	152713	168796	168796R1	152707	153059
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-20	PT-20	PT-20	PT20	PT20 RE	PT-21	PT-21
	DATE	01/17/92	01/17/92	01/17/92	07/12/93	07/10/93	01/17/92	01/25/92CK
	ES ID	PT-20(2,3)	PT-20RE(2,3,4)	PT-20(2,3)Filtered	PT20	PT20 RE	PT-21	PT-21
	LAB ID	152706	152706	152713	188796	188796R1	152707	153059
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	25 R	10 U J		10 U			10 U
bis(2-Chloroethyl) ether	ug/L	11 U R	10 U J		10 U			10 U
2-Chlorophenol	ug/L	34 R	10 U J		10 U			10 U
1,3-Dichlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
1,4-Dichlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
Benzyl Alcohol	ug/L	11 U R	10 U J					10 U
1,2-Dichlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
2-Methylphenol	ug/L	11 U R	10 U J		10 U			10 U
bis(2-Chloroisopropyl) ether	ug/L	11 U R	10 U J		10 U			10 U
4-Methylphenol	ug/L	11 U R	10 U J		10 U			10 U
N-Nitroso-di-n-propylamine	ug/L	11 U R	10 U J		10 U			10 U
Hexachloroethane	ug/L	11 U R	10 U J		10 U			10 U
Nitrobenzene	ug/L	11 U R	10 U J		10 U			10 U
Isophorone	ug/L	11 U R	10 U J		10 U			10 U
2-Nitrophenol	ug/L	11 U R	10 U J		10 U			10 U
2,4-Dimethylphenol	ug/L	11 U R	10 U J		10 U			10 U
Benzoic acid	ug/L	54 U R	50 U J					50 U
bis(2-Chloroethoxy) methane	ug/L	11 U R	10 U J		10 U			10 U
2,4-Dichlorophenol	ug/L	11 U R	10 U J		10 U			10 U
1,2,4-Trichlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
Naphthalene	ug/L	11 U R	10 U J		10 U			10 U
4-Chloroaniline	ug/L	11 U R	10 U J		10 U			10 U
Hexachlorobutadiene	ug/L	11 U R	10 U J		10 U			10 U
4-Chloro-3-methylphenol	ug/L	21 R	10 U J		10 U			10 U
2-Methylnaphthalene	ug/L	11 U R	10 U J		10 U			10 U
Hexachlorocyclopentadiene	ug/L	11 U R	10 U J		10 U			10 U
2,4,6-Trichlorophenol	ug/L	11 U R	10 U J		10 U			10 U
2,4,5-Trichlorophenol	ug/L	54 U R	50 U J		25 U			50 U
2-Chloronaphthalene	ug/L	11 U R	10 U J		10 U			10 U
2-Nitroaniline	ug/L	54 U R	50 U J		25 U			50 U
Dimethylphthalate	ug/L	11 U R	10 U J		10 U			10 U
Acenaphthylene	ug/L	11 U R	10 U J		10 U			10 U
2,6-Dinitrotoluene	ug/L	11 U R	10 U J		10 U			10 U
3-Nitroaniline	ug/L	54 U R	50 U J		25 U			50 U
Acenaphthene	ug/L	11 U R	10 U J		10 U			10 U
2,4-Dinitrophenol	ug/L	54 U R	50 U J		25 U			50 U
4-Nitrophenol	ug/L	9 R	50 U J		25 U			50 U
Dibenzofuran	ug/L	11 U R	10 U J		10 U			10 U
2,4-Dinitrotoluene	ug/L	11 U R	10 U J		10 U			10 U
Diethylphthalate	ug/L	11 U R	10 U J		10 U			10 U
4-Chlorophenyl-phenylether	ug/L	11 U R	10 U J		10 U			10 U
Fluorene	ug/L	11 U R	10 U J		10 U			10 U
4-Nitroaniline	ug/L	54 U R	50 U J		25 U			50 U
4,6-Dinitro-2-methylphenol	ug/L	54 U R	50 U J		25 U			50 U
N-Nitrosodiphenylamine (1)	ug/L	11 U R	10 U J		10 U			10 U
4-Bromophenyl-phenylether	ug/L	11 U R	10 U J		10 U			10 U
Hexachlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
Pentachlorophenol	ug/L	3 R	50 U J		25 U			50 U
Phenanthrene	ug/L	11 U R	10 U J		10 U			10 U
Anthracene	ug/L	11 U R	10 U J		10 U			10 U
Carbazole	ug/L				10 U			
Di-n-butylphthalate	ug/L	11 U R	10 U J		2 J			10 U
Fluoranthene	ug/L	11 U R	10 U J		10 U			10 U
Pyrene	ug/L	11 U R	10 U J		10 U			10 U
Butylbenzylphthalate	ug/L	11 U R	10 U J		10 U			10 U
3,3'-Dichlorobenzidine	ug/L	22 U R	20 U J		10 U			20 U
Benzo(a)anthracene	ug/L	11 U R	10 U J		10 U			10 U
Chrysene	ug/L	11 U R	10 U J		10 U			10 U
bis(2-Ethylhexyl)phthalate	ug/L	11 U R	10 U J		10 U			39 U
Di-n-octylphthalate	ug/L	11 U R	10 U J		10 U			10 U
Benzo(b)fluoranthene	ug/L	11 U R	10 U J		10 U			10 U
Benzo(k)fluoranthene	ug/L	11 U R	10 U J		10 U			10 U
Benzo(a)pyrene	ug/L	11 U R	10 U J		10 U			10 U
Indeno(1,2,3-cd)pyrene	ug/L	11 U R	10 U J		10 U			10 U
Dibenz(a,h)anthracene	ug/L	11 U R	10 U J		10 U			10 U
Benzo(g,h,i)perylene	ug/L	11 U R	10 U J		10 U			10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT-20	PT-20	PT-20	PT20	PT20 RE	PT-21	PT-21
	DATE	01/17/92	01/17/92	01/17/92	07/12/93	07/10/93	01/17/92	01/25/92CK
	ES ID	PT-20(2,3)	PT-20RE(2,3,4)	PT-20(2,3)Filtered	PT20	PT20 RE	PT-21	PT-21
	LAB ID	152706	152706	152713	188796	188796R1	152707	153059
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.055 U			0.05 U			
beta-BHC	ug/L	0.055 U			0.05 U			
delta-BHC	ug/L	0.055 U			0.05 U			
gamma-BHC (Lindane)	ug/L	0.055 U			0.05 U			
Heptachlor	ug/L	0.055 U			0.05 U			
Aldrin	ug/L	0.055 U			0.05 U			
Heptachlor epoxide	ug/L	0.055 U			0.05 U			
Endosulfan I	ug/L	0.055 U			0.05 U			
Dieldrin	ug/L	0.11 U			0.1 U			
4,4'-DDE	ug/L	0.11 U			0.1 U			
Endrin	ug/L	0.11 U			0.1 U			
Endosulfan II	ug/L	0.11 U			0.1 U			
4,4'-DDD	ug/L	0.11 U			0.1 U			
Endosulfan sulfate	ug/L	0.11 U			0.1 U			
4,4'-DDT	ug/L	0.11 U			0.1 U			
Methoxychlor	ug/L	0.55 U			0.5 U			
Endrin ketone	ug/L	0.11 U			0.1 U			
Endrin aldehyde	ug/L				0.1 U			
alpha-Chlordane	ug/L	0.55 U			0.05 U			
gamma-Chlordane	ug/L	0.55 U			0.05 U			
Toxaphene	ug/L	1.1 U			5 U			
Aroclor-1016	ug/L	0.55 U			1 U			
Aroclor-1221	ug/L	0.55 U			2 U			
Aroclor-1232	ug/L	0.55 U			1 U			
Aroclor-1242	ug/L	0.55 U			1 U			
Aroclor-1248	ug/L	0.55 U			1 U			
Aroclor-1254	ug/L	1.1 U			1 U			
Aroclor-1260	ug/L	1.1 U			1 U			
HERBICIDES								
2,4-D	ug/L	1 U			1 R	1 R		
2,4-DB	ug/L	1 U			1 R	1 R		
2,4,5-T	ug/L	0.1 U			0.1 R	0.1 R		
2,4,5-TP (Silvex)	ug/L	0.1 U			0.1 R	0.1 R		
Dalapon	ug/L	2.3 U			2.3 R	2.3 R		
Dicamba	ug/L	0.1 U			0.1 R	0.1 R		
Dichloroprop	ug/L	1 U			1 R	1 R		
Dinoseb	ug/L	0.5 U			0.5 R	0.5 R		
MCPA	ug/L	100 U			100 R	100 R		
MCPP	ug/L	100 U			100 R	100 R		
METALS								
Aluminum	ug/L	10600		24.4 U	124 J			14200
Antimony	ug/L	53.1 U		52.9 U	62.1 R			52.9 U
Arsenic	ug/L	3.5 U		3.5 U	1.4 U			3.5 U
Barium	ug/L	124 J		55.3 R	73.9 J			230
Beryllium	ug/L	1.8 R		1.1 U	0.9 U			1.7 R
Cadmium	ug/L	3 U		3 U	2.8 U			4 J
Calcium	ug/L	145000		125000	143000			185000
Chromium	ug/L	16.5		6.1 U	2.7 U			16.6
Cobalt	ug/L	20.4 U		20.3 U	5.5 U			20.3 U
Copper	ug/L	11.6 J		10.1 U	4.7 U			17.9 J
Iron	ug/L	16000		6.1 R	197 J			20100
Lead	ug/L	3.6 R		1.2 U	0.6 U			7 R
Magnesium	ug/L	17400 J		13600	14700			34300 J
Manganese	ug/L	375 J		4.8 U	35.1			666 J
Mercury	ug/L	0.03 U		0.03 U	0.09 UJ			0.03 U
Nickel	ug/L	17.1 J		14.7 U	7.5 U			19.6 J
Potassium	ug/L	3440 J		655 J	1600 J			6300
Selenium	ug/L	1 U J		1 U	1.5 U			1 U J
Silver	ug/L	3.4 U		3.4 U	5.5 U			3.4 U
Sodium	ug/L	35100		33900	29700			47800
Thallium	ug/L	3.2 U		3.2 U	2.6 U			3.2 U
Vanadium	ug/L	15.3 J		9.4 U	6.8 U			21.1 J
Zinc	ug/L	60.7 R		16.7 R	5.1 J			773 J
Cyanide	ug/L	10 U			1.2 U			10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER
	LOCATION	PT-21	PT21	PT-22	PT-22	PT22	PT22RE	PT-23
	DATE	01/23/92	07/12/93	01/09/92	01/09/92	07/12/93	07/10/93	01/14/92
	ES ID	PT-21Filter	PT21	PT-22	PT-22Filter	PT22	PT22RE	PT-23
	LAB ID	153060	188798	152160	152202	188799	188799R1	152506
COMPOUND	UNITS							
Chloromethane	ug/L		10 U	10 U		10 U		10 U
Bromomethane	ug/L		10 U	10 U		10 U		10 U
Vinyl Chloride	ug/L		10 U	10 U		10 U		10 U
Chloroethane	ug/L		10 U	10 U		10 U		10 U
Methylene Chloride	ug/L		10 U	5 U		10 U		5 U
Acetone	ug/L		10 U	10 U		10 U		10 U
Carbon Disulfide	ug/L		10 U	5 U		10 U		5 U
1,1-Dichloroethene	ug/L		10 U	5 U		10 U		5 U
1,1-Dichloroethane	ug/L		10 U	5 U		10 U		5 U
1,2-Dichloroethene (total)	ug/L		14	100		150		5 U
Chloroform	ug/L		10 U	5 U		10 U		5 U
1,2-Dichloroethane	ug/L		10 U	4 J		6 J		5 U
2-Butanone	ug/L		10 U	10 U		10 U		10 U
1,1,1-Trichloroethane	ug/L		10 U	5 U		10 U		5 U
Carbon Tetrachloride	ug/L		10 U	5 U		10 U		5 U
Vinyl Acetate	ug/L			10 U				10 U
Bromodichloromethane	ug/L		10 U	5 U		10 U		5 U
1,2-Dichloropropane	ug/L		10 U	5 U		10 U		5 U
cis-1,3-Dichloropropene	ug/L		10 U	5 U		10 U		5 U
Trichloroethene	ug/L		3 J	80		96		5 U
Dibromochloromethane	ug/L		10 U	5 U		10 U		5 U
1,1,2-Trichloroethane	ug/L		10 U	5 U		10 U		5 U
Benzene	ug/L		6 J	5 U		10 U		5 U
trans-1,3-Dichloropropene	ug/L		10 U	5 U		10 U		5 U
Bromoform	ug/L		10 U	5 U		10 U		5 U
4-Methyl-2-Pentanone	ug/L		10 U	10 U		10 U		10 U
2-Hexanone	ug/L		10 U	10 U		10 U		10 U
Tetrachloroethene	ug/L		10 U	5 U		10 U		5 U
1,1,2,2-Tetrachloroethane	ug/L		10 U	5 U		10 U		5 U
Toluene	ug/L		10 U	5 U		10 U		5 U
Chlorobenzene	ug/L		10 U	5 U		10 U		5 U
Ethylbenzene	ug/L		10 U	5 U		10 U		5 U
Styrene	ug/L		10 U	5 U		10 U		5 U
Xylene (total)	ug/L		10 U	5 U		10 U		5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-21	PT21	PT-22	PT-22	PT22	PT22RE	PT-23
	DATE	01/23/92	07/12/93	01/09/92	01/09/92	07/12/93	07/10/93	01/14/92
	ES ID	PT-21Filter	PT21	PT-22	PT-22Filter	PT22	PT22RE	PT-23
	LAB ID	153060	188798	152160	152202	188799	188799R1	152506
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER
	LOCATION	PT-21	PT21	PT-22	PT-22	PT22	PT22RE	PT-23
	DATE	01/23/92	07/12/93	01/09/92	01/09/92	07/12/93	07/10/93	01/14/92
	ES ID	PT-21Filter	PT21	PT-22	PT-22Filter	PT22	PT22RE	PT-23
	LAB ID	153060	166798	152160	152202	166799	166799R1	152506
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L			11 U		10 U		12 U
bis(2-Chloroethyl) ether	ug/L			11 U		0.6 J		12 U
2-Chlorophenol	ug/L			11 U		10 U		12 U
1,3-Dichlorobenzene	ug/L			11 U		10 U		12 U
1,4-Dichlorobenzene	ug/L			11 U		10 U		12 U
Benzyl Alcohol	ug/L			11 U				12 U
1,2-Dichlorobenzene	ug/L			11 U		10 U		12 U
2-Methylphenol	ug/L			11 U		10 U		12 U
bis(2-Chloroisopropyl) ether	ug/L			11 U		10 U		12 U
4-Methylphenol	ug/L			11 U		10 U		12 U
N-Nitroso-di-n-propylamine	ug/L			11 U		10 U		12 U
Hexachloroethane	ug/L			11 U		10 U		12 U
Nitrobenzene	ug/L			11 U		10 U		12 U
Isophorone	ug/L			11 U		10 U		12 U
2-Nitrophenol	ug/L			11 U		10 U		12 U
2,4-Dimethylphenol	ug/L			11 U		10 U		12 U
Benzoic acid	ug/L			54 U				61 U
bis(2-Chloroethoxy) methane	ug/L			11 U		10 U		12 U
2,4-Dichlorophenol	ug/L			11 U		10 U		12 U
1,2,4-Trichlorobenzene	ug/L			11 U		10 U		12 U
Naphthalene	ug/L			11 U		10 U		12 U
4-Chloroaniline	ug/L			11 U		10 U		12 U
Hexachlorobutadiene	ug/L			11 U		10 U		12 U
4-Chloro-3-methylphenol	ug/L			11 U		10 U		12 U
2-Methylnaphthalene	ug/L			11 U		10 U		12 U
Hexachlorocyclopentadiene	ug/L			11 U		10 U		12 U
2,4,6-Trichlorophenol	ug/L			11 U		10 U		12 U
2,4,5-Trichlorophenol	ug/L			54 U		24 U		61 U
2-Chloronaphthalene	ug/L			11 U		10 U		12 U
2-Nitroaniline	ug/L			54 U		24 U		61 U
Dimethylphthalate	ug/L			11 U		10 U		12 U
Acenaphthylene	ug/L			11 U		10 U		12 U
2,6-Dinitrotoluene	ug/L			11 U		10 U		12 U
3-Nitroaniline	ug/L			54 U		24 U		61 U
Acenaphthene	ug/L			11 U		10 U		12 U
2,4-Dinitrophenol	ug/L			54 U		24 U		61 U
4-Nitrophenol	ug/L			54 U		24 U		61 U
Dibenzofuran	ug/L			11 U		10 U		12 U
2,4-Dinitrotoluene	ug/L			11 U		10 U		12 U
Diethylphthalate	ug/L			11 U		10 U		12 U
4-Chlorophenyl-phenylether	ug/L			11 U		10 U		12 U
Fluorene	ug/L			11 U		10 U		12 U
4-Nitroaniline	ug/L			54 U		24 U		61 U
4,6-Dinitro-2-methylphenol	ug/L			54 U		24 U		61 U
N-Nitrosodiphenylamine (1)	ug/L			11 U		10 U		12 U
4-Bromophenyl-phenylether	ug/L			11 U		10 U		12 U
Hexachlorobenzene	ug/L			11 U		10 U		12 U
Pentachlorophenol	ug/L			54 U		25 U		61 U
Phenanthrene	ug/L			11 U		10 U		12 U
Anthracene	ug/L			11 U		10 U		12 U
Carbazole	ug/L					10 U		
Di-n-butylphthalate	ug/L			11 U		3 J		12 U
Fluoranthene	ug/L			11 U		10 U		12 U
Pyrene	ug/L			11 U		10 U		12 U
Butylbenzylphthalate	ug/L			11 U		10 U		12 U
3,3'-Dichlorobenzidine	ug/L			22 U		10 U		24 U
Benzo(a)anthracene	ug/L			11 U		10 U		12 U
Chrysene	ug/L			11 U		10 U		12 U
bis(2-Ethylhexyl)phthalate	ug/L			11 U		10 U		12 U
Di-n-octylphthalate	ug/L			11 U		10 U		12 U
Benzo(b)fluoranthene	ug/L			11 U		10 U		12 U
Benzo(k)fluoranthene	ug/L			11 U		10 U		12 U
Benzo(a)pyrene	ug/L			11 U		10 U		12 U
Indeno(1,2,3-cd)pyrene	ug/L			11 U		10 U		12 U
Dibenz(a,h)anthracene	ug/L			11 U		10 U		12 U
Benzo(g,h,i)perylene	ug/L			11 U		10 U		12 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-21	PT21	PT-22	PT-22	PT22	PT22RE	PT-23
	DATE	01/23/92	07/12/93	01/09/92	01/09/92	07/12/93	07/10/93	01/14/92
	ES ID	PT-21Filter	PT21	PT-22	PT-22Filter	PT22	PT22RE	PT-23
	LAB ID	153060	188798	152160	152202	188799	188799R1	152606
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L			0.052 U		0.05 U		0.061 U
beta-BHC	ug/L			0.052 U		0.05 U		0.061 U
delta-BHC	ug/L			0.052 U		0.05 U		0.061 U
gamma-BHC (Lindane)	ug/L			0.052 U		0.05 U		0.061 U
Heptachlor	ug/L			0.052 U		0.05 U		0.061 U
Aldrin	ug/L			0.052 U		0.05 U		0.061 U
Heptachlor epoxide	ug/L			0.052 U		0.05 U		0.061 U
Endosulfan I	ug/L			0.052 U		0.05 U		0.061 U
Dieldrin	ug/L			0.1 U		0.1 U		0.12 U
4,4'-DDE	ug/L			0.1 U		0.1 U		0.12 U
Endrin	ug/L			0.1 U		0.1 U		0.12 U
Endosulfan II	ug/L			0.1 U		0.1 U		0.12 U
4,4'-DDD	ug/L			0.1 U		0.1 U		0.12 U
Endosulfan sulfate	ug/L			0.1 U		0.1 U		0.12 U
4,4'-DDT	ug/L			0.1 U		0.1 U		0.12 U
Methoxychlor	ug/L			0.52 U		0.5 U		0.61 U
Endrin ketone	ug/L			0.1 U		0.1 U		0.12 U
Endrin aldehyde	ug/L					0.1 U		
alpha-Chlordane	ug/L			0.52 U		0.05 U		0.61 U
gamma-Chlordane	ug/L			0.52 U		0.05 U		0.61 U
Toxaphene	ug/L			1 U		5 U		1.2 U
Aroclor-1016	ug/L			0.52 U		1 U		0.61 U
Aroclor-1221	ug/L			0.52 U		2 U		0.61 U
Aroclor-1232	ug/L			0.52 U		1 U		0.61 U
Aroclor-1242	ug/L			0.52 U		1 U		0.61 U
Aroclor-1248	ug/L			0.52 U		1 U		0.61 U
Aroclor-1254	ug/L			1 U		1 U		1.2 U
Aroclor-1260	ug/L			1 U		1 U		1.2 U
HERBICIDES								
2,4-D	ug/L			1 U		1 R	1 R	1 U
2,4-DB	ug/L			1 U		1 R	1 R	1 U
2,4,5-T	ug/L			0.1 U		0.1 R	0.1 R	0.1 U
2,4,5-TP (Silvex)	ug/L			0.1 U		0.1 R	0.1 R	0.1 U
Dalapon	ug/L			2.4 U		2.3 R	5.4 J	2.4 U
Dicamba	ug/L			0.1 U		0.1 R	0.1 R	0.1 U
Dichloroprop	ug/L			1 U		1 R	1 R	1 U
Dinoseb	ug/L			0.5 U		0.5 R	0.51 R	0.5 U
MCPA	ug/L			100 U		100 R	100 R	100 U
MCPP	ug/L			100 U		100 R	100 R	100 U
METALS								
Aluminum	ug/L	24.4 U		4090	24.4 U	178 J		2000
Antimony	ug/L	52.9 U		55.6 U J	53 U	50 U		53 U
Arsenic	ug/L	3.5 U		3.5 U	3.5 U	1.4 U		3.5 U
Barium	ug/L	108 R		146 J	42.4 R	69.8 J		45.4 R
Beryllium	ug/L	1.1 U		2.3 R	2.4 R	0.9 U		2.1 R
Cadmium	ug/L	3 U		2.9 U	3 U	2.8 U		3 U
Calcium	ug/L	130000		197000 J	128000	147000		96200
Chromium	ug/L	6.1 U		8.5 J	6.2 U	2.7 U		6.6 J
Cobalt	ug/L	20.3 U		19.9 U	20.4 U	5.5 U		20.4 U
Copper	ug/L	10.1 U		14.4 U	10.1 U	4.7 U		10.1 U
Iron	ug/L	25.2 R		6010	6.9 U	214 J		2510
Lead	ug/L	1.2 U		10.5	1.2 U	0.78 J		1.2 U
Magnesium	ug/L	25800		16200 J	16600	17400		11200
Manganese	ug/L	68.5		1140	4.8 U	57.9		60.4
Mercury	ug/L	0.03 U		0.18 R	0.12 R	0.09 UJ		0.11 R
Nickel	ug/L	14.7 U		15.9 U	14.7 U	7.5 U		14.7 U
Potassium	ug/L	4760 J		632 U	380 J	1640 J		1080 J
Selenium	ug/L	1 U		1 U	1 U	1.5 U		1.3 U
Silver	ug/L	3.4 U		9.1 U	3.4 U	5.5 U		3.4 U
Sodium	ug/L	44400		52800 J	54100	64900		4780 J
Thallium	ug/L	3.2 U		3.2 U	3.2 U	2.6 U		3.2 U
Vanadium	ug/L	9.4 U		30.5 U	9.4 U	6.8 U		9.4 U
Zinc	ug/L	170 R		76.6 R	8.4 U	9.6 J		47.8 R
Cyanide	ug/L			10 U		1.2 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER
	LOCATION	PT-23	PT23	PT-24	PT-24	PT24	PT24RE	PT-25
	DATE	01/14/92	06/24/93	01/14/92	01/14/92	07/10/93	07/10/93	01/15/92
	ES ID	PT-23Filtered	PT23	PT-24	PT-24Filter	PT24	PT24RE	PT-25
	LAB ID	152511	157344	152507	152512	158729	158729	152575
COMPOUND	UNITS							
Chloromethane	ug/L			10 U		10 U		10 U
Bromomethane	ug/L			10 U		10 U		10 U
Vinyl Chloride	ug/L			10 U		10 U		10 U
Chloroethane	ug/L			10 U		10 U		10 U
Methylene Chloride	ug/L			5 U		10 U		5 U
Acetone	ug/L			10 U		10 U		10 U
Carbon Disulfide	ug/L			5 U		10 U		5 U
1,1-Dichloroethene	ug/L			5 U		10 U		5 U
1,1-Dichloroethane	ug/L			5 U		10 U		5 U
1,2-Dichloroethene (total)	ug/L			100		62		5 U
Chloroform	ug/L			5 U		10 U		5 U
1,2-Dichloroethane	ug/L			5 U		10 U		5 U
2-Butanone	ug/L			10 U		10 U		10 U
1,1,1-Trichloroethane	ug/L			5 U		10 U		5 U
Carbon Tetrachloride	ug/L			5 U		10 U		5 U
Vinyl Acetate	ug/L			10 U				10 U
Bromodichloromethane	ug/L			5 U		10 U		5 U
1,2-Dichloropropane	ug/L			5 U		10 U		5 U
cis-1,3-Dichloropropene	ug/L			5 U		10 U		5 U
Trichloroethene	ug/L			4 J		4 J		5 U
Dibromochloromethane	ug/L			5 U		10 U		5 U
1,1,2-Trichloroethane	ug/L			5 U		10 U		5 U
Benzene	ug/L			5 U		10 U		5 U
trans-1,3-Dichloropropene	ug/L			5 U		10 U		5 U
Bromoform	ug/L			5 U		10 U		5 U
4-Methyl-2-Pentanone	ug/L			10 U		10 U		10 U
2-Hexanone	ug/L			10 U		10 U		10 U
Tetrachloroethene	ug/L			5 U		10 U		5 U
1,1,2,2-Tetrachloroethane	ug/L			5 U		10 U		5 U
Toluene	ug/L			5 U		10 U		5 U
Chlorobenzene	ug/L			5 U		10 U		5 U
Ethylbenzene	ug/L			5 U		10 U		5 U
Styrene	ug/L			5 U		10 U		5 U
Xylene (total)	ug/L			5 U		10 U		5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER
	LOCATION	PT-23	PT23	PT-24	PT-24	PT24	PT24RE	PT-25
	DATE	01/14/92	06/24/93	01/14/92	01/14/92	07/10/93	07/10/93	01/15/92
	ES ID	PT-23Filtered	PT23	PT-24	PT-24Filter	PT24	PT24RE	PT-25
	LAB ID	152511	187344	152507	152512	188729	188729	152575
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L	0.5 U						
Chloromethane	ug/L	0.5 U						
Vinyl Chloride	ug/L	0.5 U						
Bromomethane	ug/L	0.5 U						
Chloroethane	ug/L	0.5 U						
Trichlorofluoromethane	ug/L	0.5 U						
1,1-Dichloroethene	ug/L	0.5 U						
Acetone	ug/L	5 U						
Carbon Disulfide	ug/L	0.5 U						
Methylene Chloride	ug/L	0.5 U						
trans-1,2-Dichloroethene	ug/L	0.5 U						
1,1-Dichloroethane	ug/L	0.5 U						
2,2-Dichloropropane	ug/L	0.5 U						
cis-1,2-Dichloroethene	ug/L	0.5 U						
2-Butanone	ug/L	5 U						
Bromochloromethane	ug/L	0.5 U						
Chloroform	ug/L	0.5 U						
1,1,1-Trichloroethane	ug/L	0.5 U						
Carbon Tetrachloride	ug/L	0.5 U						
1,1-Dichloropropene	ug/L	0.5 U						
Benzene	ug/L	0.5 U						
1,2-Dichloroethane	ug/L	0.5 U						
Trichloroethene	ug/L	0.5 U						
1,2-Dichloropropane	ug/L	0.5 U						
Dibromomethane	ug/L	0.5 U						
Bromodichloromethane	ug/L	0.5 U						
cis-1,3-Dichloropropene	ug/L	0.5 U						
4-Methyl-2-Pentanone	ug/L	5 U						
Toluene	ug/L	0.5 U						
trans-1,3-Dichloropropene	ug/L	0.5 U						
1,1,2-Trichloroethane	ug/L	0.5 U						
Tetrachloroethene	ug/L	0.5 U						
1,3-Dichloropropane	ug/L	0.5 U						
2-Hexanone	ug/L	5 U						
Dibromochloromethane	ug/L	0.5 U						
1,2-Dibromoethane	ug/L	0.5 U						
Chlorobenzene	ug/L	0.5 U						
1,1,1,2-Tetrachloroethane	ug/L	0.5 U						
Ethylbenzene	ug/L	0.5 U						
Styrene	ug/L	0.5 U						
Bromoform	ug/L	0.5 U						
Isopropylbenzene	ug/L	0.5 U						
Bromobenzene	ug/L	0.5 U						
1,1,2,2-Tetrachloroethane	ug/L	0.5 U						
1,2,3-Trichloropropane	ug/L	0.5 U						
n-Propylbenzene	ug/L	0.5 U						
2-Chlorotoluene	ug/L	0.5 U						
4-Chlorotoluene	ug/L	0.5 U						
1,3,5-Trimethylbenzene	ug/L	0.5 U						
tert-Butylbenzene	ug/L	0.5 U						
1,2,4-Trimethylbenzene	ug/L	0.5 U						
sec-Butylbenzene	ug/L	0.5 U						
1,3-Dichlorobenzene	ug/L	0.5 U						
1,4-Dichlorobenzene	ug/L	0.5 U						
p-Isopropyltoluene	ug/L	0.5 U						
1,2-Dichlorobenzene	ug/L	0.5 U						
n-Butylbenzene	ug/L	0.5 U						
1,2-Dibromo-3-Chloropropane	ug/L	0.5 U						
1,2,4-Trichlorobenzene	ug/L	0.5 U						
Hexachlorobutadiene	ug/L	0.5 U						
Naphthalene	ug/L	0.5 U						
1,2,3-Trichlorobenzene	ug/L	0.5 U						
Xylene (total)	ug/L	0.5 U						

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX / LOCATION / DATE / ES ID / LAB ID / UNITS	PHASE I WATER PT-23 01/14/92 PT-23Filtered 152511	PHASE II WATER PT23 06/24/93 PT23 187344	PHASE I WATER PT-24 01/14/92 PT-24 152507	PHASE I WATER PT-24 01/14/92 PT-24Filter 152512	PHASE II WATER PT24 07/10/93 PT24 188729	PHASE II WATER PT24RE 07/10/93 PT24RE 188729	PHASE I WATER PT-25 01/15/92 PT-25 152575
COMPOUND								
SEMIVOLATILES								
Phenol	ug/L		10 U	11 U		10 U	10 U	11 U
bis(2-Chloroethyl) ether	ug/L		10 U	11 U		10 U	10 U	11 U
2-Chlorophenol	ug/L		10 U	11 U		10 U	10 U	11 U
1,3-Dichlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
1,4-Dichlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
Benzyl Alcohol	ug/L			11 U				11 U
1,2-Dichlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
2-Methylphenol	ug/L		10 U	11 U		10 U	10 U	11 U
bis(2-Chloroisopropyl) ether	ug/L		10 U	11 U		10 U	10 U	11 U
4-Methylphenol	ug/L		10 U	11 U		10 U	10 U	11 U
N-Nitroso-di-n-propylamine	ug/L		10 U	11 U		10 U	10 U	11 U
Hexachloroethane	ug/L		10 U	11 U		10 U	10 U	11 U
Nitrobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
Isophorone	ug/L		10 U	11 U		10 U	10 U	11 U
2-Nitrophenol	ug/L		10 U	11 U		10 U	10 U	11 U
2,4-Dimethylphenol	ug/L		10 U	11 U		10 U	10 U	11 U
Benzoic acid	ug/L			55 U				55 U
bis(2-Chloroethoxy) methane	ug/L		10 U	11 U		10 U	10 U	11 U
2,4-Dichlorophenol	ug/L		10 U	11 U		10 U	10 U	11 U
1,2,4-Trichlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
Naphthalene	ug/L		10 U	11 U		10 U	10 U	11 U
4-Chloroaniline	ug/L		10 U	11 U		10 U	10 U	11 U
Hexachlorobutadiene	ug/L		10 U	11 U		10 U	10 U	11 U
4-Chloro-3-methylphenol	ug/L		10 U	11 U		10 U	10 U	11 U
2-Methylnaphthalene	ug/L		10 U	11 U		10 U	10 U	11 U
Hexachlorocyclopentadiene	ug/L		10 U	11 U		10 U	10 U	11 U
2,4,6-Trichlorophenol	ug/L		10 U	11 U		10 U	10 U	11 U
2,4,5-Trichlorophenol	ug/L		25 U	55 U		25 U	25 U	55 U
2-Chloronaphthalene	ug/L		10 U	11 U		10 U	10 U	11 U
2-Nitroaniline	ug/L		25 U	55 U		25 U	25 U	55 U
Dimethylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
Acenaphthylene	ug/L		10 U	11 U		10 U	10 U	11 U
2,6-Dinitrotoluene	ug/L		10 U	11 U		10 U	10 U	11 U
3-Nitroaniline	ug/L		25 U	55 U		25 U	25 U	55 U
Acenaphthene	ug/L		10 U	11 U		10 U	10 U	11 U
2,4-Dinitrophenol	ug/L		25 U	55 U		25 U	25 U	55 U
4-Nitrophenol	ug/L		25 U	55 U		25 U	25 U	55 U
Dibenzofuran	ug/L		10 U	11 U		10 U	10 U	11 U
2,4-Dinitrotoluene	ug/L		10 U	11 U		10 U	10 U	11 U
Diethylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
4-Chlorophenyl-phenylether	ug/L		10 U	11 U		10 U	10 U	11 U
Fluorene	ug/L		10 U	11 U		10 U	10 U	11 U
4-Nitroaniline	ug/L		25 U	55 U		25 U	25 U	55 U
4,6-Dinitro-2-methylphenol	ug/L		25 U	55 U		25 U	25 U	55 U
N-Nitrosodiphenylamine (1)	ug/L		10 U	11 U		10 U	10 U	11 U
4-Bromophenyl-phenylether	ug/L		10 U	11 U		10 U	10 U	11 U
Hexachlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
Pentachlorophenol	ug/L		25 U	55 U		25 U	25 U	55 U
Phenanthrene	ug/L		10 U	11 U		10 U	10 U	11 U
Anthracene	ug/L		10 U	11 U		10 U	10 U	11 U
Carbazole	ug/L		10 U			10 U	10 U	
Di-n-butylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
Fluoranthene	ug/L		10 U	11 U		10 U	10 U	11 U
Pyrene	ug/L		10 U	11 U		10 U	10 U	11 U
Butylbenzylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
3,3'-Dichlorobenzidine	ug/L		10 U	22 U		10 U	10 U	22 U
Benzo(a)anthracene	ug/L		10 U	11 U		10 U	10 U	11 U
Chrysene	ug/L		10 U	11 U		10 U	10 U	11 U
bis(2-Ethylhexyl)phthalate	ug/L		10 U	11 U		46 U	10 U	11 U
Di-n-octylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
Benzo(b)fluoranthene	ug/L		10 U	11 U		10 U	10 U	11 U
Benzo(k)fluoranthene	ug/L		10 U	11 U		10 U	10 U	11 U
Benzo(a)pyrene	ug/L		10 U	11 U		10 U	10 U	11 U
Indeno(1,2,3-cd)pyrene	ug/L		10 U	11 U		10 U	10 U	11 U
Dibenz(a,h)anthracene	ug/L		10 U	11 U		10 U	10 U	11 U
Benzo(g,h,i)perylene	ug/L		10 U	11 U		10 U	10 U	11 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	LOCATION	PT-23	PT23	PT-24	PT-24	PT24	PT24RE	PT-25
	DATE	01/14/92	06/24/93	01/14/92	01/14/92	07/10/93	07/10/93	01/15/92
	ES ID	PT-23Filtered	PT23	PT-24	PT-24Filter	PT24	PT24RE	PT-25
	LAB ID	152511	187344	152507	152512	188729	188729	152575
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
beta-BHC	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
delta-BHC	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
gamma-BHC (Lindane)	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Heptachlor	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Aldrin	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Heptachlor epoxide	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Endosulfan I	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Dieldrin	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
4,4'-DDE	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Endrin	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Endosulfan II	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
4,4'-DDD	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Endosulfan sulfate	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
4,4'-DDT	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Methoxychlor	ug/L		0.56 U	0.57 U		0.5 U		0.54 U
Endrin ketone	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Endrin aldehyde	ug/L		0.11 U			0.1 U		
alpha-Chlordane	ug/L		0.056 U	0.57 U		0.05 U		0.54 U
gamma-Chlordane	ug/L		0.056 U	0.57 U		0.05 U		0.54 U
Toxaphene	ug/L		5.6 U	1.1 U		5 U		1.1 U
Aroclor-1016	ug/L		1.1 U	0.57 U		1 U		0.54 U
Aroclor-1221	ug/L		2.2 U	0.57 U		2 U		0.54 U
Aroclor-1232	ug/L		1.1 U	0.57 U		1 U		0.54 U
Aroclor-1242	ug/L		1.1 U	0.57 U		1 U		0.54 U
Aroclor-1248	ug/L		1.1 U	0.57 U		1 U		0.54 U
Aroclor-1254	ug/L		1.1 U	1.1 U		1 U		1.1 U
Aroclor-1260	ug/L		1.1 U	1.1 U		1 U		1.1 U
HERBICIDES								
2,4-D	ug/L		1 U	1 U		1 U		1 U
2,4-DB	ug/L		1 U	1 U		1 U		1 U
2,4,5-T	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
Dalapon	ug/L		2.3 U	2.4 U		2.3 U		2.4 U
Dicamba	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
Dichloroprop	ug/L		1 U	1 U		1 U		1 U
Dinoseb	ug/L		0.5 U	0.5 U		0.5 U		0.5 U
MCPA	ug/L		100 U	100 U		100 U		100 U
MCPP	ug/L		100 U	100 U		100 U		100 U
METALS								
Aluminum	ug/L	24.4 U	209	18600	24.4 U	150 J		24000
Antimony	ug/L	53 U	49.8 UJ	53.1 U	53 U	49.7 UJ		52.9 U
Arsenic	ug/L	3.5 U	1.4 UJ	3.5 U	3.5 U	1.4 UJ		3.5 U
Barium	ug/L	34 R	46.9 J	132 J	45.7 R	48.4 J		135 J
Beryllium	ug/L	1.4 R	0.9 U	2.7 R	1.3 R	0.89 U		3 R
Cadmium	ug/L	3 U	2.8 U	3 U	3 U	2.8 U		3.2 J
Calcium	ug/L	85200	118000	135000	106000	117000		75300
Chromium	ug/L	6.2 U	2.7 UJ	27.1	6.2 U	2.7 UJ		32.2
Cobalt	ug/L	20.4 U	5.5 U	20.4 U	20.4 U	5.5 U		20.3 U
Copper	ug/L	10.1 U	4.7 U	11.1 J	10.1 U	4.7 U		22.5 J
Iron	ug/L	7 U	283	26000	7 U	181		39000
Lead	ug/L	1.2 U	0.79 U	9	1.2 U	0.59 U		5.6
Magnesium	ug/L	9510	13000	19100	12200	13200		16800
Manganese	ug/L	4.8 U	39.2	423	4.8 U	36.4		595
Mercury	ug/L	0.08 R	0.09 UJ	0.12 R	0.1 R	0.09 UJ		0.11 R
Nickel	ug/L	14.7 U	7.5 UJ	28.1 J	14.7 U	7.5 UJ		40.6
Potassium	ug/L	904 B	1440 J	4530 J	500 J	817 J		4620 J
Selenium	ug/L	1 U	0.99 UJ	1.3 U	1.7 J	1.5 UJ		1.3 U
Silver	ug/L	3.4 U	5.5 U	3.4 U	4.1 R	5.5 U		3.4 U
Sodium	ug/L	4940 J	4820 J	14900	13600	15400		15900
Thallium	ug/L	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U		3.2 U
Vanadium	ug/L	9.4 U	6.8 UJ	25.5 J	9.4 U	6.8 UJ		31.4 J
Zinc	ug/L	14.7 J	11.6 R	92.9 R	8.4 U	6.7 R		119
Cyanide	ug/L		10 UJ	10 U		3 UJ		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT-25	PT-25	PT-26	PT-26	PT26	MW-27	MW-27
	DATE	01/15/92	06/30/93	01/17/92	01/17/92	07/03/93	01/15/92	01/15/92
	ES ID	PT-25Filter	PT-25	PT-26	PT-26Filtered	PT26	MW-27	MW-27
	LAB ID	152594	187936	152708	152714	168262	152641	152570
COMPOUND	UNITS							
Chloromethane	ug/L			10 U				10 U
Bromomethane	ug/L			10 U				10 U
Vinyl Chloride	ug/L			10 U				10 U
Chloroethane	ug/L			10 U				10 U
Methylene Chloride	ug/L			5 U				5 U
Acetone	ug/L			10 U				10 U
Carbon Disulfide	ug/L			5 U				5 U
1,1-Dichloroethene	ug/L			5 U				5 U
1,1-Dichloroethane	ug/L			5 U				5 U
1,2-Dichloroethene (total)	ug/L			5 U				5 U
Chloroform	ug/L			5 U				5 U
1,2-Dichloroethane	ug/L			5 U				5 U
2-Butanone	ug/L			10 U				10 U
1,1,1-Trichloroethane	ug/L			5 U				5 U
Carbon Tetrachloride	ug/L			5 U				5 U
Vinyl Acetate	ug/L			10 U				10 U
Bromodichloromethane	ug/L			5 U				5 U
1,2-Dichloropropane	ug/L			5 U				5 U
cis-1,3-Dichloropropene	ug/L			5 U				5 U
Trichloroethene	ug/L			5 U				5 U
Dibromochloromethane	ug/L			5 U				5 U
1,1,2-Trichloroethane	ug/L			5 U				5 U
Benzene	ug/L			5 U				5 U
trans-1,3-Dichloropropene	ug/L			5 U				5 U
Bromoform	ug/L			5 U				5 U
4-Methyl-2-Pentanone	ug/L			10 U				10 U
2-Hexanone	ug/L			10 U				10 U
Tetrachloroethene	ug/L			5 U				5 U
1,1,2,2-Tetrachloroethane	ug/L			5 U				5 U
Toluene	ug/L			5 U				5 U
Chlorobenzene	ug/L			5 U				5 U
Ethylbenzene	ug/L			5 U				5 U
Styrene	ug/L			5 U				5 U
Xylene (total)	ug/L			5 U				5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	LOCATION	PT-25	PT-25	PT-26	PT-26	PT26	MW-27	MW-27
	DATE	01/15/92	06/30/93	01/17/92	01/17/92	07/03/93	01/15/92	01/15/92
	ES ID	PT-25Filter	PT-25	PT-26	PT-26Filtered	PT26	MW-27	MW-27
	LAB ID	152594	187936	152708	152714	188262	152641	152570
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L		0.5 U			0.5 U		
Chloromethane	ug/L		0.5 U			0.5 U		
Vinyl Chloride	ug/L		0.5 U			0.5 U		
Bromomethane	ug/L		0.5 U			0.5 U		
Chloroethane	ug/L		0.5 U			0.5 U		
Trichlorofluoromethane	ug/L		0.5 U			0.5 U		
1,1-Dichloroethene	ug/L		0.5 U			0.5 U		
Acetone	ug/L		5 U			5 U		
Carbon Disulfide	ug/L		0.5 U			0.5 U		
Methylene Chloride	ug/L		0.5 U			0.5 U		
trans-1,2-Dichloroethene	ug/L		0.5 U			0.5 U		
1,1-Dichloroethane	ug/L		0.5 U			0.5 U		
2,2-Dichloropropane	ug/L		0.5 U			0.5 U		
cis-1,2-Dichloroethene	ug/L		0.5 U			0.5 U		
2-Butanone	ug/L		5 U			5 U		
Bromochloromethane	ug/L		0.5 U			0.5 U		
Chloroform	ug/L		0.5 U			0.5 U		
1,1,1-Trichloroethane	ug/L		0.5 U			0.5 U		
Carbon Tetrachloride	ug/L		0.5 U			0.5 U		
1,1-Dichloropropene	ug/L		0.5 U			0.5 U		
Benzene	ug/L		0.5 U			0.5 U		
1,2-Dichloroethane	ug/L		0.5 U			0.5 U		
Trichloroethene	ug/L		0.5 U			0.5 U		
1,2-Dichloropropane	ug/L		0.5 U			0.5 U		
Dibromomethane	ug/L		0.5 U			0.5 U		
Bromodichloromethane	ug/L		0.5 U			0.5 U		
cis-1,3-Dichloropropene	ug/L		0.5 U			0.5 U		
4-Methyl-2-Pentanone	ug/L		5 U			5 U		
Toluene	ug/L		0.5 U			0.5 U		
trans-1,3-Dichloropropene	ug/L		0.5 U			0.5 U		
1,1,2-Trichloroethane	ug/L		0.5 U			0.5 U		
Tetrachloroethene	ug/L		0.5 U			0.5 U		
1,3-Dichloropropane	ug/L		0.5 U			0.5 U		
2-Hexanone	ug/L		5 U			5 U		
Dibromochloromethane	ug/L		0.5 U			0.5 U		
1,2-Dibromoethane	ug/L		0.5 U			0.5 U		
Chlorobenzene	ug/L		0.5 U			0.5 U		
1,1,1,2-Tetrachloroethane	ug/L		0.5 U			0.5 U		
Ethylbenzene	ug/L		0.5 U			0.5 U		
Styrene	ug/L		0.5 U			0.5 U		
Bromoform	ug/L		0.5 U			0.5 U		
Isopropylbenzene	ug/L		0.5 U			0.5 U		
Bromobenzene	ug/L		0.5 U			0.5 U		
1,1,2,2-Tetrachloroethane	ug/L		0.5 U			0.5 U		
1,2,3-Trichloropropane	ug/L		0.5 U			0.5 U		
n-Propylbenzene	ug/L		0.5 U			0.5 U		
2-Chlorotoluene	ug/L		0.5 U			0.5 U		
4-Chlorotoluene	ug/L		0.5 U			0.5 U		
1,3,5-Trimethylbenzene	ug/L		0.5 U			0.5 U		
tert-Butylbenzene	ug/L		0.5 U			0.5 U		
1,2,4-Trimethylbenzene	ug/L		0.5 U			0.5 U		
sec-Butylbenzene	ug/L		0.5 U			0.5 U		
1,3-Dichlorobenzene	ug/L		0.5 U			0.5 U		
1,4-Dichlorobenzene	ug/L		0.5 U			0.5 U		
p-Isopropyltoluene	ug/L		0.5 U			0.5 U		
1,2-Dichlorobenzene	ug/L		0.5 U			0.5 U		
n-Butylbenzene	ug/L		0.5 U			0.5 U		
1,2-Dibromo-3-Chloropropane	ug/L		0.5 U			0.5 U		
1,2,4-Trichlorobenzene	ug/L		0.5 U			0.5 U		
Hexachlorobutadiene	ug/L		0.5 U			0.5 U		
Naphthalene	ug/L		0.5 U			0.5 U		
1,2,3-Trichlorobenzene	ug/L		0.5 U			0.5 U		
Xylene (total)	ug/L		0.5 U			0.5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT-25	PT-25	PT-26	PT-26	PT26	MW-27	MW-27
	DATE	01/15/92	06/30/93	01/17/92	01/17/92	07/03/93	01/15/92	01/15/92
	ES ID	PT-25Filter	PT-25	PT-26	PT-26Filtered	PT26	MW-27	MW-27
	LAB ID	152594	167936	152708	152714	168262	152641	152570
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L		10 U	11 U		10 U		12 U
bis(2-Chloroethyl) ether	ug/L		10 U	11 U		10 U		12 U
2-Chlorophenol	ug/L		10 U	11 U		10 U		12 U
1,3-Dichlorobenzene	ug/L		10 U	11 U		10 U		12 U
1,4-Dichlorobenzene	ug/L		10 U	11 U		10 U		12 U
Benzyl Alcohol	ug/L			11 U				12 U
1,2-Dichlorobenzene	ug/L		10 U	11 U		10 U		12 U
2-Methylphenol	ug/L		10 U	11 U		10 U		12 U
bis(2-Chloroisopropyl) ether	ug/L		10 U	11 U		10 U		12 U
4-Methylphenol	ug/L		10 U	11 U		10 U		12 U
N-Nitroso-di-n-propylamine	ug/L		10 U	11 U		10 U		12 U
Hexachloroethane	ug/L		10 U	11 U		10 U		12 U
Nitrobenzene	ug/L		10 U	11 U		10 U		12 U
Isophorone	ug/L		10 U	11 U		10 U		12 U
2-Nitrophenol	ug/L		10 U	11 U		10 U		12 U
2,4-Dimethylphenol	ug/L		10 U	11 U		10 U		12 U
Benzoic acid	ug/L			55 U				61 U
bis(2-Chloroethoxy) methane	ug/L		10 U	11 U		10 U		12 U
2,4-Dichlorophenol	ug/L		10 U	11 U		10 U		12 U
1,2,4-Trichlorobenzene	ug/L		10 U	11 U		10 U		12 U
Naphthalene	ug/L		10 U	11 U		10 U		12 U
4-Chloroaniline	ug/L		10 U	11 U		10 U		12 U
Hexachlorobutadiene	ug/L		10 U	11 U		10 U		12 U
4-Chloro-3-methylphenol	ug/L		10 U	11 U		10 U		12 U
2-Methylnaphthalene	ug/L		10 U	11 U		10 U		12 U
Hexachlorocyclopentadiene	ug/L		10 U	11 U		10 U		12 U
2,4,6-Trichlorophenol	ug/L		10 U	11 U		10 U		12 U
2,4,5-Trichlorophenol	ug/L		25 U	55 U		25 U		61 U
2-Chloronaphthalene	ug/L		10 U	11 U		10 U		12 U
2-Nitroaniline	ug/L		25 U	55 U		25 U		61 U
Dimethylphthalate	ug/L		10 U	11 U		10 U		12 U
Acenaphthylene	ug/L		10 U	11 U		10 U		12 U
2,6-Dinitrotoluene	ug/L		10 U	11 U		10 U		12 U
3-Nitroaniline	ug/L		25 U	55 U		25 U		61 U
Acenaphthene	ug/L		10 U	11 U		10 U		12 U
2,4-Dinitrophenol	ug/L		25 U	55 U		25 U		61 U
4-Nitrophenol	ug/L		25 U	55 U		25 U		61 U
Dibenzofuran	ug/L		10 U	11 U		10 U		12 U
2,4-Dinitrotoluene	ug/L		10 U	11 U		10 U		12 U
Diethylphthalate	ug/L		10 U	11 U		10 U		12 U
4-Chlorophenyl-phenylether	ug/L		10 U	11 U		10 U		12 U
Fluorene	ug/L		10 U	11 U		10 U		12 U
4-Nitroaniline	ug/L		25 U	55 U		25 U		61 U
4,6-Dinitro-2-methylphenol	ug/L		25 U	55 U		25 U		61 U
N-Nitrosodiphenylamine (1)	ug/L		10 U	11 U		10 U		12 U
4-Bromophenyl-phenylether	ug/L		10 U	11 U		10 U		12 U
Hexachlorobenzene	ug/L		10 U	11 U		10 U		12 U
Pentachlorophenol	ug/L		25 U	55 U		25 U		61 U
Phenanthrene	ug/L		10 U	11 U		10 U		12 U
Anthracene	ug/L		10 U	11 U		10 U		12 U
Carbazole	ug/L		10 U			10 U		
Di-n-butylphthalate	ug/L		10 U	11 U		10 U		12 U
Fluoranthene	ug/L		10 U	11 U		10 U		12 U
Pyrene	ug/L		10 U	11 U		10 U		12 U
Butylbenzylphthalate	ug/L		10 U	11 U		10 U		12 U
3,3'-Dichlorobenzidine	ug/L		10 U	22 U		10 U		25 U
Benzo(a)anthracene	ug/L		10 U	11 U		10 U		12 U
Chrysene	ug/L		10 U	11 U		10 U		12 U
bis(2-Ethylhexyl)phthalate	ug/L		10 U	11 U		10 U		12 U
Di-n-octylphthalate	ug/L		10 U	11 U		10 U		12 U
Benzo(b)fluoranthene	ug/L		10 U	11 U		10 U		12 U
Benzo(k)fluoranthene	ug/L		10 U	11 U		10 U		12 U
Benzo(a)pyrene	ug/L		10 U	11 U		10 U		12 U
Indeno(1,2,3-cd)pyrene	ug/L		10 U	11 U		10 U		12 U
Dibenz(a,h)anthracene	ug/L		10 U	11 U		10 U		12 U
Benzo(g,h,i)perylene	ug/L		10 U	11 U		10 U		12 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3								
		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-25	PT-25	PT-26	PT-26	PT26	MW-27	MW-27
	DATE	01/15/92	06/30/93	01/17/92	01/17/92	07/03/93	01/15/92	01/15/92
	ES ID	PT-25Filter	PT-25	PT-26	PT-26Filtered	PT26	MW-27	MW-27
	LAB ID	152594	167936	152706	152714	168262	152641	152570
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
beta-BHC	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
delta-BHC	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
gamma-BHC (Lindane)	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Heptachlor	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Aldrin	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Heptachlor epoxide	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Endosulfan I	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Dieldrin	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
4,4'-DDE	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Endrin	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Endosulfan II	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
4,4'-DDD	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Endosulfan sulfate	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
4,4'-DDT	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Methoxychlor	ug/L		0.5 U	0.59 U		0.5 U		0.55 U
Endrin ketone	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Endrin aldehyde	ug/L		0.1 U			0.1 U		
alpha-Chlordane	ug/L		0.05 U	0.59 U		0.05 U		0.55 U
gamma-Chlordane	ug/L		0.05 U	0.59 U		0.05 U		0.55 U
Toxaphene	ug/L		5 U	1.2 U		5 U		1.1 U
Aroclor-1016	ug/L		1 U	0.59 U		1 U		0.55 U
Aroclor-1221	ug/L		2 U	0.59 U		2 U		0.55 U
Aroclor-1232	ug/L		1 U	0.59 U		1 U		0.55 U
Aroclor-1242	ug/L		1 U	0.59 U		1 U		0.55 U
Aroclor-1248	ug/L		1 U	0.59 U		1 U		0.55 U
Aroclor-1254	ug/L		1 U	1.2 U		1 U		1.1 U
Aroclor-1260	ug/L		1 U	1.2 U		1 U		1.1 U
HERBICIDES								
2,4-D	ug/L		1 U	1.1 U		1 U		1 U
2,4-DB	ug/L		1 U	1.1 U		1 U		1 U
2,4,5-T	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
Dalapon	ug/L		2.3 U	2.4 U		2.3 U		2.4 U
Dicamba	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
Dichloroprop	ug/L		1 U	1.1 U		1 U		1 U
Dinoseb	ug/L		0.5 U	0.5 U		0.5 U		0.5 U
MCPA	ug/L		100 U	110 U		100 U		100 U
MCPP	ug/L		100 U	110 U		100 U		100 U
METALS								
Aluminum	ug/L	24.5 U	318	306000	24.5 U	43800	8590	
Antimony	ug/L	53.3 U	49.7 UJ	63.6 R	53.1 U	56.9 J	53.4 U	
Arsenic	ug/L	3.5 U	1.4 UJ	3.5 U	3.5 U	2.4 J	3.5 U	
Barium	ug/L	50.9 R	40.9 J	1600	97.8 R	376	90.8 J	
Beryllium	ug/L	1.1 U	0.99 U	12.2 R	1.1 U	2.5 J	2.4 R	
Cadmium	ug/L	3 U	2.8 U	64.6 J	3 U	2.8 U	3 U	
Calcium	ug/L	72100	101000	1790000	93700	395000	102000	
Chromium	ug/L	6.2 U	2.7 UJ	419	6.2 U	69.7 J	10.4	
Cobalt	ug/L	20.4 U	5.5 U	196	20.4 U	33.4 J	20.5 U	
Copper	ug/L	10.2 U	4.7 U	412	10.1 U	62.2	10.2 U	
Iron	ug/L	7 U	360	610000	7 U	78400	10500	
Lead	ug/L	1.2 U	0.8 U	103	1.2 U	17.3	3.2	
Magnesium	ug/L	8220	10700	267000 J	37600	74900	13800	
Manganese	ug/L	4.8 U	25	11400	4.8 U	1760	355	
Mercury	ug/L	0.03 U	0.09 UJ	0.05 R	0.03 U	0.09 UJ	0.11 R	
Nickel	ug/L	14.8 U	7.5 UJ	622	14.7 U	106 J	14.8 U	
Potassium	ug/L	289 U	1210 J	23200	1080 J	8540	4160 J	
Selenium	ug/L	1 U	1 UJ	5 U J	1.4 J	1.5 UJ	1.3 U	
Silver	ug/L	3.4 U	5.5 U	5.8 R	3.4 U	5.5 U	3.4 U	
Sodium	ug/L	15000	21600	40600	36800	31600	28300	
Thallium	ug/L	3.2 U	2.6 U	32 U	3.2 U	2.6 U	3.2 U	
Vanadium	ug/L	9.5 U	6.8 UJ	358	9.4 U	64.7 J	10 J	
Zinc	ug/L	19 R	9 J	1750 J	18 R	277	35.9 R	
Cyanide	ug/L		10 UJ	10 U J		10 UJ	10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-27	MW27	MW-28	MW-28	MW-28	MW-28	MW-28
	DATE	01/15/92	07/01/93	01/15/92	01/15/92	01/15/92	01/15/92	01/15/92
	ES ID	MW-27Filtered	MW27	MW-28	MW-28RE(4)	MW-28Filtered	PT-2(1)	PT-2(1)Filt
	LAB ID	152666	166122	152571	152571	152590	152573	152592
COMPOUND	UNITS							
Chloromethane	ug/L			10 U			10 U	
Bromomethane	ug/L			10 U			10 U	
Vinyl Chloride	ug/L			10 U			10 U	
Chloroethane	ug/L			10 U			10 U	
Methylene Chloride	ug/L			5 U			5 U	
Acetone	ug/L			10 U			10 U	
Carbon Disulfide	ug/L			5 U			5 U	
1,1-Dichloroethene	ug/L			5 U			5 U	
1,1-Dichloroethane	ug/L			5 U			5 U	
1,2-Dichloroethene (total)	ug/L			60			62	
Chloroform	ug/L			5 U			5 U	
1,2-Dichloroethane	ug/L			5 U			5 U	
2-Butanone	ug/L			10 U			10 U	
1,1,1-Trichloroethane	ug/L			5 U			5 U	
Carbon Tetrachloride	ug/L			5 U			5 U	
Vinyl Acetate	ug/L			10 U			10 U	
Bromodichloromethane	ug/L			5 U			5 U	
1,2-Dichloropropane	ug/L			5 U			5 U	
cis-1,3-Dichloropropene	ug/L			5 U			5 U	
Trichloroethene	ug/L			32			33	
Dibromochloromethane	ug/L			5 U			5 U	
1,1,2-Trichloroethane	ug/L			5 U			5 U	
Benzene	ug/L			5 U			5 U	
trans-1,3-Dichloropropene	ug/L			5 U			5 U	
Bromoform	ug/L			5 U			5 U	
4-Methyl-2-Pentanone	ug/L			10 U			10 U	
2-Hexanone	ug/L			10 U			10 U	
Tetrachloroethene	ug/L			5 U			5 U	
1,1,2,2-Tetrachloroethane	ug/L			5 U			5 U	
Toluene	ug/L			5 U			5 U	
Chlorobenzene	ug/L			5 U			5 U	
Ethylbenzene	ug/L			5 U			5 U	
Styrene	ug/L			5 U			5 U	
Xylene (total)	ug/L			5 U			5 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	LOCATION	MW-27	MW27	MW-26	MW-26	MW-26	MW-26	MW-26
	DATE	01/15/92	07/01/93	01/15/92	01/15/92	01/15/92	01/15/92	01/15/92
	ES ID	MW-27Filtered	MW27	MW-26	MW-26RE(4)	MW-26Filtered	PT-2(1)	PT-2(1)Filt
	LAB ID	152666	186122	152571	152571	152590	152573	152592
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L		0.5 U					
Chloromethane	ug/L		0.5 U					
Vinyl Chloride	ug/L		0.5 U					
Bromomethane	ug/L		0.5 U					
Chloroethane	ug/L		0.5 U					
Trichlorofluoromethane	ug/L		0.5 U					
1,1-Dichloroethene	ug/L		0.5 U					
Acetone	ug/L		5 U					
Carbon Disulfide	ug/L		0.5 U					
Methylene Chloride	ug/L		0.5 U					
trans-1,2-Dichloroethene	ug/L		0.5 U					
1,1-Dichloroethane	ug/L		0.5 U					
2,2-Dichloropropane	ug/L		0.5 U					
cis-1,2-Dichloroethene	ug/L		0.5 U					
2-Butanone	ug/L		5 U					
Bromochloromethane	ug/L		0.5 U					
Chloroform	ug/L		0.5 U					
1,1,1-Trichloroethane	ug/L		0.5 U					
Carbon Tetrachloride	ug/L		0.5 U					
1,1-Dichloropropene	ug/L		0.5 U					
Benzene	ug/L		0.5 U					
1,2-Dichloroethane	ug/L		0.5 U					
Trichloroethene	ug/L		0.5 U					
1,2-Dichloropropane	ug/L		0.5 U					
Dibromomethane	ug/L		0.5 U					
Bromodichloromethane	ug/L		0.5 U					
cis-1,3-Dichloropropene	ug/L		0.5 U					
4-Methyl-2-Pentanone	ug/L		5 U					
Toluene	ug/L		0.5 U					
trans-1,3-Dichloropropene	ug/L		0.5 U					
1,1,2-Trichloroethane	ug/L		0.5 U					
Tetrachloroethene	ug/L		0.5 U					
1,3-Dichloropropane	ug/L		0.5 U					
2-Hexanone	ug/L		5 U					
Dibromochloromethane	ug/L		0.5 U					
1,2-Dibromoethane	ug/L		0.5 U					
Chlorobenzene	ug/L		0.5 U					
1,1,1,2-Tetrachloroethane	ug/L		0.5 U					
Ethylbenzene	ug/L		0.5 U					
Styrene	ug/L		0.5 U					
Bromoform	ug/L		0.5 U					
Isopropylbenzene	ug/L		0.5 U					
Bromobenzene	ug/L		0.5 U					
1,1,2,2-Tetrachloroethane	ug/L		0.5 U					
1,2,3-Trichloropropane	ug/L		0.5 U					
n-Propylbenzene	ug/L		0.5 U					
2-Chlorotoluene	ug/L		0.5 U					
4-Chlorotoluene	ug/L		0.5 U					
1,3,5-Trimethylbenzene	ug/L		0.5 U					
tert-Butylbenzene	ug/L		0.5 U					
1,2,4-Trimethylbenzene	ug/L		0.5 U					
sec-Butylbenzene	ug/L		0.5 U					
1,3-Dichlorobenzene	ug/L		0.5 U					
1,4-Dichlorobenzene	ug/L		0.5 U					
p-Isopropyltoluene	ug/L		0.5 U					
1,2-Dichlorobenzene	ug/L		0.5 U					
n-Butylbenzene	ug/L		0.5 U					
1,2-Dibromo-3-Chloropropane	ug/L		0.5 U					
1,2,4-Trichlorobenzene	ug/L		0.5 U					
Hexachlorobutadiene	ug/L		0.5 U					
Naphthalene	ug/L		0.5 U					
1,2,3-Trichlorobenzene	ug/L		0.5 U					
Xylene (total)	ug/L		0.5 U					

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER
	LOCATION	MW-27	MW27	MW-28	MW-28	MW-28	MW-28	MW-28
	DATE	01/15/92	07/01/93	01/15/92	01/15/92	01/15/92	01/15/92	01/15/92
	ES ID	MW-27Filtered	MW27	MW-28	MW-28RE(4)	MW-28Filtered	PT-2(1)	PT-2(1)Filt
	LAB ID	152666	188122	152571	152571	152590	152573	152592
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L		11 U	11 U			11 U	
bis(2-Chloroethyl) ether	ug/L		11 U	11 U			11 U	
2-Chlorophenol	ug/L		11 U	11 U			11 U	
1,3-Dichlorobenzene	ug/L		11 U	11 U			11 U	
1,4-Dichlorobenzene	ug/L		11 U	11 U			11 U	
Benzyl Alcohol	ug/L			11 U			11 U	
1,2-Dichlorobenzene	ug/L		11 U	11 U			11 U	
2-Methylphenol	ug/L		11 U	11 U			11 U	
bis(2-Chloroisopropyl) ether	ug/L		11 U	11 U			11 U	
4-Methylphenol	ug/L		11 U	11 U			11 U	
N-Nitroso-di-n-propylamine	ug/L		11 U	11 U			11 U	
Hexachloroethane	ug/L		11 U	11 U			11 U	
Nitrobenzene	ug/L		11 U	11 U			11 U	
Isophorone	ug/L		11 U	11 U			11 U	
2-Nitrophenol	ug/L		11 U	11 U			11 U	
2,4-Dimethylphenol	ug/L		11 U	11 U			11 U	
Benzoic acid	ug/L			54 U			55 U	
bis(2-Chloroethoxy) methane	ug/L		11 U	11 U			11 U	
2,4-Dichlorophenol	ug/L		11 U	11 U			11 U	
1,2,4-Trichlorobenzene	ug/L		11 U	11 U			11 U	
Naphthalene	ug/L		11 U	11 U			11 U	
4-Chloroaniline	ug/L		11 U	11 U			11 U	
Hexachlorobutadiene	ug/L		11 U	11 U			11 U	
4-Chloro-3-methylphenol	ug/L		11 U	11 U			11 U	
2-Methylnaphthalene	ug/L		11 U	11 U			11 U	
Hexachlorocyclopentadiene	ug/L		11 U	11 U			11 U	
2,4,6-Trichlorophenol	ug/L		11 U	11 U			11 U	
2,4,5-Trichlorophenol	ug/L		27 U	54 U			55 U	
2-Chloronaphthalene	ug/L		11 U	11 U			11 U	
2-Nitroaniline	ug/L		27 U	54 U			55 U	
Dimethylphthalate	ug/L		11 U	11 U			11 U	
Acenaphthylene	ug/L		11 U	11 U			11 U	
2,6-Dinitrotoluene	ug/L		11 U	11 U			11 U	
3-Nitroaniline	ug/L		27 U	54 U			55 U	
Acenaphthene	ug/L		11 U	11 U			11 U	
2,4-Dinitrophenol	ug/L		27 U	54 U			55 U	
4-Nitrophenol	ug/L		27 U	54 U			55 U	
Dibenzofuran	ug/L		11 U	11 U			11 U	
2,4-Dinitrotoluene	ug/L		11 U	11 U			11 U	
Diethylphthalate	ug/L		11 U	11 U			11 U	
4-Chlorophenyl-phenylether	ug/L		11 U	11 U			11 U	
Fluorene	ug/L		11 U	11 U			11 U	
4-Nitroaniline	ug/L		27 U	54 U			55 U	
4,6-Dinitro-2-methylphenol	ug/L		27 U	54 U			55 U	
N-Nitrosodiphenylamine (1)	ug/L		11 U	11 U			11 U	
4-Bromophenyl-phenylether	ug/L		11 U	11 U			11 U	
Hexachlorobenzene	ug/L		11 U	11 U			11 U	
Pentachlorophenol	ug/L		27 U	54 U			55 U	
Phenanthrene	ug/L		11 U	11 U			11 U	
Anthracene	ug/L		11 U	11 U			11 U	
Carbazole	ug/L		11 U					
Di-n-butylphthalate	ug/L		11 U	11 U			11 U	
Fluoranthene	ug/L		11 U	11 U			11 U	
Pyrene	ug/L		11 U	11 U			11 U	
Butylbenzylphthalate	ug/L		11 U	11 U			11 U	
3,3'-Dichlorobenzidine	ug/L		11 U	22 U			22 U	
Benzo(a)anthracene	ug/L		11 U	11 U			11 U	
Chrysene	ug/L		27 U	11 U			11 U	
bis(2-Ethylhexyl)phthalate	ug/L		11 U	11 U			11 U	
Di-n-octylphthalate	ug/L		11 U	11 U			11 U	
Benzo(b)fluoranthene	ug/L		11 U	11 U			11 U	
Benzo(k)fluoranthene	ug/L		11 U	11 U			11 U	
Benzo(a)pyrene	ug/L		11 U	11 U			11 U	
Indeno(1,2,3-cd)pyrene	ug/L		11 U	11 U			11 U	
Dibenz(a,h)anthracene	ug/L		11 U	11 U			11 U	
Benzo(g,h,i)perylene	ug/L		11 U	11 U			11 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER
	LOCATION	MW-27	MW27	MW-26	MW-26	MW-26	MW-26	MW-26
	DATE	01/15/92	07/01/93	01/15/92	01/15/92	01/15/92	01/15/92	01/15/92
	ES ID	MW-27Filtered	MW27	MW-26	MW-26RE(4)	MW-26Filtered	PT-2(1)	PT-2(1)Filt
	LAB ID	152666	155122	152571	152571	152590	152573	152592
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
beta-BHC	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
delta-BHC	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
gamma-BHC (Lindane)	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Heptachlor	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Aldrin	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Heptachlor epoxide	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Endosulfan I	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Dieldrin	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
4,4'-DDE	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Endrin	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Endosulfan II	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
4,4'-DDD	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Endosulfan sulfate	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
4,4'-DDT	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Methoxychlor	ug/L		0.5 U	0.55 U	0.51 U		0.54 U	
Endrin ketone	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Endrin aldehyde	ug/L		0.1 U					
alpha-Chlordane	ug/L		0.05 U	0.55 U	0.51 U		0.54 U	
gamma-Chlordane	ug/L		0.05 U	0.55 U	0.51 U		0.54 U	
Toxaphene	ug/L		5 U	1.1 U	1 U		1.1 U	
Aroclor-1016	ug/L		1 U	0.55 U	0.51 U		0.54 U	
Aroclor-1221	ug/L		2 U	0.55 U	0.51 U		0.54 U	
Aroclor-1232	ug/L		1 U	0.55 U	0.51 U		0.54 U	
Aroclor-1242	ug/L		1 U	0.55 U	0.51 U		0.54 U	
Aroclor-1248	ug/L		1 U	0.55 U	0.51 U		0.54 U	
Aroclor-1254	ug/L		1 U	1.1 U	1 U		1.1 U	
Aroclor-1260	ug/L		1 U	3.6 R	1 U		1.1 U	
HERBICIDES								
2,4-D	ug/L		1 U	1 U			1.1 U	
2,4-DB	ug/L		1 U	1 U			1.1 U	
2,4,5-T	ug/L		0.1 U	0.1 U			0.1 U	
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U			0.1 U	
Dalapon	ug/L		2.3 U	2.3 U			2.5 U	
Dicamba	ug/L		0.1 U	0.1 U			0.1 U	
Dichloroprop	ug/L		1 U	1 U			1.1 U	
Dinoseb	ug/L		0.5 U	0.5 U			0.5 U	
MCPA	ug/L		100 U	100 U			110 U	
MCPP	ug/L		100 U	100 U			110 U	
METALS								
Aluminum	ug/L	24.4 U	3870	41100 J		24.5 U	27000 J	24.5 U
Antimony	ug/L	52.8 U	49.6 UJ	54.3 R		53.3 U	53 U	53.3 U
Arsenic	ug/L	3.5 U	1.4 UJ	4.4 J		3.5 U	3.5 U	3.5 U
Barium	ug/L	59.9 R	105 J	200		41.1 R	154 J	39.4 R
Beryllium	ug/L	1.1 U	0.69 U	3.7 R		1.4 R	3.2 R	1.4 R
Cadmium	ug/L	3 U	2.8 U	6.1		3 U	5.2	3 U
Calcium	ug/L	85300	137000	170000 J		111000	152000 J	111000
Chromium	ug/L	6.1 U	6.9 J	53.1 J		6.2 U	34.6 J	6.2 U
Cobalt	ug/L	20.3 U	5.5 U	20.5 U		20.5 U	20.3 U	20.5 U
Copper	ug/L	10.1 U	4.7 U	33.9		10.2 U	27.6	10.2 U
Iron	ug/L	6.9 U	6530	60300 J		7 U	46500 J	7 U
Lead	ug/L	1.2 U	0.85 J	10.7		1.2 U	8.9	1.2 U
Magnesium	ug/L	10800	19000	28800		123000	23400	11800
Manganese	ug/L	88	567	1510 J		4.8 U	1100 J	4.8 U
Mercury	ug/L	0.03 U	0.09 UJ	0.11 R		0.11 R	0.11 R	0.1 R
Nickel	ug/L	14.7 U	7.4 UJ	72.5		14.8 U	62.9	14.8 U
Potassium	ug/L	2400 J	5160	6910 J		347 J	4020 J	269 U
Selenium	ug/L	1 U	1.5 UJ	1.3 U		1 U	1.3 U	1 U
Silver	ug/L	3.4 U	5.5 U	3.4 U		3.4 U	3.4 U	3.4 U
Sodium	ug/L	27200	17600	9460		8580	9250	8570
Thallium	ug/L	3.2 U	2.6 U	3.2 U		3.2 U	3.2 U	3.2 U
Vanadium	ug/L	9.4 U	8 J	46.7 J		9.5 U	32.7 J	9.5 U
Zinc	ug/L	22.1 R	37.7	165 J		6.5 U	124 J	6.5 U
Cyanide	ug/L		1.2 R	10 U			10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW25	MW-29	MW-29	MW29	MW-30	MW-30	MW30
	DATE	07/10/93	01/15/92	01/15/92	07/09/93	01/16/92	01/16/92	07/01/93
	ES ID	MW26	MW-29	MW-29Filte	MW29	MW-30	MW-30Filtered	MW30
	LAB ID	188719	152572	152591	188587	152642	152667	188123
COMPOUND	UNITS							
Chloromethane	ug/L	10 U	10 U		10 U	10 U		
Bromomethane	ug/L	10 U	10 U		10 U	10 U		
Vinyl Chloride	ug/L	10 U	10 U		10 U	10 U		
Chloroethane	ug/L	10 U	10 U		10 U	10 U		
Methylene Chloride	ug/L	10 U	5 U		10 U	5 U		
Acetone	ug/L	10 U	10 U		10 U	10 U		
Carbon Disulfide	ug/L	10 U	5 U		10 U	5 U		
1,1-Dichloroethene	ug/L	10 U	5 U		10 U	5 U		
1,1-Dichloroethane	ug/L	10 U	5 U		10 U	5 U		
1,2-Dichloroethene (total)	ug/L	53	71		97	5 U		
Chloroform	ug/L	10 U	5 U		10 U	5 U		
1,2-Dichloroethane	ug/L	10 U	5 U		10 U	5 U		
2-Butanone	ug/L	10 U	10 U		10 U	10 U		
1,1,1-Trichloroethane	ug/L	10 U	5 U		2 J	5 U		
Carbon Tetrachloride	ug/L	10 U	5 U		10 U	5 U		
Vinyl Acetate	ug/L		10 U			10 U		
Bromodichloromethane	ug/L	10 U	5 U		10 U	5 U		
1,2-Dichloropropane	ug/L	10 U	5 U		10 U	5 U		
cis-1,3-Dichloropropene	ug/L	10 U	5 U		10 U	5 U		
Trichloroethene	ug/L	35	1 J		2 J	5 U		
Dibromochloromethane	ug/L	10 U	5 U		10 U	5 U		
1,1,2-Trichloroethane	ug/L	10 U	5 U		10 U	5 U		
Benzene	ug/L	10 U	5 U		10 U	5 U		
trans-1,3-Dichloropropene	ug/L	10 U	5 U		10 U	5 U		
Bromoform	ug/L	10 U	5 U		10 U	5 U		
4-Methyl-2-Pentanone	ug/L	10 U	10 U		10 U	10 U		
2-Hexanone	ug/L	10 U	10 U		10 U	10 U		
Tetrachloroethene	ug/L	10 U	5 U		10 U	5 U		
1,1,2,2-Tetrachloroethane	ug/L	10 U	5 U		10 U	5 U		
Toluene	ug/L	10 U	5 U		10 U	5 U		
Chlorobenzene	ug/L	10 U	5 U		10 U	5 U		
Ethylbenzene	ug/L	10 U	5 U		10 U	5 U		
Styrene	ug/L	10 U	5 U		10 U	5 U		
Xylene (total)	ug/L	10 U	5 U		10 U	5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
SUMGW.WK3	LOCATION	MW26	MW-29	MW-29	MW29	MW-30	MW-30	MW30
	DATE	07/10/93	01/15/92	01/15/92	07/09/93	01/16/92	01/16/92	07/01/93
	ES ID	MW26	MW-29	MW-29Filte	MW29	MW-30	MW-30Filtered	MW30
	LAB ID	166719	152572	152591	166567	152642	152667	166123
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							0.5 U
Chloromethane	ug/L							0.5 U
Vinyl Chloride	ug/L							0.5 U
Bromomethane	ug/L							0.5 U
Chloroethane	ug/L							0.5 U
Trichlorofluoromethane	ug/L							0.5 U
1,1-Dichloroethene	ug/L							0.5 U
Acetone	ug/L							5 U
Carbon Disulfide	ug/L							0.5 U
Methylene Chloride	ug/L							0.5 U
trans-1,2-Dichloroethene	ug/L							0.5 U
1,1-Dichloroethane	ug/L							0.5 U
2,2-Dichloropropane	ug/L							0.5 U
cis-1,2-Dichloroethene	ug/L							0.5 U
2-Butanone	ug/L							5 U
Bromochloromethane	ug/L							0.5 U
Chloroform	ug/L							0.5 U
1,1,1-Trichloroethane	ug/L							0.5 U
Carbon Tetrachloride	ug/L							0.5 U
1,1-Dichloropropene	ug/L							0.5 U
Benzene	ug/L							0.5 U
1,2-Dichloroethane	ug/L							0.5 U
Trichloroethene	ug/L							1
1,2-Dichloropropane	ug/L							0.5 U
Dibromomethane	ug/L							0.5 U
Bromodichloromethane	ug/L							0.5 U
cis-1,3-Dichloropropene	ug/L							0.5 U
4-Methyl-2-Pentanone	ug/L							5 U
Toluene	ug/L							0.5 U
trans-1,3-Dichloropropene	ug/L							0.5 U
1,1,2-Trichloroethane	ug/L							0.5 U
Tetrachloroethene	ug/L							0.5 U
1,3-Dichloropropane	ug/L							0.5 U
2-Hexanone	ug/L							5 U
Dibromochloromethane	ug/L							0.5 U
1,2-Dibromoethane	ug/L							0.5 U
Chlorobenzene	ug/L							0.5 U
1,1,1,2-Tetrachloroethane	ug/L							0.5 U
Ethylbenzene	ug/L							0.5 U
Styrene	ug/L							0.5 U
Bromoform	ug/L							0.5 U
Isopropylbenzene	ug/L							0.5 U
Bromobenzene	ug/L							0.5 U
1,1,2,2-Tetrachloroethane	ug/L							0.5 U
1,2,3-Trichloropropane	ug/L							0.5 U
n-Propylbenzene	ug/L							0.5 U
2-Chlorotoluene	ug/L							0.5 U
4-Chlorotoluene	ug/L							0.5 U
1,3,5-Trimethylbenzene	ug/L							0.5 U
tert-Butylbenzene	ug/L							0.5 U
1,2,4-Trimethylbenzene	ug/L							0.5 U
sec-Butylbenzene	ug/L							0.5 U
1,3-Dichlorobenzene	ug/L							0.5 U
1,4-Dichlorobenzene	ug/L							0.5 U
p-Isopropyltoluene	ug/L							0.5 U
1,2-Dichlorobenzene	ug/L							0.5 U
n-Butylbenzene	ug/L							0.5 U
1,2-Dibromo-3-Chloropropane	ug/L							0.5 U
1,2,4-Trichlorobenzene	ug/L							0.5 U
Hexachlorobutadiene	ug/L							0.5 U
Naphthalene	ug/L							0.5 U
1,2,3-Trichlorobenzene	ug/L							0.5 U
Xylene (total)	ug/L							0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX LOCATION DATE ES ID LAB ID	PHASE II WATER MW28 07/10/93 MW28 188719	PHASE I WATER MW-29 01/15/92 MW-29 152572	PHASE I WATER MW-29 01/15/92 MW-29Filte 152591	PHASE II WATER MW29 07/09/93 MW29 188567	PHASE I WATER MW-30 01/16/92 MW-30 152642	PHASE I WATER MW-30 01/16/92 MW-30Filtered 152667	PHASE II WATER MW30 07/01/93 MW30 188123
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Chloroethyl) ether	ug/L	10 U	11 U		10 U	11 U		10 U
2-Chlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
1,3-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
1,4-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzyl Alcohol	ug/L		11 U			11 U		
1,2-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
2-Methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	11 U		10 U	11 U		10 U
4-Methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
N-Nitroso-di-n-propylamine	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachloroethane	ug/L	10 U	11 U		10 U	11 U		10 U
Nitrobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Isophorone	ug/L	10 U	11 U		10 U	11 U		10 U
2-Nitrophenol	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dimethylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
Benzoic acid	ug/L		55 U			56 U		
bis(2-Chloroethoxy) methane	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dichlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
1,2,4-Trichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Naphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chloroaniline	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorobutadiene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chloro-3-methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
2-Methylnaphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorocyclopentadiene	ug/L	10 U	11 U		10 U	11 U		10 U
2,4,6-Trichlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
2,4,5-Trichlorophenol	ug/L	25 U	55 U		25 U	56 U		25 U
2-Chloronaphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
2-Nitroaniline	ug/L	25 U	55 U		25 U	56 U		25 U
Dimethylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Acenaphthylene	ug/L	10 U	11 U		10 U	11 U		10 U
2,6-Dinitrotoluene	ug/L	10 U	11 U		10 U	11 U		10 U
3-Nitroaniline	ug/L	25 U	55 U		25 U	56 U		25 U
Acenaphthene	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dinitrophenol	ug/L	25 U	55 U		25 U	56 U		25 U
4-Nitrophenol	ug/L	25 U	55 U		25 U	56 U		25 U
Dibenzofuran	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dinitrotoluene	ug/L	10 U	11 U		10 U	11 U		10 U
Diethylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chlorophenyl-phenylether	ug/L	10 U	11 U		10 U	11 U		10 U
Fluorene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Nitroaniline	ug/L	25 U	55 U		25 U	56 U		25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	55 U		25 U	56 U		25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	11 U		10 U	11 U		10 U
4-Bromophenyl-phenylether	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Pentachlorophenol	ug/L	25 U	55 U		25 U	56 U		25 U
Phenanthrene	ug/L	10 U	11 U		10 U	11 U		10 U
Anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Carbazole	ug/L	10 U			10 U			10 U
Di-n-butylphthalate	ug/L	10 U	11 U		10 U	11 U		12
Fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Butylbenzylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
3,3'-Dichlorobenzidine	ug/L	10 U	22 U		10 U	23 U		10 U
Benzo(a)anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Chrysene	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Di-n-octylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(b)fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(k)fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(a)pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Dibenz(a,h)anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(g,h,i)perylene	ug/L	10 U	11 U		10 U	11 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW28	MW-29	MW-29	MW29	MW-30	MW-30	MW30
	DATE	07/10/93	01/15/92	01/15/92	07/09/93	01/16/92	01/16/92	07/01/93
	ES ID	MW28	MW-29	MW-29Filte	MW29	MW-30	MW-30Filtered	MW30
	LAB ID	188719	152572	152591	188587	152642	152667	188123
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
beta-BHC	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
delta-BHC	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
gamma-BHC (Lindane)	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Heptachlor	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Aldrin	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Heptachlor epoxide	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Endosulfan I	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Dieldrin	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
4,4'-DDE	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Endrin	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Endosulfan II	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
4,4'-DDD	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Endosulfan sulfate	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
4,4'-DDT	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Methoxychlor	ug/L	0.5 U	0.55 U		0.5 U	0.51 U		
Endrin ketone	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Endrin aldehyde	ug/L	0.1 U			0.1 U			
alpha-Chlordane	ug/L	0.05 U	0.55 U		0.05 U	0.51 U		
gamma-Chlordane	ug/L	0.05 U	0.55 U		0.05 U	0.51 U		
Toxaphene	ug/L	5 U	1.1 U		5 U	1 U		
Aroclor-1016	ug/L	1 U	0.55 U		1 U	0.51 U		
Aroclor-1221	ug/L	2 U	0.55 U		2 U	0.51 U		
Aroclor-1232	ug/L	1 U	0.55 U		1 U	0.51 U		
Aroclor-1242	ug/L	1 U	0.55 U		1 U	0.51 U		
Aroclor-1248	ug/L	1 U	0.55 U		1 U	0.51 U		
Aroclor-1254	ug/L	1 U	1.1 U		1 U	1 U		
Aroclor-1260	ug/L	1 U	1.1 U		1 U	1 U		
HERBICIDES								
2,4-D	ug/L	1 U			1 U	1 U		
2,4-DB	ug/L	1 U			1 U	1 U		
2,4,5-T	ug/L	0.1 U			0.1 U	0.1 U		
2,4,5-TP (Silvex)	ug/L	0.1 U			0.1 U	0.1 U		
Dalapon	ug/L	2.3 U			2.3 U	2.3 U		
Dicamba	ug/L	0.1 U			0.1 U	0.1 U		
Dichloroprop	ug/L	1 U			1 U	1 U		
Dinoseb	ug/L	0.5 U			0.5 U	0.5 U		
MCPA	ug/L	100 U			100 U	100 U		
MCPP	ug/L	100 U			100 U	100 U		
METALS								
Aluminum	ug/L	6980	85700	24.4 U	55800	11200	24.5 U	188 J
Antimony	ug/L	49.5 UJ	53.3 U	53 U	86.2 J	53.3 U	53.2 U	49.6 UJ
Arsenic	ug/L	1.4 UJ	3.5 U	3.5 U	2.4 J	3.5 U	3.5 U	1.4 UJ
Barium	ug/L	76.9 J	418	46.6 R	382	93.3 J	63.1 R	56.5 J
Beryllium	ug/L	0.89 U	5.8 R	1.3 R	3 J	2.4 R	1.1 U	0.89 U
Cadmium	ug/L	2.8 U	17	3 U	2.8 U	30 U	3 U	2.8 U
Calcium	ug/L	121000	248000	124000	234000	105000	102000	121000
Chromium	ug/L	9.6 J	122	6.2 U	83.8 J	13.2	6.2 U	2.9 J
Cobalt	ug/L	5.4 U	63.8	20.4 U	57.5	20.5 U	20.4 U	5.5 U
Copper	ug/L	6.1 J	111	10.1 U	84.5	10.5 J	10.2 U	4.7 U
Iron	ug/L	8530	159000	7 U	92000	15500	7 U	281
Lead	ug/L	2.2 J	39.4	1.2 U	28.8	3.5	1.2 U	0.59 U
Magnesium	ug/L	13900	59400	14700	48900	18900	147000	16300
Manganese	ug/L	271	4110	4.6 U	3270	250	4.6 U	11.8 J
Mercury	ug/L	0.06 UJ	0.14 R	0.09 R	0.09 UJ	0.1 R	0.03 U	0.09 UJ
Nickel	ug/L	6.2 J	182	14.7 U	122 J	16.8 J	14.7 U	7.4 UJ
Potassium	ug/L	2570 J	10800	563 J	9450	3450 J	1120 J	2910 J
Selenium	ug/L	1.5 UJ	13 U	1.4 J	1.5 J	1.3 U	1 U	1.5 UJ
Silver	ug/L	5.4 U	3.4 U	4.5 R	5.5 U	3.4 U	3.4 U	5.5 U
Sodium	ug/L	10100	26200	25000	25600	16400	17600	26900
Thallium	ug/L	2.6 U	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U
Vanadium	ug/L	12.6 J	98.3	9.4 U	78.2 J	18.5 J	9.5 U	6.7 UJ
Zinc	ug/L	26.5 R	503	8.4 U	300	55.4 R	20.1 R	10.2 J
Cyanide	ug/L	1.7 UJ	10 U		1.2 R	10 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3											
		PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW-31	MW-31	MW31	MW-32	MW-32	MW32	MW-33	MW-33	MW-33	MW33
	DATE	01/16/92	01/16/92	07/01/93	01/16/92	01/16/92	07/09/93	01/16/92	02/03/92 CK	01/16/92	07/10/93
	ES ID	MW-31	MW-31Filte	MW31	MW-32	MW-32Filte	MW32	MW-33	MW-33	MW-33Filte	MW33
	LAB ID	152643	152666	188124	152644	152669	188591	152645	153416	152670	188721
COMPOUND	UNITS										
Chloromethane	ug/L	10 U			10 U				10 U		
Bromomethane	ug/L	10 U			10 U				10 U		
Vinyl Chloride	ug/L	10 U			10 U				10 U		
Chloroethane	ug/L	10 U			10 U				10 U		
Methylene Chloride	ug/L	5 U			5 U				5 U		
Acetone	ug/L	10 U			10 U				10 U		
Carbon Disulfide	ug/L	5 U			5 U				5 U		
1,1-Dichloroethene	ug/L	5 U			5 U				5 U		
1,1-Dichloroethane	ug/L	5 U			5 U				5 U		
1,2-Dichloroethene (total)	ug/L	5 U			5 U				5 U		
Chloroform	ug/L	5 U			5 U				5 U		
1,2-Dichloroethane	ug/L	5 U			5 U				5 U		
2-Butanone	ug/L	10 U			10 U				10 U		
1,1,1-Trichloroethane	ug/L	5 U			5 U				5 U		
Carbon Tetrachloride	ug/L	5 U			5 U				5 U		
Vinyl Acetate	ug/L	10 U			10 U				10 U		
Bromodichloromethane	ug/L	5 U			5 U				5 U		
1,2-Dichloropropane	ug/L	5 U			5 U				5 U		
cis-1,3-Dichloropropene	ug/L	5 U			5 U				5 U		
Trichloroethene	ug/L	5 U			5 U				5 U		
Dibromochloromethane	ug/L	5 U			5 U				5 U		
1,1,2-Trichloroethane	ug/L	5 U			5 U				5 U		
Benzene	ug/L	5 U			5 U				5 U		
trans-1,3-Dichloropropene	ug/L	5 U			5 U				5 U		
Bromoform	ug/L	5 U			5 U				5 U		
4-Methyl-2-Pentanone	ug/L	10 U			10 U				10 U		
2-Hexanone	ug/L	10 U			10 U				10 U		
Tetrachloroethene	ug/L	5 U			5 U				5 U		
1,1,2,2-Tetrachloroethane	ug/L	5 U			5 U				5 U		
Toluene	ug/L	5 U			5 U				5 U		
Chlorobenzene	ug/L	5 U			5 U				5 U		
Ethylbenzene	ug/L	5 U			5 U				5 U		
Styrene	ug/L	5 U			5 U				5 U		
Xylene (total)	ug/L	5 U			5 U				5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW-31	MW-31	MW31	MW-32	MW-32	MW32	MW-33	MW-33	MW-33	MW33
	DATE	01/16/92	01/16/92	07/01/93	01/16/92	01/16/92	07/09/93	01/16/92	02/03/92 CK	01/16/92	07/10/93
	ES ID	MW-31	MW-31Filte	MW31	MW-32	MW-32Filte	MW32	MW-33	MW-33	MW-33Filte	MW33
	LAB ID	152643	152666	188124	152644	152669	188591	152645	153416	152670	188721
COMPOUND	UNITS										
VOC's (524.2)											
Dichlorodifluoromethane	ug/L			0.5 U			0.5 U				0.5 U
Chloromethane	ug/L			0.5 U			0.5 U				0.5 U
Vinyl Chloride	ug/L			0.5 U			0.5 U				0.5 U
Bromomethane	ug/L			0.5 U			0.5 U				0.5 U
Chloroethane	ug/L			0.5 U			0.5 U				0.5 U
Trichlorofluoromethane	ug/L			0.5 U			0.5 U				0.5 U
1,1-Dichloroethene	ug/L			0.5 U			0.5 U				0.5 U
Acetone	ug/L			5 U			5 U				5 U
Carbon Disulfide	ug/L			0.5 U			0.5 U				0.5 U
Methylene Chloride	ug/L			0.5 U			0.5 U				0.5 U
trans-1,2-Dichloroethene	ug/L			0.5 U			0.5 U				0.5 U
1,1-Dichloroethane	ug/L			0.5 U			0.5 U				0.5 U
2,2-Dichloropropane	ug/L			0.5 U			0.5 U				0.5 U
cis-1,2-Dichloroethene	ug/L			0.5 U			0.5 U				0.5 U
2-Butanone	ug/L			5 U			5 U				5 U
Bromochloromethane	ug/L			0.5 U			0.5 U				0.5 U
Chloroform	ug/L			0.5 U			0.5 U				0.5 U
1,1,1-Trichloroethane	ug/L			0.5 U			0.5 U				0.5 U
Carbon Tetrachloride	ug/L			0.5 U			0.5 U				0.5 U
1,1-Dichloropropene	ug/L			0.5 U			0.5 U				0.5 U
Benzene	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dichloroethane	ug/L			0.5 U			0.5 U				0.5 U
Trichloroethene	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dichloropropane	ug/L			0.5 U			0.5 U				0.5 U
Dibromomethane	ug/L			0.5 U			0.5 U				0.5 U
Bromodichloromethane	ug/L			0.5 U			0.5 U				0.5 U
cis-1,3-Dichloropropene	ug/L			0.5 U			0.5 U				0.5 U
4-Methyl-2-Pentanone	ug/L			5 U			5 U				5 U
Toluene	ug/L			0.5 U			0.5 U				0.5 U
trans-1,3-Dichloropropene	ug/L			0.5 U			0.5 U				0.5 U
1,1,2-Trichloroethane	ug/L			0.5 U			0.5 U				0.5 U
Tetrachloroethene	ug/L			0.5 U			0.5 U				0.5 U
1,3-Dichloropropane	ug/L			0.5 U			0.5 U				0.5 U
2-Hexanone	ug/L			5 U			5 U				5 U
Dibromochloromethane	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dibromoethane	ug/L			0.5 U			0.5 U				0.5 U
Chlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
1,1,1,2-Tetrachloroethane	ug/L			0.5 U			0.5 U				0.5 U
Ethylbenzene	ug/L			0.5 U			0.5 U				0.5 U
Styrene	ug/L			0.5 U			0.5 U				0.5 U
Bromoform	ug/L			0.5 U			0.5 U				0.5 U
Isopropylbenzene	ug/L			0.5 U			0.5 U				0.5 U
Bromobenzene	ug/L			0.5 U			0.5 U				0.5 U
1,1,2,2-Tetrachloroethane	ug/L			0.5 U			0.5 U				0.5 U
1,2,3-Trichloropropane	ug/L			0.5 U			0.5 U				0.5 U
n-Propylbenzene	ug/L			0.5 U			0.5 U				0.5 U
2-Chlorotoluene	ug/L			0.5 U			0.5 U				0.5 U
4-Chlorotoluene	ug/L			0.5 U			0.5 U				0.5 U
1,3,5-Trimethylbenzene	ug/L			0.5 U			0.5 U				0.5 U
tert-Butylbenzene	ug/L			0.5 U			0.5 U				0.5 U
1,2,4-Trimethylbenzene	ug/L			0.5 U			0.5 U				0.5 U
sec-Butylbenzene	ug/L			0.5 U			0.5 U				0.5 U
1,3-Dichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
1,4-Dichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
p-Isopropyltoluene	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
n-Butylbenzene	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dibromo-3-Chloropropane	ug/L			0.5 U			0.5 U				0.5 U
1,2,4-Trichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
Hexachlorobutadiene	ug/L			0.5 U			0.5 U				0.5 U
Naphthalene	ug/L			0.5 U			0.5 U				0.5 U
1,2,3-Trichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
Xylene (total)	ug/L			0.5 U			0.5 U				0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-31	MW-31	MW31	MW-32	MW-32	MW32	MW-33	MW-33	MW-33	MW33
	DATE	01/16/92	01/16/92	07/01/93	01/16/92	01/16/92	07/09/93	01/16/92	02/03/92 CK	01/16/92	07/10/93
	ES ID	MW-31	MW-31Filte	MW31	MW-32	MW-32Filte	MW32	MW-33	MW-33	MW-33Filte	MW33
	LAB ID	152643	152668	188124	152644	152669	188591	152645	153416	152670	188721
COMPOUND	UNITS										
SEMIVOLATILES											
Phenol	ug/L	10 U		10 U	10 U		10 U	11 U			
bis(2-Chloroethyl) ether	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Chlorophenol	ug/L	10 U		10 U	10 U		10 U	11 U			
1,3-Dichlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
1,4-Dichlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzyl Alcohol	ug/L	10 U			10 U			11 U			
1,2-Dichlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Methylphenol	ug/L	10 U		10 U	10 U		10 U	11 U			
bis(2-Chloroisopropyl) ether	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Methylphenol	ug/L	10 U		10 U	10 U		10 U	11 U			
N-Nitroso-di-n-propylamine	ug/L	10 U		10 U	10 U		10 U	11 U			
Hexachloroethane	ug/L	10 U		10 U	10 U		10 U	11 U			
Nitrobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
Isophorone	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Nitrophenol	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4-Dimethylphenol	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzoic acid	ug/L	52 U			50 U			55 U			
bis(2-Chloroethoxy) methane	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4-Dichlorophenol	ug/L	10 U		10 U	10 U		10 U	11 U			
1,2,4-Trichlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
Naphthalene	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Chloroaniline	ug/L	10 U		10 U	10 U		10 U	11 U			
Hexachlorobutadiene	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Chloro-3-methylphenol	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Methylnaphthalene	ug/L	10 U		10 U	10 U		10 U	11 U			
Hexachlorocyclopentadiene	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4,6-Trichlorophenol	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4,5-Trichlorophenol	ug/L	52 U		25 U	50 U		25 U	55 U			
2-Chloronaphthalene	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Nitroaniline	ug/L	52 U		25 U	50 U		25 U	55 U			
Dimethylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
Acenaphthylene	ug/L	10 U		10 U	10 U		10 U	11 U			
2,6-Dinitrotoluene	ug/L	10 U		10 U	10 U		10 U	11 U			
3-Nitroaniline	ug/L	52 U		25 U	50 U		25 U	55 U			
Acenaphthene	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4-Dinitrophenol	ug/L	52 U		25 U	50 U		25 U	55 U			
4-Nitrophenol	ug/L	52 U		25 U	50 U		25 U	55 U			
Dibenzofuran	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4-Dinitrotoluene	ug/L	10 U		10 U	10 U		10 U	11 U			
Diethylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Chlorophenyl-phenylether	ug/L	10 U		10 U	10 U		10 U	11 U			
Fluorene	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Nitroaniline	ug/L	52 U		25 U	50 U		25 U	55 U			
4,6-Dinitro-2-methylphenol	ug/L	52 U		25 U	50 U		25 U	55 U			
N-Nitrosodiphenylamine (1)	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Bromophenyl-phenylether	ug/L	10 U		10 U	10 U		10 U	11 U			
Hexachlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
Pentachlorophenol	ug/L	52 U		25 U	50 U		25 U	55 U			
Phenanthrene	ug/L	10 U		10 U	10 U		10 U	11 U			
Anthracene	ug/L	10 U		10 U	10 U		10 U	11 U			
Carbazole	ug/L			10 U			10 U				
Di-n-butylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
Fluoranthene	ug/L	10 U		10 U	10 U		10 U	11 U			
Pyrene	ug/L	10 U		10 U	10 U		10 U	11 U			
Butylbenzylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
3,3'-Dichlorobenzidine	ug/L	21 U		10 U	20 U		10 U	22 U			
Benzo(a)anthracene	ug/L	10 U		10 U	10 U		10 U	11 U			
Chrysene	ug/L	10 U		10 U	10 U		10 U	11 U			
bis(2-Ethylhexyl)phthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
Di-n-octylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzo(b)fluoranthene	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzo(k)fluoranthene	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzo(a)pyrene	ug/L	10 U		10 U	10 U		10 U	11 U			
Indeno(1,2,3-cd)pyrene	ug/L	10 U		10 U	10 U		10 U	11 U			
Dibenz(a,h)anthracene	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzo(g,h,i)perylene	ug/L	10 U		10 U	10 U		10 U	11 U			

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-31	MW-31	MW31	MW-32	MW-32	MW32	MW-33	MW-33	MW-33	MW33
	DATE	01/16/92	01/16/92	07/01/93	01/16/92	01/16/92	07/09/93	01/16/92	02/03/92 CK	01/16/92	07/10/93
	ES ID	MW-31	MW-31Filte	MW31	MW-32	MW-32Filte	MW32	MW-33	MW-33	MW-33Filte	MW33
	LAB ID	152643	152668	188124	152644	152669	186591	152645	153416	152670	186721
COMPOUND	UNITS										
PESTICIDES/PCBS											
alpha-BHC	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
beta-BHC	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
delta-BHC	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
gamma-BHC (Lindane)	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Heptachlor	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Aldrin	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Heptachlor epoxide	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Endosulfan I	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Dieldrin	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
4,4'-DDE	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Endrin	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Endosulfan II	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
4,4'-DDD	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Endosulfan sulfate	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
4,4'-DDT	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Methoxychlor	ug/L	0.5 U		0.5 U	0.5 U		0.5 U	0.56 U			
Endrin ketone	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Endrin aldehyde	ug/L			0.1 U			0.1 U				
alpha-Chlordane	ug/L	0.5 U		0.05 U	0.5 U		0.05 U	0.56 U			
gamma-Chlordane	ug/L	0.5 U		0.05 U	0.5 U		0.05 U	0.56 U			
Toxaphene	ug/L	1 U		5 U	1 U		5 U	1.1 U			
Aroclor-1016	ug/L	0.5 U		1 U	0.5 U		1 U	0.56 U			
Aroclor-1221	ug/L	0.5 U		2 U	0.5 U		2 U	0.56 U			
Aroclor-1232	ug/L	0.5 U		1 U	0.5 U		1 U	0.56 U			
Aroclor-1242	ug/L	0.5 U		1 U	0.5 U		1 U	0.56 U			
Aroclor-1248	ug/L	0.5 U		1 U	0.5 U		1 U	0.56 U			
Aroclor-1254	ug/L	1 U		1 U	1 U		1 U	1.1 U			
Aroclor-1260	ug/L	1 U		1 U	1 U		1 U	1.1 U			
HERBICIDES											
2,4-D	ug/L	1 U		1 U	1 U		1 R	1 U			
2,4-DB	ug/L	1 U		1 U	1 U		1 R	1 U			
2,4,5-T	ug/L	0.1 U		0.1 U	0.1 U		0.1 R	0.1 U			
2,4,5-TP (Silvex)	ug/L	0.1 U		0.1 U	0.1 U		0.1 R	0.1 U			
Dalapon	ug/L	2.4 U		2.3 U	2.3 U		2.3 R	2.3 U			
Dicamba	ug/L	0.1 U		0.1 U	0.1 U		0.1 R	0.1 U			
Dichloroprop	ug/L	1 U		1 U	1 U		1 R	1 U			
Dinoseb	ug/L	0.5 U		0.5 U	0.5 U		0.5 R	0.5 U			
MCPA	ug/L	100 U		100 U	100 U		100 R	100 U			
MCPP	ug/L	100 U		100 U	100 U		100 R	100 U			
METALS											
Aluminum	ug/L	83400	24.6 U	9690	35600	24.6 U	180 J	33700		24.5 U	
Antimony	ug/L	53.3 U	53.3 U	50 UJ	53.2 U	53.3 U	49.5 UJ	53 U		53.1 U	
Arsenic	ug/L	3.5 U	3.5 U	1.4 UJ	3.5 U	3.5 U	1.4 UJ	3.5 U		3.5 U	
Barium	ug/L	397	56.5 R	95 J	193 J	60.3 R	52.2 J	162 J		52.7 R	
Beryllium	ug/L	5.7 R	1.1 U	0.9 U	3.6 R	1.1 U	0.89 U	3.4 R		1.1 U	
Cadmium	ug/L	13.9	3 U	2.8 U	5.4	3 U	2.8 U	3.8 J		3 U	
Calcium	ug/L	171000	92300	122000	156000	102000	131000	103000		95600	
Chromium	ug/L	109	6.2 U	14 J	51.3	6.2 U	2.7 UJ	42		6.2 U	
Cobalt	ug/L	46.2 J	20.5 U	6.5 J	20.4 U	20.5 U	5.4 U	20.3 U		20.4 U	
Copper	ug/L	86.1	10.2 U	10.7 J	33.6	10.2 U	4.7 U	32.8		10.1 U	
Iron	ug/L	147000	7 U	14700	63800	7 U	240	56800		7 U	
Lead	ug/L	20.9	1.2 U	2.3 J	12.1	1.2 U	0.6 U	9.8		1.2 U	
Magnesium	ug/L	48000	11900	17800	31000	13400	17300	22400		9950	
Manganese	ug/L	2530	4.8 U	327	1190	72.4	82.1	953		4.6 U	
Mercury	ug/L	0.14 R	0.03 U	0.09 UJ	0.14 R	0.03 U	0.09 UJ	0.11 R		0.03 U	
Nickel	ug/L	157	14.8 U	15 J	67.3	14.8 U	7.4 UJ	69.2		14.7 U	
Potassium	ug/L	11700	497 J	3820 J	6240	1250 J	1620 J	4500 J		266 U	
Selenium	ug/L	13 U	1 U	1.5 UJ	1.3 U	1.1 J	1.5 UJ	1.3 U		1 U	
Silver	ug/L	3.4 U	3.4 U	5.5 U	3.4 U	3.4 U	5.4 U	3.4 U		3.4 U	
Sodium	ug/L	15600	14700	17100	22200	21600	25500	15700		14700	
Thallium	ug/L	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	2.8 U	3.2 U		3.2 U	
Vanadium	ug/L	97.3	9.5 U	15.2 J	46.8 J	9.5 U	6.7 UJ	41.8 J		9.4 U	
Zinc	ug/L	412	18.8 R	51.5	174	20.4 R	5 J	162		21.2 R	
Cyanide	ug/L	10 U		10 UJ	10 U		3 J	10 U			

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
SUMGW.WK3	LOCATION	MW-34	MW-34	MW-34	MW-34	MW34	MW-35D	MW-35D
WKST B	DATE	01/10/92	01/10/92	01/10/92	01/10/92	06/24/93	01/14/92	01/14/92
	ES ID	MW-34	MW-34Filtered	PT-1(1)	PT-1(1)Filt	MW34	MW-35D	MW-35DFil
	LAB ID	152257	152290	152259	152292	187340	152503	152508
COMPOUND	UNITS							
Chloromethane	ug/L	10 U		10 U			10 U	
Bromomethane	ug/L	10 U		10 U			10 U	
Vinyl Chloride	ug/L	10 U		10 U			10 U	
Chloroethane	ug/L	10 U		10 U			10 U	
Methylene Chloride	ug/L	5 U		5 U			5 U	
Acetone	ug/L	10 U		10 U			10 U	
Carbon Disulfide	ug/L	5 U		5 U			5 U	
1,1-Dichloroethene	ug/L	5 U		5 U			5 U	
1,1-Dichloroethane	ug/L	5 U		5 U			5 U	
1,2-Dichloroethene (total)	ug/L	5 U		5 U			5 U	
Chloroform	ug/L	5 U		5 U			5 U	
1,2-Dichloroethane	ug/L	5 U		5 U			5 U	
2-Butanone	ug/L	10 U		10 U			10 U	
1,1,1-Trichloroethane	ug/L	5 U		5 U			5 U	
Carbon Tetrachloride	ug/L	5 U		5 U			5 U	
Vinyl Acetate	ug/L	10 U		10 U			10 U	
Bromodichloromethane	ug/L	5 U		5 U			5 U	
1,2-Dichloropropane	ug/L	5 U		5 U			5 U	
cis-1,3-Dichloropropene	ug/L	5 U		5 U			5 U	
Trichloroethene	ug/L	5 U		5 U			5 U	
Dibromochloromethane	ug/L	5 U		5 U			5 U	
1,1,2-Trichloroethane	ug/L	5 U		5 U			5 U	
Benzene	ug/L	5 U		5 U			5 U	
trans-1,3-Dichloropropene	ug/L	5 U		5 U			5 U	
Bromoform	ug/L	5 U		5 U			5 U	
4-Methyl-2-Pentanone	ug/L	10 U		10 U			10 U	
2-Hexanone	ug/L	10 U		10 U			10 U	
Tetrachloroethene	ug/L	5 U		5 U			5 U	
1,1,2,2-Tetrachloroethane	ug/L	5 U		5 U			5 U	
Toluene	ug/L	5 U		5 U			5 U	
Chlorobenzene	ug/L	5 U		5 U			5 U	
Ethylbenzene	ug/L	5 U		5 U			5 U	
Styrene	ug/L	5 U		5 U			5 U	
Xylene (total)	ug/L	5 U		5 U			5 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-34	MW-34	MW-34	MW-34	MW34	MW-35D	MW-35D
WKST B	DATE	01/10/92	01/10/92	01/10/92	01/10/92	08/24/93	01/14/92	01/14/92
	ES ID	MW-34	MW-34Filtered	PT-1(1)	PT-1(1)Filt	MW34	MW-35D	MW-35DFil
	LAB ID	152257	152290	152259	152292	187340	152503	152506
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L					0.5 U		
Chloromethane	ug/L					0.5 U		
Vinyl Chloride	ug/L					0.5 U		
Bromomethane	ug/L					0.5 U		
Chloroethane	ug/L					0.5 U		
Trichlorofluoromethane	ug/L					0.5 U		
1,1-Dichloroethene	ug/L					0.5 U		
Acetone	ug/L					5 U		
Carbon Disulfide	ug/L					0.5 U		
Methylene Chloride	ug/L					0.5 U		
trans-1,2-Dichloroethene	ug/L					0.5 U		
1,1-Dichloroethane	ug/L					0.5 U		
2,2-Dichloropropane	ug/L					0.5 U		
cis-1,2-Dichloroethene	ug/L					0.5 U		
2-Butanone	ug/L					5 U		
Bromochloromethane	ug/L					0.5 U		
Chloroform	ug/L					0.5 U		
1,1,1-Trichloroethane	ug/L					0.5 U		
Carbon Tetrachloride	ug/L					0.5 U		
1,1-Dichloropropene	ug/L					0.5 U		
Benzene	ug/L					0.5 U		
1,2-Dichloroethane	ug/L					0.5 U		
Trichloroethene	ug/L					0.5 U		
1,2-Dichloropropane	ug/L					0.5 U		
Dibromomethane	ug/L					0.5 U		
Bromodichloromethane	ug/L					0.5 U		
cis-1,3-Dichloropropene	ug/L					0.5 U		
4-Methyl-2-Pentanone	ug/L					5 U		
Toluene	ug/L					0.5 U		
trans-1,3-Dichloropropene	ug/L					0.5 U		
1,1,2-Trichloroethane	ug/L					0.5 U		
Tetrachloroethene	ug/L					0.5 U		
1,3-Dichloropropane	ug/L					0.5 U		
2-Hexanone	ug/L					5 U		
Dibromochloromethane	ug/L					0.5 U		
1,2-Dibromoethane	ug/L					0.5 U		
Chlorobenzene	ug/L					0.5 U		
1,1,1,2-Tetrachloroethane	ug/L					0.5 U		
Ethylbenzene	ug/L					0.5 U		
Styrene	ug/L					0.5 U		
Bromoform	ug/L					0.5 U		
Isopropylbenzene	ug/L					0.5 U		
Bromobenzene	ug/L					0.5 U		
1,1,2,2-Tetrachloroethane	ug/L					0.5 U		
1,2,3-Trichloropropane	ug/L					0.5 U		
n-Propylbenzene	ug/L					0.5 U		
2-Chlorotoluene	ug/L					0.5 U		
4-Chlorotoluene	ug/L					0.5 U		
1,3,5-Trimethylbenzene	ug/L					0.5 U		
tert-Butylbenzene	ug/L					0.5 U		
1,2,4-Trimethylbenzene	ug/L					0.5 U		
sec-Butylbenzene	ug/L					0.5 U		
1,3-Dichlorobenzene	ug/L					0.5 U		
1,4-Dichlorobenzene	ug/L					0.5 U		
p-Isopropyltoluene	ug/L					0.5 U		
1,2-Dichlorobenzene	ug/L					0.5 U		
n-Butylbenzene	ug/L					0.5 U		
1,2-Dibromo-3-Chloropropane	ug/L					0.5 U		
1,2,4-Trichlorobenzene	ug/L					0.5 U		
Hexachlorobutadiene	ug/L					0.5 U		
Naphthalene	ug/L					0.5 U		
1,2,3-Trichlorobenzene	ug/L					0.5 U		
Xylene (total)	ug/L					0.5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-34	MW-34	MW-34	MW-34	MW34	MW-35D	MW-35D
WKST B	DATE	01/10/92	01/10/92	01/10/92	01/10/92	08/24/93	01/14/92	01/14/92
	ES ID	MW-34	MW-34Filtered	PT-1(1)	PT-1(1)Filt	MW34	MW-35D	MW-35DFil
	LAB ID	152257	152290	152259	152292	167340	152503	152508
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	11 U				10 U	10 U	
bis(2-Chloroethyl) ether	ug/L	11 U				10 U	10 U	
2-Chlorophenol	ug/L	11 U				10 U	10 U	
1,3-Dichlorobenzene	ug/L	11 U				10 U	10 U	
1,4-Dichlorobenzene	ug/L	11 U				10 U	10 U	
Benzyl Alcohol	ug/L	11 U					10 U	
1,2-Dichlorobenzene	ug/L	11 U				10 U	10 U	
2-Methylphenol	ug/L	11 U				10 U	10 U	
bis(2-Chloroisopropyl) ether	ug/L	11 U				10 U	10 U	
4-Methylphenol	ug/L	11 U				10 U	10 U	
N-Nitroso-di-n-propylamine	ug/L	11 U				10 U	10 U	
Hexachloroethane	ug/L	11 U				10 U	10 U	
Nitrobenzene	ug/L	11 U				10 U	10 U	
Isophorone	ug/L	11 U				10 U	10 U	
2-Nitrophenol	ug/L	11 U				10 U	10 U	
2,4-Dimethylphenol	ug/L	11 U				10 U	10 U	
Benzoic acid	ug/L	54 U					50 U	
bis(2-Chloroethoxy) methane	ug/L	11 U				10 U	10 U	
2,4-Dichlorophenol	ug/L	11 U				10 U	10 U	
1,2,4-Trichlorobenzene	ug/L	11 U				10 U	10 U	
Naphthalene	ug/L	11 U				10 U	10 U	
4-Chloroaniline	ug/L	11 U				10 U	10 U	
Hexachlorobutadiene	ug/L	11 U				10 U	10 U	
4-Chloro-3-methylphenol	ug/L	11 U				10 U	10 U	
2-Methylnaphthalene	ug/L	11 U				10 U	10 U	
Hexachlorocyclopentadiene	ug/L	11 U				10 U	10 U	
2,4,6-Trichlorophenol	ug/L	11 U				10 U	10 U	
2,4,5-Trichlorophenol	ug/L	54 U				25 U	50 U	
2-Chloronaphthalene	ug/L	11 U				10 U	10 U	
2-Nitroaniline	ug/L	54 U				25 U	50 U	
Dimethylphthalate	ug/L	11 U				10 U	10 U	
Acenaphthylene	ug/L	11 U				10 U	10 U	
2,6-Dinitrotoluene	ug/L	11 U				10 U	10 U	
3-Nitroaniline	ug/L	54 U		54 U		25 U	50 U	
Acenaphthene	ug/L	11 U		11 U		10 U	10 U	
2,4-Dinitrophenol	ug/L	54 U		54 U		25 U	50 U	
4-Nitrophenol	ug/L	54 U		54 U		25 U	50 U	
Dibenzofuran	ug/L	11 U		11 U		10 U	10 U	
2,4-Dinitrotoluene	ug/L	11 U		11 U		10 U	10 U	
Diethylphthalate	ug/L	11 U		11 U		10 U	10 U	
4-Chlorophenyl-phenylether	ug/L	11 U		11 U		10 U	10 U	
Fluorene	ug/L	11 U		11 U		10 U	10 U	
4-Nitroaniline	ug/L	54 U		54 U		25 U	50 U	
4,6-Dinitro-2-methylphenol	ug/L	54 U		54 U		25 U	50 U	
N-Nitrosodiphenylamine (1)	ug/L	11 U		11 U		10 U	10 U	
4-Bromophenyl-phenylether	ug/L	11 U		11 U		10 U	10 U	
Hexachlorobenzene	ug/L	11 U		11 U		10 U	10 U	
Pentachlorophenol	ug/L	54 U		54 U		25 U	50 U	
Phenanthrene	ug/L	11 U		11 U		10 U	10 U	
Anthracene	ug/L	11 U		11 U		10 U	10 U	
Carbazole	ug/L					10 U		
Di-n-butylphthalate	ug/L	11 U		11 U		10 U	10 U	
Fluoranthene	ug/L	11 U		11 U		10 U	10 U	
Pyrene	ug/L	11 U		11 U		10 U	10 U	
Butylbenzylphthalate	ug/L	11 U		11 U		10 U	10 U	
3,3'-Dichlorobenzidine	ug/L	21 U		22 U		10 U	20 U	
Benzo(a)anthracene	ug/L	11 U		11 U		10 U	10 U	
Chrysene	ug/L	11 U		11 U		10 U	10 U	
bis(2-Ethylhexyl)phthalate	ug/L	11 U		11 U		12 U	10 U	
Di-n-octylphthalate	ug/L	11 U		11 U		10 U	10 U	
Benzo(b)fluoranthene	ug/L	11 U		11 U		10 U	10 U	
Benzo(k)fluoranthene	ug/L	11 U		11 U		10 U	10 U	
Benzo(a)pyrene	ug/L	11 U		11 U		10 U	10 U	
Indeno(1,2,3-cd)pyrene	ug/L	11 U		11 U		10 U	10 U	
Dibenz(a,h)anthracene	ug/L	11 U		11 U		10 U	10 U	
Benzo(g,h,i)perylene	ug/L	11 U		11 U		10 U	10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
SUMGW.WK3	LOCATION	MW-34	MW-34	MW-34	MW-34	MW34	MW-35D	MW-35D
WKST B	DATE	01/10/92	01/10/92	01/10/92	01/10/92	06/24/93	01/14/92	01/14/92
	ES ID	MW-34	MW-34Filtered	PT-1(1)	PT-1(1)Filt	MW34	MW-35D	MW-35DFil
	LAB ID	152257	152290	152259	152292	187340	152503	152506
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.057 U				0.05 U	0.06 U	
beta-BHC	ug/L	0.057 U				0.05 U	0.06 U	
delta-BHC	ug/L	0.057 U				0.05 U	0.06 U	
gamma-BHC (Lindane)	ug/L	0.057 U				0.05 U	0.06 U	
Heptachlor	ug/L	0.057 U				0.05 U	0.06 U	
Aldrin	ug/L	0.057 U				0.05 U	0.06 U	
Heptachlor epoxide	ug/L	0.057 U				0.05 U	0.06 U	
Endosulfan I	ug/L	0.057 U				0.05 U	0.06 U	
Dieldrin	ug/L	0.11 U				0.1 U	0.12 U	
4,4'-DDE	ug/L	0.11 U				0.1 U	0.12 U	
Endrin	ug/L	0.11 U				0.1 U	0.12 U	
Endosulfan II	ug/L	0.11 U				0.1 U	0.12 U	
4,4'-DDD	ug/L	0.11 U				0.1 U	0.12 U	
Endosulfan sulfate	ug/L	0.11 U				0.1 U	0.12 U	
4,4'-DDT	ug/L	0.11 U				0.1 U	0.12 U	
Methoxychlor	ug/L	0.57 U				0.5 U	0.6 U	
Endrin ketone	ug/L	0.11 U				0.1 U	0.12 U	
Endrin aldehyde	ug/L					0.1 U		
alpha-Chlordane	ug/L	0.57 U				0.05 U	0.6 U	
gamma-Chlordane	ug/L	0.57 U				0.05 U	0.6 U	
Toxaphene	ug/L	1.1 U				5 U	1.2 U	
Aroclor-1016	ug/L	0.57 U				1 U	0.6 U	
Aroclor-1221	ug/L	0.57 U				2 U	0.6 U	
Aroclor-1232	ug/L	0.57 U				1 U	0.6 U	
Aroclor-1242	ug/L	0.57 U				1 U	0.6 U	
Aroclor-1248	ug/L	0.57 U				1 U	0.6 U	
Aroclor-1254	ug/L	1.1 U				1 U	1.2 U	
Aroclor-1260	ug/L	1.1 U				1 U	1.2 U	
HERBICIDES								
2,4-D	ug/L	1 U		1 U		1 U	1.2 U	
2,4-DB	ug/L	1 U		1 U		1 U	1.2 U	
2,4,5-T	ug/L	0.1 U		0.1 U		0.1 U	0.1 U	
2,4,5-TP (Silvex)	ug/L	0.1 U		0.1 U		0.1 U	0.1 U	
Dalapon	ug/L	2.4 U		2.3 U		2.3 U	2.9 U	
Dicamba	ug/L	0.1 U		0.1 U		0.1 U	0.1 U	
Dichloroprop	ug/L	1 U		1 U		1 U	1.2 U	
Dinoseb	ug/L	0.5 U		0.5 U		0.5 U	0.6 U	
MCPA	ug/L	100 U		100 U		100 U	120 U	
MCPP	ug/L	100 U		100 U		100 U	120 U	
METALS								
Aluminum	ug/L	8250 J	24.4 U	7310 J	24.5 U	253	23200	24.5 U
Antimony	ug/L	55.9 U J	53 U	55.9 U J	53.2 U	49.8 UJ	53.2 U	53.1 U
Arsenic	ug/L	3.5 U	3.5 U	3.5 U	3.5 U	1.4 UJ	8.6 J	4.3 J
Barium	ug/L	225	51.9 R	191 J	45.7 R	82.5 J	316	104 J
Beryllium	ug/L	2.7 R	2.5 R	2.7 R	2.5 R	0.9 U	3.2 R	1.2 R
Cadmium	ug/L	2.9 U	3 U	2.9 U	3 U	2.8 U	5.4	3 U
Calcium	ug/L	352000 J	108000	268000 J	114000	122000	41100	14600
Chromium	ug/L	10.3	6.2 U	12	6.2 U	2.7 UJ	34.9	6.2 U
Cobalt	ug/L	20 U	20.3 U	20 U	20.4 U	5.5 U	20.4 U	20.4 U
Copper	ug/L	14.5 U	10.1 U	14.9 J	10.2 U	4.7 U	22.5 J	10.1 U
Iron	ug/L	10800 J	6.9 U	11300 J	7 U	396	33800	7 U
Lead	ug/L	6.2	1.2 U	7.4	1.2 U	0.79 U	5	1.2 U
Magnesium	ug/L	32100	20200	26300 J	20600	17400	13300	4590 J
Manganese	ug/L	2200	132	1680 J	127	135	662	110
Mercury	ug/L	0.16 R	0.11 R	0.14 R	0.1 R	0.09 UJ	0.1 R	0.12 R
Nickel	ug/L	17.5 J	14.7 U	18 J	14.7 U	7.5 UJ	49.7	14.7 U
Potassium	ug/L	8910	7980	9760	7210	1270 J	6230	2760 J
Selenium	ug/L	1 U	1 U	1 U	1 U	0.99 UJ	1.3 U	1 U
Silver	ug/L	9.1 U	4.3 R	9.1 U	3.4 U	5.5 U	3.4 U	3.4 U
Sodium	ug/L	24900 J	31200	36500 J	25100	16200	130000	110000
Thallium	ug/L	3.2 U	3.2 U	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U
Vanadium	ug/L	30.5 U	9.4 U	30.5 U	9.5 U	6.8 UJ	32.7 J	9.4 U
Zinc	ug/L	51.9	8.4 U	47.6 R	8.5 U	13.1 R	72.7 R	8.5 U
Cyanide	ug/L	10 U J		10 U J		10 UJ	10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST B		PHASE II	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW35D	MW-36	MW-36	MW-36	MW36	MW-37	MW-37
	DATE	07/03/93	01/14/92	01/14/92	01/14/92	07/03/93	01/10/92	01/10/92
	ES ID	MW35D	MW-36	MW-36RE(4)	MW-36Filte	MW36	MW-37	MW-37
	LAB ID	188257	152504	152504	152509	188258	152646	152258
COMPOUND	UNITS							
Chloromethane	ug/L		10 U				10 U	
Bromomethane	ug/L		10 U				10 U	
Vinyl Chloride	ug/L		10 U				10 U	
Chloroethane	ug/L		10 U				10 U	
Methylene Chloride	ug/L		5 U				5 U	
Acetone	ug/L		10 U				10 U	
Carbon Disulfide	ug/L		5 U				5 U	
1,1-Dichloroethene	ug/L		5 U				5 U	
1,1-Dichloroethane	ug/L		5 U				5 U	
1,2-Dichloroethene (total)	ug/L		5 U				5 U	
Chloroform	ug/L		5 U				5 U	
1,2-Dichloroethane	ug/L		5 U				5 U	
2-Butanone	ug/L		10 U				10 U	
1,1,1-Trichloroethane	ug/L		5 U				5 U	
Carbon Tetrachloride	ug/L		5 U				5 U	
Vinyl Acetate	ug/L		10 U				10 U	
Bromodichloromethane	ug/L		5 U				5 U	
1,2-Dichloropropane	ug/L		5 U				5 U	
cis-1,3-Dichloropropene	ug/L		5 U				5 U	
Trichloroethene	ug/L		5 U				5 U	
Dibromochloromethane	ug/L		5 U				5 U	
1,1,2-Trichloroethane	ug/L		5 U				5 U	
Benzene	ug/L		5 U				5 U	
trans-1,3-Dichloropropene	ug/L		5 U				5 U	
Bromoform	ug/L		5 U				5 U	
4-Methyl-2-Pentanone	ug/L		10 U				10 U	
2-Hexanone	ug/L		10 U				10 U	
Tetrachloroethene	ug/L		5 U				5 U	
1,1,2,2-Tetrachloroethane	ug/L		5 U				5 U	
Toluene	ug/L		5 U				5 U	
Chlorobenzene	ug/L		5 U				5 U	
Ethylbenzene	ug/L		5 U				5 U	
Styrene	ug/L		5 U				5 U	
Xylene (total)	ug/L		5 U				5 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST B	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	MW35D	MW-36	MW-36	MW-36	MW36	MW-37	MW-37
	DATE	07/03/93	01/14/92	01/14/92	01/14/92	07/03/93	01/10/92	01/10/92
	ES ID	MW35D	MW-36	MW-36RE(4)	MW-36Filte	MW36	MW-37	MW-37
	LAB ID	188267	152504	152504	152509	188268	152646	152258
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L	0.5 U				0.5 U		
Chloromethane	ug/L	0.5 U				0.5 U		
Vinyl Chloride	ug/L	0.5 U				0.5 U		
Bromomethane	ug/L	0.5 U				0.5 U		
Chloroethane	ug/L	0.5 U				0.5 U		
Trichlorofluoromethane	ug/L	0.5 U				0.5 U		
1,1-Dichloroethene	ug/L	0.5 U				0.5 U		
Acetone	ug/L	5 U				5 U		
Carbon Disulfide	ug/L	0.5 U				0.5 U		
Methylene Chloride	ug/L	0.5 U				0.5 U		
trans-1,2-Dichloroethene	ug/L	0.5 U				0.5 U		
1,1-Dichloroethane	ug/L	0.5 U				0.5 U		
2,2-Dichloropropane	ug/L	0.5 U				0.5 U		
cis-1,2-Dichloroethene	ug/L	0.5 U				0.5 U		
2-Butanone	ug/L	5 U				5 U		
Bromochloromethane	ug/L	0.5 U				0.5 U		
Chloroform	ug/L	0.5 U				0.5 U		
1,1,1-Trichloroethane	ug/L	0.5 U				0.5 U		
Carbon Tetrachloride	ug/L	0.5 U				0.5 U		
1,1-Dichloropropene	ug/L	0.5 U				0.5 U		
Benzene	ug/L	0.5 U				0.5 U		
1,2-Dichloroethane	ug/L	0.5 U				0.5 U		
Trichloroethene	ug/L	0.5 U				0.5 U		
1,2-Dichloropropane	ug/L	0.5 U				0.5 U		
Dibromomethane	ug/L	0.5 U				0.5 U		
Bromodichloromethane	ug/L	0.5 U				0.5 U		
cis-1,3-Dichloropropene	ug/L	0.5 U				0.5 U		
4-Methyl-2-Pentanone	ug/L	5 U				5 U		
Toluene	ug/L	0.5 U				0.5 U		
trans-1,3-Dichloropropene	ug/L	0.5 U				0.5 U		
1,1,2-Trichloroethane	ug/L	0.5 U				0.5 U		
Tetrachloroethene	ug/L	0.5 U				0.5 U		
1,3-Dichloropropane	ug/L	0.5 U				0.5 U		
2-Hexanone	ug/L	5 U				5 U		
Dibromochloromethane	ug/L	0.5 U				0.5 U		
1,2-Dibromoethane	ug/L	0.5 U				0.5 U		
Chlorobenzene	ug/L	0.5 U				0.5 U		
1,1,1,2-Tetrachloroethane	ug/L	0.5 U				0.5 U		
Ethylbenzene	ug/L	0.5 U				0.5 U		
Styrene	ug/L	0.5 U				0.5 U		
Bromoform	ug/L	0.5 U				0.5 U		
Isopropylbenzene	ug/L	0.5 U				0.5 U		
Bromobenzene	ug/L	0.5 U				0.5 U		
1,1,2,2-Tetrachloroethane	ug/L	0.5 U				0.5 U		
1,2,3-Trichloropropane	ug/L	0.5 U				0.5 U		
n-Propylbenzene	ug/L	0.5 U				0.5 U		
2-Chlorotoluene	ug/L	0.5 U				0.5 U		
4-Chlorotoluene	ug/L	0.5 U				0.5 U		
1,3,5-Trimethylbenzene	ug/L	0.5 U				0.5 U		
tert-Butylbenzene	ug/L	0.5 U				0.5 U		
1,2,4-Trimethylbenzene	ug/L	0.5 U				0.5 U		
sec-Butylbenzene	ug/L	0.5 U				0.5 U		
1,3-Dichlorobenzene	ug/L	0.5 U				0.5 U		
1,4-Dichlorobenzene	ug/L	0.5 U				0.5 U		
p-Isopropyltoluene	ug/L	0.5 U				0.5 U		
1,2-Dichlorobenzene	ug/L	0.5 U				0.5 U		
n-Butylbenzene	ug/L	0.5 U				0.5 U		
1,2-Dibromo-3-Chloropropane	ug/L	0.5 U				0.5 U		
1,2,4-Trichlorobenzene	ug/L	0.5 U				0.5 U		
Hexachlorobutadiene	ug/L	0.5 U				0.5 U		
Naphthalene	ug/L	0.5 U				0.5 U		
1,2,3-Trichlorobenzene	ug/L	0.5 U				0.5 U		
Xylene (total)	ug/L	0.5 U				0.5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW35D	MW-36	MW-36	MW-36	MW36	MW-37	MW-37
WKST B	DATE	07/03/93	01/14/92	01/14/92	01/14/92	07/03/93	01/10/92	01/10/92
	ES ID	MW35D	MW-36	MW-36RE(4)	MW-36Filte	MW36	MW-37	MW-37
	LAB ID	166257	152604	152604	152609	166258	152646	152258
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	12 U			10 U		11 U
bis(2-Chloroethyl) ether	ug/L	10 U	12 U			10 U		11 U
2-Chlorophenol	ug/L	10 U	12 U			10 U		11 U
1,3-Dichlorobenzene	ug/L	10 U	12 U			10 U		11 U
1,4-Dichlorobenzene	ug/L	10 U	12 U			10 U		11 U
Benzyl Alcohol	ug/L		12 U					11 U
1,2-Dichlorobenzene	ug/L	10 U	12 U			10 U		11 U
2-Methylphenol	ug/L	10 U	12 U			10 U		11 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	12 U			10 U		11 U
4-Methylphenol	ug/L	10 U	12 U			10 U		11 U
N-Nitroso-di-n-propylamine	ug/L	10 U	12 U			10 U		11 U
Hexachloroethane	ug/L	10 U	12 U			10 U		11 U
Nitrobenzene	ug/L	10 U	12 U			10 U		11 U
Isophorone	ug/L	10 U	12 U			10 U		11 U
2-Nitrophenol	ug/L	10 U	12 U			10 U		11 U
2,4-Dimethylphenol	ug/L	10 U	12 U			10 U		11 U
Benzoic acid	ug/L		60 U					55 U
bis(2-Chloroethoxy) methane	ug/L	10 U	12 U			10 U		11 U
2,4-Dichlorophenol	ug/L	10 U	12 U			10 U		11 U
1,2,4-Trichlorobenzene	ug/L	10 U	12 U			10 U		11 U
Naphthalene	ug/L	10 U	12 U			10 U		11 U
4-Chloroaniline	ug/L	10 U	12 U			10 U		11 U
Hexachlorobutadiene	ug/L	10 U	12 U			10 U		11 U
4-Chloro-3-methylphenol	ug/L	10 U	12 U			10 U		11 U
2-Methylnaphthalene	ug/L	10 U	12 U			10 U		11 U
Hexachlorocyclopentadiene	ug/L	10 U	12 U			10 U		11 U
2,4,6-Trichlorophenol	ug/L	10 U	12 U			10 U		11 U
2,4,5-Trichlorophenol	ug/L	25 U	60 U			25 U		55 U
2-Chloronaphthalene	ug/L	10 U	12 U			10 U		11 U
2-Nitroaniline	ug/L	25 U	60 U			25 U		55 U
Dimethylphthalate	ug/L	10 U	12 U			10 U		11 U
Acenaphthylene	ug/L	10 U	12 U			10 U		11 U
2,6-Dinitrotoluene	ug/L	10 U	12 U			10 U		11 U
3-Nitroaniline	ug/L	25 U	60 U			25 U		55 U
Acenaphthene	ug/L	10 U	12 U			10 U		11 U
2,4-Dinitrophenol	ug/L	25 U	60 U			25 U		55 U
4-Nitrophenol	ug/L	25 U	60 U			25 U		55 U
Dibenzofuran	ug/L	10 U	12 U			10 U		11 U
2,4-Dinitrotoluene	ug/L	10 U	12 U			10 U		11 U
Diethylphthalate	ug/L	10 U	12 U			10 U		11 U
4-Chlorophenyl-phenylether	ug/L	10 U	12 U			10 U		11 U
Fluorene	ug/L	10 U	12 U			10 U		11 U
4-Nitroaniline	ug/L	25 U	60 U			25 U		55 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	60 U			25 U		55 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	12 U			10 U		11 U
4-Bromophenyl-phenylether	ug/L	10 U	12 U			10 U		11 U
Hexachlorobenzene	ug/L	10 U	12 U			10 U		11 U
Pentachlorophenol	ug/L	25 U	60 U			25 U		55 U
Phenanthrene	ug/L	10 U	12 U			10 U		11 U
Anthracene	ug/L	10 U	12 U			10 U		11 U
Carbazole	ug/L	10 U				10 U		
Di-n-butylphthalate	ug/L	10 U	12 U			10 U		11 U
Fluoranthene	ug/L	10 U	12 U			10 U		11 U
Pyrene	ug/L	10 U	12 U			10 U		11 U
Butylbenzylphthalate	ug/L	10 U	12 U			10 U		11 U
3,3'-Dichlorobenzidine	ug/L	10 U	24 U			10 U		22 U
Benzo(a)anthracene	ug/L	10 U	12 U			10 U		11 U
Chrysene	ug/L	10 U	12 U			10 U		11 U
bis(2-Ethylhexyl)phthalate	ug/L	71 B	12 U			10 U		11 U
Di-n-octylphthalate	ug/L	10 U	12 U			10 U		11 U
Benzo(b)fluoranthene	ug/L	10 U	12 U			10 U		11 U
Benzo(k)fluoranthene	ug/L	10 U	12 U			10 U		11 U
Benzo(a)pyrene	ug/L	10 U	12 U			10 U		11 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	12 U			10 U		11 U
Dibenz(a,h)anthracene	ug/L	10 U	12 U			10 U		11 U
Benzo(g,h,i)perylene	ug/L	10 U	12 U			10 U		11 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW35D	MW-36	MW-36	MW-36	MW36	MW-37	MW-37
WKST B	DATE	07/03/93	01/14/92	01/14/92	01/14/92	07/03/93	01/10/92	01/10/92
	ES ID	MW35D	MW-36	MW-36RE(4)	MW-36Filte	MW36	MW-37	MW-37
	LAB ID	168257	152504	152504	152509	168258	152646	152258
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 U	0.064 U J	0.052 U		0.053 U		0.061 U
beta-BHC	ug/L	0.05 U	0.064 U J	0.052 U		0.053 U		0.061 U
delta-BHC	ug/L	0.05 U	0.064 U J	0.052 U		0.053 U		0.061 U
gamma-BHC (Lindane)	ug/L	0.05 U	0.064 U J	0.052 U		0.053 U		0.061 U
Heptachlor	ug/L	0.05 U	0.064 U J	0.052 U		0.053 U		0.061 U
Aldrin	ug/L	0.05 U	0.064 U J	0.052 U		0.053 U		0.061 U
Heptachlor epoxide	ug/L	0.05 U	0.064 U J	0.052 U		0.053 U		0.061 U
Endosulfan I	ug/L	0.05 U	0.064 U J	0.052 U		0.053 U		0.061 U
Dieldrin	ug/L	0.1 U	0.11 U J	0.1 U		0.11 U		0.12 U
4,4'-DDE	ug/L	0.1 U	0.11 U J	0.1 U		0.11 U		0.12 U
Endrin	ug/L	0.1 U	0.11 U J	0.1 U		0.11 U		0.12 U
Endosulfan II	ug/L	0.1 U	0.11 U J	0.1 U		0.11 U		0.12 U
4,4'-DDD	ug/L	0.1 U	0.11 U J	0.1 U		0.11 U		0.12 U
Endosulfan sulfate	ug/L	0.1 U	0.11 U J	0.1 U		0.11 U		0.12 U
4,4'-DDT	ug/L	0.1 U	0.11 U J	0.1 U		0.11 U		0.12 U
Methoxychlor	ug/L	0.5 U	0.54 U J	0.52 U		0.53 U		0.61 U
Endrin ketone	ug/L	0.1 U	0.11 U J	0.1 U		0.11 U		0.12 U
Endrin aldehyde	ug/L	0.1 U				0.11 U		
alpha-Chlordane	ug/L	0.05 U	0.54 U J	0.52 U		0.053 U		0.61 U
gamma-Chlordane	ug/L	0.05 U	0.54 U J	0.52 U		0.053 U		0.61 U
Toxaphene	ug/L	5 U	1.1 U J	1 U		5.3 U		1.2 U
Aroclor-1016	ug/L	1 U	0.54 U J	0.52 U		1.1 U		0.61 U
Aroclor-1221	ug/L	2 U	0.54 U J	0.52 U		2.1 U		0.61 U
Aroclor-1232	ug/L	1 U	0.54 U J	0.52 U		1.1 U		0.61 U
Aroclor-1242	ug/L	1 U	0.54 U J	0.52 U		1.1 U		0.61 U
Aroclor-1248	ug/L	1 U	0.54 U J	0.52 U		1.1 U		0.61 U
Aroclor-1254	ug/L	1 U	1.1 U J	1 U		1.1 U		1.2 U
Aroclor-1260	ug/L	1 U	1.1 U J	1 U		1.1 U		1.2 U
HERBICIDES								
2,4-D	ug/L	1 U	1 U			1 U		1 U
2,4-DB	ug/L	1 U	1 U			1 U		1 U
2,4,5-T	ug/L	0.1 U	0.1 U			0.1 U		0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	0.1 U			0.1 U		0.1 U
Dalapon	ug/L	2.3 U	2.4 U			2.3 U		2.4 U
Dicamba	ug/L	0.1 U	0.1 U			0.1 U		0.1 U
Dichloroprop	ug/L	1 U	1 U			1 U		1 U
Dinoseb	ug/L	0.5 U	0.5 U			0.5 U		0.5 U
MCPA	ug/L	100 U	100 U			100 U		100 U
MCPP	ug/L	100 U	100 U			100 U		100 U
METALS								
Aluminum	ug/L	72.2 U	15900		24.4 U	1090		19100
Antimony	ug/L	49.7 UJ	53.1 U		52.9 U	49.7 UJ		55.9 U J
Arsenic	ug/L	1.4 UJ	3.5 U		3.5 U	1.4 UJ		3.5 U
Barium	ug/L	106 J	167 J		59.2 R	78.6 J		329
Beryllium	ug/L	0.69 U	2.6 R		1.4 R	0.9 U		3.8 R
Cadmium	ug/L	2.8 U	3.6 J		3 U	2.8 U		2.9 U
Calcium	ug/L	26900	182000		117000	135000		279000 J
Chromium	ug/L	2.7 UJ	27.1		6.1 U	2.7 UJ		29.8
Cobalt	ug/L	5.5 U	20.4 U		20.3 U	5.5 U		26 J
Copper	ug/L	4.7 U	19.6 J		10.1 U	4.7 U		26.3
Iron	ug/L	40.9 J	29000		6.9 U	1260		27600
Lead	ug/L	0.8 U	5		1.2 U	0.8 U		6
Magnesium	ug/L	9220	31000		17400	19300		26600
Manganese	ug/L	61.8	656		44.9	139		2190
Mercury	ug/L	0.14 J	0.1 R		0.11 R	0.09 UJ		0.15 R
Nickel	ug/L	7.5 UJ	39.1 J		14.7 U	7.5 UJ		36.9 J
Potassium	ug/L	2590 J	3310 J		1620 J	2110 J		4470 J
Selenium	ug/L	1.5 UJ	1.3 U		1 U	1.6 J		1 U
Silver	ug/L	5.5 U	3.4 U		3.4 U	5.5 U		9.1 U
Sodium	ug/L	81500	21300		19600	21300		11900 J
Thallium	ug/L	2.6 U	3.2 U		3.2 U	2.6 U		3.2 U
Vanadium	ug/L	6.8 UJ	23.2 J		9.4 U	6.8 UJ		30.6 U
Zinc	ug/L	3.1 J	120		6.4 U	9.3 J		58.8
Cyanide	ug/L	10 UJ	10 U			10 UJ		10 U J

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 / WKST B	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	MW-37	MW37	MW-38D	MW-38D	MW38D	MW-39	MW-39
	DATE	01/10/92	06/24/93	01/08/92	01/08/92	07/03/93	01/14/92	01/14/92
	ES ID	MW-37Filte	MW37	MW-38D	MW-38DFil	MW38D	MW-39	MW-39Filte
	LAB ID	152291	187342	152154	152197	188259	152505	152510
COMPOUND	UNITS							
Chloromethane	ug/L			10 U			10 U	
Bromomethane	ug/L			10 U			10 U	
Vinyl Chloride	ug/L			10 U			10 U	
Chloroethane	ug/L			10 U			10 U	
Methylene Chloride	ug/L			5 U			5 U	
Acetone	ug/L			10 U			10 U	
Carbon Disulfide	ug/L			5 U			5 U	
1,1-Dichloroethene	ug/L			5 U			5 U	
1,1-Dichloroethane	ug/L			5 U			5 U	
1,2-Dichloroethene (total)	ug/L			5 U			5 U	
Chloroform	ug/L			5 U			5 U	
1,2-Dichloroethane	ug/L			5 U			5 U	
2-Butanone	ug/L			10 U			10 U	
1,1,1-Trichloroethane	ug/L			5 U			5 U	
Carbon Tetrachloride	ug/L			5 U			5 U	
Vinyl Acetate	ug/L			10 U			10 U	
Bromodichloromethane	ug/L			5 U			5 U	
1,2-Dichloropropane	ug/L			5 U			5 U	
cis-1,3-Dichloropropene	ug/L			5 U			5 U	
Trichloroethene	ug/L			5 U			5 U	
Dibromochloromethane	ug/L			5 U			5 U	
1,1,2-Trichloroethane	ug/L			5 U			5 U	
Benzene	ug/L			5 U			5 U	
trans-1,3-Dichloropropene	ug/L			5 U			5 U	
Bromoform	ug/L			5 U			5 U	
4-Methyl-2-Pentanone	ug/L			10 U			10 U	
2-Hexanone	ug/L			10 U			10 U	
Tetrachloroethene	ug/L			5 U			5 U	
1,1,2,2-Tetrachloroethane	ug/L			5 U			5 U	
Toluene	ug/L			5 U			5 U	
Chlorobenzene	ug/L			5 U			5 U	
Ethylbenzene	ug/L			5 U			5 U	
Styrene	ug/L			5 U			5 U	
Xylene (total)	ug/L			5 U			5 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 / WKST B	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	MW-37	MW37	MW-38D	MW-38D	MW38D	MW-39	MW-39
	DATE	01/10/92	06/24/93	01/06/92	01/06/92	07/03/93	01/14/92	01/14/92
	ES ID	MW-37Filte	MW37	MW-38D	MW-38DFil	MW38D	MW-39	MW-39Filte
	LAB ID	152291	187342	152154	152197	188259	152505	152510
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L		0.5 U			0.5 U		
Chloromethane	ug/L		0.5 U			0.5 U		
Vinyl Chloride	ug/L		0.5 U			0.5 U		
Bromomethane	ug/L		0.5 U			0.5 U		
Chloroethane	ug/L		0.5 U			0.5 U		
Trichlorofluoromethane	ug/L		0.5 U			0.5 U		
1,1-Dichloroethene	ug/L		0.5 U			0.5 U		
Acetone	ug/L		5 U			5 U		
Carbon Disulfide	ug/L		0.5 U			0.5 U		
Methylene Chloride	ug/L		0.5 U			0.5 U		
trans-1,2-Dichloroethene	ug/L		0.5 U			0.5 U		
1,1-Dichloroethane	ug/L		0.5 U			0.5 U		
2,2-Dichloropropane	ug/L		0.5 U			0.5 U		
cis-1,2-Dichloroethene	ug/L		0.5 U			0.5 U		
2-Butanone	ug/L		5 U			5 U		
Bromochloromethane	ug/L		0.5 U			0.5 U		
Chloroform	ug/L		0.5 U			0.5 U		
1,1,1-Trichloroethane	ug/L		0.5 U			0.5 U		
Carbon Tetrachloride	ug/L		0.5 U			0.5 U		
1,1-Dichloropropene	ug/L		0.5 U			0.5 U		
Benzene	ug/L		0.5 U			0.5 U		
1,2-Dichloroethane	ug/L		0.5 U			0.5 U		
Trichloroethene	ug/L		0.5 U			0.5 U		
1,2-Dichloropropane	ug/L		0.5 U			0.5 U		
Dibromomethane	ug/L		0.5 U			0.5 U		
Bromodichloromethane	ug/L		0.5 U			0.5 U		
cis-1,3-Dichloropropene	ug/L		0.5 U			0.5 U		
4-Methyl-2-Pentanone	ug/L		5 U			5 U		
Toluene	ug/L		0.5 U			0.5 U		
trans-1,3-Dichloropropene	ug/L		0.5 U			0.5 U		
1,1,2-Trichloroethane	ug/L		0.5 U			0.5 U		
Tetrachloroethene	ug/L		0.5 U			0.5 U		
1,3-Dichloropropane	ug/L		0.5 U			0.5 U		
2-Hexanone	ug/L		5 U			5 U		
Dibromochloromethane	ug/L		0.5 U			0.5 U		
1,2-Dibromoethane	ug/L		0.5 U			0.5 U		
Chlorobenzene	ug/L		0.5 U			0.5 U		
1,1,1,2-Tetrachloroethane	ug/L		0.5 U			0.5 U		
Ethylbenzene	ug/L		0.5 U			0.5 U		
Styrene	ug/L		0.5 U			0.5 U		
Bromoform	ug/L		0.5 U			0.5 U		
Isopropylbenzene	ug/L		0.5 U			0.5 U		
Bromobenzene	ug/L		0.5 U			0.5 U		
1,1,2,2-Tetrachloroethane	ug/L		0.5 U			0.5 U		
1,2,3-Trichloropropane	ug/L		0.5 U			0.5 U		
n-Propylbenzene	ug/L		0.5 U			0.5 U		
2-Chlorotoluene	ug/L		0.5 U			0.5 U		
4-Chlorotoluene	ug/L		0.5 U			0.5 U		
1,3,5-Trimethylbenzene	ug/L		0.5 U			0.5 U		
tert-Butylbenzene	ug/L		0.5 U			0.5 U		
1,2,4-Trimethylbenzene	ug/L		0.5 U			0.5 U		
sec-Butylbenzene	ug/L		0.5 U			0.5 U		
1,3-Dichlorobenzene	ug/L		0.5 U			0.5 U		
1,4-Dichlorobenzene	ug/L		0.5 U			0.5 U		
p-Isopropyltoluene	ug/L		0.5 U			0.5 U		
1,2-Dichlorobenzene	ug/L		0.5 U			0.5 U		
n-Butylbenzene	ug/L		0.5 U			0.5 U		
1,2-Dibromo-3-Chloropropane	ug/L		0.5 U			0.5 U		
1,2,4-Trichlorobenzene	ug/L		0.5 U			0.5 U		
Hexachlorobutadiene	ug/L		0.5 U			0.5 U		
Naphthalene	ug/L		0.5 U			0.5 U		
1,2,3-Trichlorobenzene	ug/L		0.5 U			0.5 U		
Xylene (total)	ug/L		0.5 U			0.5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3
WKST B

COMPOUND		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW-37	MW37	MW-38D	MW-38D	MW38D	MW-39	MW-39
	DATE	01/10/92	08/24/93	01/08/92	01/08/92	07/03/93	01/14/92	01/14/92
	ES ID	MW-37Filte	MW37	MW-38D	MW-38DFil	MW38D	MW-39	MW-39Filte
	LAB ID	152291	187342	152154	152197	188259	152505	152510
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L		10 U	12 U		10 U	11 U	
bis(2-Chloroethyl) ether	ug/L		10 U	12 U		10 U	11 U	
2-Chlorophenol	ug/L		10 U	12 U		10 U	11 U	
1,3-Dichlorobenzene	ug/L		10 U	12 U		10 U	11 U	
1,4-Dichlorobenzene	ug/L		10 U	12 U		10 U	11 U	
Benzyl Alcohol	ug/L			12 U			11 U	
1,2-Dichlorobenzene	ug/L		10 U	12 U		10 U	11 U	
2-Methylphenol	ug/L		10 U	12 U		10 U	11 U	
bis(2-Chloroisopropyl) ether	ug/L		10 U	12 U		10 U	11 U	
4-Methylphenol	ug/L		10 U	12 U		10 U	11 U	
N-Nitroso-di-n-propylamine	ug/L		10 U	12 U		10 U	11 U	
Hexachloroethane	ug/L		10 U	12 U		10 U	11 U	
Nitrobenzene	ug/L		10 U	12 U		10 U	11 U	
Isophorone	ug/L		10 U	12 U		10 U	11 U	
2-Nitrophenol	ug/L		10 U	12 U		10 U	11 U	
2,4-Dimethylphenol	ug/L		10 U	12 U		10 U	11 U	
Benzoic acid	ug/L			60 U			56 U	
bis(2-Chloroethoxy) methane	ug/L		10 U	12 U		10 U	11 U	
2,4-Dichlorophenol	ug/L		10 U	12 U		10 U	11 U	
1,2,4-Trichlorobenzene	ug/L		10 U	12 U		10 U	11 U	
Naphthalene	ug/L		10 U	12 U		10 U	11 U	
4-Chloroaniline	ug/L		10 U	12 U		10 U	11 U	
Hexachlorobutadiene	ug/L		10 U	12 U		10 U	11 U	
4-Chloro-3-methylphenol	ug/L		10 U	12 U		10 U	11 U	
2-Methylnaphthalene	ug/L		10 U	12 U		10 U	11 U	
Hexachlorocyclopentadiene	ug/L		10 U	12 U		10 U	11 U	
2,4,6-Trichlorophenol	ug/L		10 U	12 U		10 U	11 U	
2,4,5-Trichlorophenol	ug/L		25 U	60 U		25 U	56 U	
2-Chloronaphthalene	ug/L		10 U	12 U		10 U	11 U	
2-Nitroaniline	ug/L		25 U	60 U		25 U	56 U	
Dimethylphthalate	ug/L		10 U	12 U		10 U	11 U	
Acenaphthylene	ug/L		10 U	12 U		10 U	11 U	
2,6-Dinitrotoluene	ug/L		10 U	12 U		10 U	11 U	
3-Nitroaniline	ug/L		25 U	60 U		25 U	56 U	
Acenaphthene	ug/L		10 U	12 U		10 U	11 U	
2,4-Dinitrophenol	ug/L		25 U	60 U		25 U	56 U	
4-Nitrophenol	ug/L		25 U	60 U		25 U	56 U	
Dibenzofuran	ug/L		10 U	12 U		10 U	11 U	
2,4-Dinitrotoluene	ug/L		10 U	12 U		10 U	11 U	
Diethylphthalate	ug/L		10 U	12 U		10 U	11 U	
4-Chlorophenyl-phenylether	ug/L		10 U	12 U		10 U	11 U	
Fluorene	ug/L		10 U	12 U		10 U	11 U	
4-Nitroaniline	ug/L		25 U	60 U		25 U	56 U	
4,6-Dinitro-2-methylphenol	ug/L		25 U	60 U		25 U	56 U	
N-Nitrosodiphenylamine (1)	ug/L		10 U	12 U		10 U	11 U	
4-Bromophenyl-phenylether	ug/L		10 U	12 U		10 U	11 U	
Hexachlorobenzene	ug/L		10 U	12 U		10 U	11 U	
Pentachlorophenol	ug/L		25 U	60 U		25 U	56 U	
Phenanthrene	ug/L		10 U	12 U		10 U	11 U	
Anthracene	ug/L		10 U	12 U		10 U	11 U	
Carbazole	ug/L		10 U			10 U		
Di-n-butylphthalate	ug/L		10 U	12 U		10 U	11 U	
Fluoranthene	ug/L		10 U	12 U		10 U	11 U	
Pyrene	ug/L		10 U	12 U		10 U	11 U	
Butylbenzylphthalate	ug/L		10 U	12 U		10 U	11 U	
3,3'-Dichlorobenzidine	ug/L		10 U	24 U		10 U	22 U	
Benzo(a)anthracene	ug/L		10 U	12 U		10 U	11 U	
Chrysene	ug/L		10 U	12 U		10 U	11 U	
bis(2-Ethylhexyl)phthalate	ug/L		10 U	12 U		10 U	11 U	
Di-n-octylphthalate	ug/L		10 U	12 U		10 U	11 U	
Benzo(b)fluoranthene	ug/L		10 U	12 U		10 U	11 U	
Benzo(k)fluoranthene	ug/L		10 U	12 U		10 U	11 U	
Benzo(a)pyrene	ug/L		10 U	12 U		10 U	11 U	
Indeno(1,2,3-cd)pyrene	ug/L		10 U	12 U		10 U	11 U	
Dibenz(a,h)anthracene	ug/L		10 U	12 U		10 U	11 U	
Benzo(g,h,i)perylene	ug/L		10 U	12 U		10 U	11 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-37	MW37	MW-38D	MW-38D	MW38D	MW-39	MW-39
WKST B	DATE	01/10/92	08/24/93	01/08/92	01/08/92	07/03/93	01/14/92	01/14/92
	ES ID	MW-37Filte	MW37	MW-38D	MW-38DFil	MW38D	MW-39	MW-39Filte
	LAB ID	152291	187342	152154	152197	168259	152505	152510
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.052 U	0.05 U		0.05 U	0.056 U	
beta-BHC	ug/L		0.052 U	0.05 U		0.05 U	0.056 U	
delta-BHC	ug/L		0.052 U	0.05 U		0.05 U	0.056 U	
gamma-BHC (Lindane)	ug/L		0.052 U	0.05 U		0.05 U	0.056 U	
Heptachlor	ug/L		0.052 U	0.05 U		0.05 U	0.056 U	
Aldrin	ug/L		0.052 U	0.05 U		0.05 U	0.056 U	
Heptachlor epoxide	ug/L		0.052 U	0.05 U		0.05 U	0.056 U	
Endosulfan I	ug/L		0.052 U	0.05 U		0.05 U	0.056 U	
Dieldrin	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDE	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endrin	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endosulfan II	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDD	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endosulfan sulfate	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDT	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Methoxychlor	ug/L		0.52 U	0.5 U		0.5 U	0.56 U	
Endrin ketone	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endrin aldehyde	ug/L		0.1 U			0.1 U		
alpha-Chlordane	ug/L		0.052 U	0.5 U		0.05 U	0.56 U	
gamma-Chlordane	ug/L		0.052 U	0.5 U		0.05 U	0.56 U	
Toxaphene	ug/L		5.2 U	1 U		5 U	1.1 U	
Aroclor-1016	ug/L		1 U	0.5 U		1 U	0.56 U	
Aroclor-1221	ug/L		2.1 U	0.5 U		2 U	0.56 U	
Aroclor-1232	ug/L		1 U	0.5 U		1 U	0.56 U	
Aroclor-1242	ug/L		1 U	0.5 U		1 U	0.56 U	
Aroclor-1248	ug/L		1 U	0.5 U		1 U	0.56 U	
Aroclor-1254	ug/L		1 U	1 U		1 U	1.1 U	
Aroclor-1260	ug/L		1 U	1 U		1 U	1.1 U	
HERBICIDES								
2,4-D	ug/L		1 U	1.1 U		1 U	1 U	
2,4-DB	ug/L		1 U	1.1 U		1 U	1 U	
2,4,5-T	ug/L		0.1 U	0.1 U		0.1 U	0.1 U	
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U		0.1 U	0.1 U	
Dalapon	ug/L		2.3 U	2.5 U		2.3 U	2.4 U	
Dicamba	ug/L		0.1 U	0.1 U		0.1 U	0.1 U	
Dichloroprop	ug/L		1 U	1.1 U		1 U	1 U	
Dinoseb	ug/L		0.5 U	0.5 U		0.5 U	0.5 U	
MCPA	ug/L		100 U	110 U		100 U	100 U	
MCPP	ug/L		100 U	110 U		100 U	100 U	
METALS								
Aluminum	ug/L	24.5 U	637	2110	24.4 U	72.5 U	7930	24.5 U
Antimony	ug/L	53.2 U	49.7 UJ	55.6 U J	52.9 U	49.9 UJ	53.3 U	53.1 U
Arsenic	ug/L	3.5 U	1.4 UJ	3.5 U	3.5 U	1.4 UJ	3.5 U	3.5 U
Barium	ug/L	32.3 R	79.6 J	167 J	105 J	115 J	80.9 J	33.8 R
Beryllium	ug/L	2.4 R	0.89 U	2.1 R	2.6 R	0.9 U	2.6 R	1.3 R
Cadmium	ug/L	3 U	2.6 U	2.9 U	3 U	2.6 U	3.1 J	3 U
Calcium	ug/L	109000	115000	123000 J	93500	93500	97900	63500
Chromium	ug/L	6.2 U	2.7 UJ	6.6 J	6.1 U	2.7 UJ	12.5	6.2 U
Cobalt	ug/L	20.4 U	5.5 U	19.9 U	20.3 U	5.5 U	20.4 U	20.4 U
Copper	ug/L	10.2 U	5.4 J	14.4 U	10.1 U	4.7 U	33.3	10.2 U
Iron	ug/L	7 U	1060	3630	6.9 U	214	11400	7 U
Lead	ug/L	1.2 U	0.8 U	4.1	1.2 U	0.79 U	2.3 J	1.2 U
Magnesium	ug/L	17900	16100	16700 J	16400	16800	15800	12400
Manganese	ug/L	84.9	129	508	130	174	229	21
Mercury	ug/L	0.11 R	0.09 UJ	0.15 R	0.11 R	0.09 UJ	0.1 R	0.09 R
Nickel	ug/L	14.8 U	7.4 UJ	15.9 U	14.7 U	7.5 UJ	21.1 J	14.7 U
Potassium	ug/L	1330 J	1160 J	4960 J	4830 J	3220 J	3720 J	1770 J
Selenium	ug/L	1 U	1 UJ	1 U	1 J	1.5 UJ	1.3 U	1 U
Silver	ug/L	3.4 U	5.5 U	9 U	3.4 U	5.5 U	3.4 U	3.6 R
Sodium	ug/L	11200	15000	5480 J	5540	3750 J	15100	14000
Thallium	ug/L	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U
Vanadium	ug/L	9.5 U	6.8 UJ	30.4 U	9.4 U	6.8 UJ	13.3 J	9.5 U
Zinc	ug/L	6.5 U	7.4 R	17.7 R	6.4 U	3.4 J	39.8 R	6.5 U
Cyanide	ug/L		10 UJ	10 U J		10 UJ	10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST 8		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW39	MW-40	MW-40	MW40	MW-41D	MW-41D	MW41D
	DATE	06/23/93	01/09/92	01/09/92	07/01/93	01/13/92	01/13/92	06/22/93
	ES ID	MW39	MW-40	MW-40File	MW40	MW-41D	MW-41DRI	MW41D
	LAB ID	187232	152155	152196	186126	152409	152409	187064
COMPOUND	UNITS							
Chloromethane	ug/L		10 U			10 U		
Bromomethane	ug/L		10 U			10 U		
Vinyl Chloride	ug/L		10 U			10 U		
Chloroethane	ug/L		10 U			10 U		
Methylene Chloride	ug/L		5 U			5 U		
Acetone	ug/L		10 U			10 U		
Carbon Disulfide	ug/L		5 U			5 U		
1,1-Dichloroethene	ug/L		5 U			5 U		
1,1-Dichloroethane	ug/L		5 U			5 U		
1,2-Dichloroethene (total)	ug/L		5 U			5 U		
Chloroform	ug/L		5 U			5 U		
1,2-Dichloroethane	ug/L		5 U			5 U		
2-Butanone	ug/L		10 U			10 U		
1,1,1-Trichloroethane	ug/L		5 U			5 U		
Carbon Tetrachloride	ug/L		5 U			5 U		
Vinyl Acetate	ug/L		10 U			10 U		
Bromodichloromethane	ug/L		5 U			5 U		
1,2-Dichloropropane	ug/L		5 U			5 U		
cis-1,3-Dichloropropene	ug/L		5 U			5 U		
Trichloroethene	ug/L		5 U			5 U		
Dibromochloromethane	ug/L		5 U			5 U		
1,1,2-Trichloroethane	ug/L		5 U			5 U		
Benzene	ug/L		5 U			5 U		
trans-1,3-Dichloropropene	ug/L		5 U			5 U		
Bromoform	ug/L		5 U			5 U		
4-Methyl-2-Pentanone	ug/L		10 U			10 U		
2-Hexanone	ug/L		10 U			10 U		
Tetrachloroethene	ug/L		5 U			5 U		
1,1,2,2-Tetrachloroethane	ug/L		5 U			5 U		
Toluene	ug/L		5 U			5 U		
Chlorobenzene	ug/L		5 U			5 U		
Ethylbenzene	ug/L		5 U			5 U		
Styrene	ug/L		5 U			5 U		
Xylene (total)	ug/L		5 U			5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST 8 COMPOUND	MATRIX LOCATION DATE ES ID LAB ID UNITS	PHASE II WATER MW39 06/23/93 MW39 187232	PHASE I WATER MW-40 01/09/92 MW-40 152155	PHASE I WATER MW-40 01/09/92 MW-40Filte 152198	PHASE II WATER MW40 07/01/93 MW40 188126	PHASE I WATER MW-41D 01/13/92 MW-41D 152409	PHASE I WATER MW-41D 01/13/92 MW-41DRI 152409	PHASE II WATER MW41D 06/22/93 MW41D 187064
VOC's (524.2)								
Dichlorodifluoromethane	ug/L	0.5 U			0.5 U			0.5 U
Chloromethane	ug/L	0.5 U			0.5 U			0.5 U
Vinyl Chloride	ug/L	0.5 U			0.5 U			0.5 U
Bromomethane	ug/L	0.5 U			0.5 U			0.5 U
Chloroethane	ug/L	0.5 U			0.5 U			0.5 U
Trichlorofluoromethane	ug/L	0.5 U			0.5 U			0.5 U
1,1-Dichloroethene	ug/L	0.5 U			0.5 U			0.5 U
Acetone	ug/L	5 U			5 U			5 U
Carbon Disulfide	ug/L	0.5 U			0.5 U			0.5 U
Methylene Chloride	ug/L	0.5 U			0.5 U			0.5 U
trans-1,2-Dichloroethene	ug/L	0.5 U			0.5 U			0.5 U
1,1-Dichloroethane	ug/L	0.5 U			0.5 U			0.5 U
2,2-Dichloropropane	ug/L	0.5 U			0.5 U			0.5 U
cis-1,2-Dichloroethene	ug/L	0.5 U			0.5 U			0.5 U
2-Butanone	ug/L	5 U			5 U			5 U
Bromochloromethane	ug/L	0.5 U			0.5 U			0.5 U
Chloroform	ug/L	0.5 U			0.5 U			0.5 U
1,1,1-Trichloroethane	ug/L	0.5 U			0.5 U			0.5 U
Carbon Tetrachloride	ug/L	0.5 U			0.5 U			0.5 U
1,1-Dichloropropene	ug/L	0.5 U			0.5 U			0.5 U
Benzene	ug/L	0.5 U			0.5 U			0.5 U
1,2-Dichloroethane	ug/L	0.5 U			0.5 U			0.5 U
Trichloroethene	ug/L	0.5 U			0.5 U			0.5 U
1,2-Dichloropropane	ug/L	0.5 U			0.5 U			0.5 U
Dibromomethane	ug/L	0.5 U			0.5 U			0.5 U
Bromodichloromethane	ug/L	0.5 U			0.5 U			0.5 U
cis-1,3-Dichloropropene	ug/L	0.5 U			0.5 U			0.5 U
4-Methyl-2-Pentanone	ug/L	5 U			5 U			5 U
Toluene	ug/L	0.5 U			0.5 U			0.5 U
trans-1,3-Dichloropropene	ug/L	0.5 U			0.5 U			0.5 U
1,1,2-Trichloroethane	ug/L	0.5 U			0.5 U			0.5 U
Tetrachloroethene	ug/L	0.5 U			0.5 U			0.5 U
1,3-Dichloropropane	ug/L	0.5 U			0.5 U			0.5 U
2-Hexanone	ug/L	5 U			5 U			5 U
Dibromochloromethane	ug/L	0.5 U			0.5 U			0.5 U
1,2-Dibromoethane	ug/L	0.5 U			0.5 U			0.5 U
Chlorobenzene	ug/L	0.5 U			0.5 U			0.5 U
1,1,1,2-Tetrachloroethane	ug/L	0.5 U			0.5 U			0.5 U
Ethylbenzene	ug/L	0.5 U			0.5 U			0.5 U
Styrene	ug/L	0.5 U			0.5 U			0.5 U
Bromoform	ug/L	0.5 U			0.5 U			0.5 U
Isopropylbenzene	ug/L	0.5 U			0.5 U			0.5 U
Bromobenzene	ug/L	0.5 U			0.5 U			0.5 U
1,1,2,2-Tetrachloroethane	ug/L	0.5 U			0.5 U			0.5 U
1,2,3-Trichloropropane	ug/L	0.5 U			0.5 U			0.5 U
n-Propylbenzene	ug/L	0.5 U			0.5 U			0.5 U
2-Chlorotoluene	ug/L	0.5 U			0.5 U			0.5 U
4-Chlorotoluene	ug/L	0.5 U			0.5 U			0.5 U
1,3,5-Trimethylbenzene	ug/L	0.5 U			0.5 U			0.5 U
tert-Butylbenzene	ug/L	0.5 U			0.5 U			0.5 U
1,2,4-Trimethylbenzene	ug/L	0.5 U			0.5 U			0.5 U
sec-Butylbenzene	ug/L	0.5 U			0.5 U			0.5 U
1,3-Dichlorobenzene	ug/L	0.5 U			0.5 U			0.5 U
1,4-Dichlorobenzene	ug/L	0.5 U			0.5 U			0.5 U
p-Isopropyltoluene	ug/L	0.5 U			0.5 U			0.5 U
1,2-Dichlorobenzene	ug/L	0.5 U			0.5 U			0.5 U
n-Butylbenzene	ug/L	0.5 U			0.5 U			0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	0.5 U			0.5 U			0.5 U
1,2,4-Trichlorobenzene	ug/L	0.5 U			0.5 U			0.5 U
Hexachlorobutadiene	ug/L	0.5 U			0.5 U			0.5 U
Naphthalene	ug/L	0.5 U			0.5 U			0.5 U
1,2,3-Trichlorobenzene	ug/L	0.5 U			0.5 U			0.5 U
Xylene (total)	ug/L	0.5 U			0.5 U			0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3
WKST B

COMPOUND	MATRIX / LOCATION / DATE / ES ID / LAB ID / UNITS	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW39	MW-40	MW-40	MW40	MW-41D	MW-41D	MW41D
	DATE	06/23/93	01/09/92	01/09/92	07/01/93	01/13/92	01/13/92	06/22/93
	ES ID	MW39	MW-40	MW-40Filte	MW40	MW-41D	MW- 41DRI	MW41D
	LAB ID	187232	152155	152198	188126	152409	152409	187084
	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	11 U		10 U	10 U		10 U
bis(2-Chloroethyl) ether	ug/L	10 U	11 U		10 U	10 U		10 U
2-Chlorophenol	ug/L	10 U	11 U		10 U	10 U		10 U
1,3-Dichlorobenzene	ug/L	10 U	11 U		10 U	10 U		10 U
1,4-Dichlorobenzene	ug/L	10 U	11 U		10 U	10 U		10 U
Benzyl Alcohol	ug/L		11 U			10 U		
1,2-Dichlorobenzene	ug/L	10 U	11 U		10 U	10 U		10 U
2-Methylphenol	ug/L	10 U	11 U		10 U	10 U		10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	11 U		10 U	10 U		10 U
4-Methylphenol	ug/L	10 U	11 U		10 U	10 U		10 U
N-Nitroso-di-n-propylamine	ug/L	10 U	11 U		10 U	10 U		10 U
Hexachloroethane	ug/L	10 U	11 U		10 U	10 U		10 U
Nitrobenzene	ug/L	10 U	11 U		10 U	10 U		10 U
Isophorone	ug/L	10 U	11 U		10 U	10 U		10 U
2-Nitrophenol	ug/L	10 U	11 U		10 U	10 U		10 U
2,4-Dimethylphenol	ug/L	10 U	11 U		10 U	10 U		10 U
Benzoic acid	ug/L		56 U			52 U		
bis(2-Chloroethoxy) methane	ug/L	10 U	11 U		10 U	10 U		10 U
2,4-Dichlorophenol	ug/L	10 U	11 U		10 U	10 U		10 U
1,2,4-Trichlorobenzene	ug/L	10 U	11 U		10 U	10 U		10 U
Naphthalene	ug/L	10 U	11 U		10 U	10 U		10 U
4-Chloroaniline	ug/L	10 U	11 U		10 U	10 U		10 U
Hexachlorobutadiene	ug/L	10 U	11 U		10 U	10 U		10 U
4-Chloro-3-methylphenol	ug/L	10 U	11 U		10 U	10 U		10 U
2-Methylnaphthalene	ug/L	10 U	11 U		10 U	10 U		10 U
Hexachlorocyclopentadiene	ug/L	10 U	11 U		10 U	10 U		10 U
2,4,6-Trichlorophenol	ug/L	10 U	11 U		10 U	10 U		10 U
2,4,5-Trichlorophenol	ug/L	25 U	56 U		25 U	52 U		25 U
2-Chloronaphthalene	ug/L	10 U	11 U		10 U	10 U		10 U
2-Nitroaniline	ug/L	25 U	56 U		25 U	52 U		25 U
Dimethylphthalate	ug/L	10 U	11 U		10 U	10 U		10 U
Acenaphthylene	ug/L	10 U	11 U		10 U	10 U		10 U
2,6-Dinitrotoluene	ug/L	10 U	11 U		10 U	10 U		10 U
3-Nitroaniline	ug/L	25 U	56 U		25 U	52 U		25 U
Acenaphthene	ug/L	10 U	11 U		10 U	10 U		10 U
2,4-Dinitrophenol	ug/L	25 U	56 U		25 U	52 U		25 U
4-Nitrophenol	ug/L	25 U	56 U		25 U	52 U		25 U
Dibenzofuran	ug/L	10 U	11 U		10 U	10 U		10 U
2,4-Dinitrotoluene	ug/L	10 U	11 U		10 U	10 U		10 U
Diethylphthalate	ug/L	10 U	11 U		10 U	10 U		10 U
4-Chlorophenyl-phenylether	ug/L	10 U	11 U		10 U	10 U		10 U
Fluorene	ug/L	10 U	11 U		10 U	10 U		10 U
4-Nitroaniline	ug/L	25 U	56 U		25 U	52 U		25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	56 U		25 U	52 U		25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	11 U		10 U	10 U		10 U
4-Bromophenyl-phenylether	ug/L	10 U	11 U		10 U	10 U		10 U
Hexachlorobenzene	ug/L	10 U	11 U		10 U	10 U		10 U
Pentachlorophenol	ug/L	25 U	56 U		25 U	52 U		25 U
Phenanthrene	ug/L	10 U	11 U		10 U	10 U		10 U
Anthracene	ug/L	10 U	11 U		10 U	10 U		10 U
Carbazole	ug/L	10 U			10 U			10 U
Di-n-butylphthalate	ug/L	6 J	11 U		10 U	10 U		4 J
Fluoranthene	ug/L	10 U	11 U		10 U	10 U		10 U
Pyrene	ug/L	10 U	11 U		10 U	10 U		10 U
Butylbenzylphthalate	ug/L	10 U	11 U		10 U	10 U		10 U
3,3'-Dichlorobenzidine	ug/L	10 U	22 U		10 U	21 U		10 U
Benzo(a)anthracene	ug/L	10 U	11 U		10 U	10 U		10 U
Chrysene	ug/L	10 U	11 U		10 U	10 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	11 U		11 U	10 U		10 U
Di-n-octylphthalate	ug/L	10 U	11 U		10 U	10 U		10 U
Benzo(b)fluoranthene	ug/L	10 U	11 U		10 U	10 U		10 U
Benzo(k)fluoranthene	ug/L	10 U	11 U		10 U	10 U		10 U
Benzo(a)pyrene	ug/L	10 U	11 U		10 U	10 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	11 U		10 U	10 U		10 U
Dibenz(a,h)anthracene	ug/L	10 U	11 U		10 U	10 U		10 U
Benzo(g,h,i)perylene	ug/L	10 U	11 U		10 U	10 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST B								
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW39	MW-40	MW-40	MW40	MW-41D	MW-41D	MW41D
	DATE	06/23/93	01/09/92	01/09/92	07/01/93	01/13/92	01/13/92	06/22/93
	ES ID	MW39	MW-40	MW-40Filte	MW40	MW-41D	MW-41DRI	MW41D
	LAB ID	167232	152155	152196	168126	152409	152409	167064
		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 U	0.05 U		0.05 U	0.057 U R	0.071 U J	0.05 U
beta-BHC	ug/L	0.05 U	0.05 U		0.05 U	0.057 U R	0.071 U J	0.05 U
delta-BHC	ug/L	0.05 U	0.05 U		0.05 U	0.057 U R	0.071 U J	0.05 U
gamma-BHC (Lindane)	ug/L	0.05 U	0.05 U		0.05 U	0.057 U R	0.071 U J	0.05 U
Heptachlor	ug/L	0.05 U	0.05 U		0.05 U	0.057 U R	0.071 U J	0.05 U
Aldrin	ug/L	0.05 U	0.05 U		0.05 U	0.057 U R	0.071 U J	0.05 U
Heptachlor epoxide	ug/L	0.05 U	0.05 U		0.05 U	0.057 U R	0.071 U J	0.05 U
Endosulfan I	ug/L	0.05 U	0.05 U		0.05 U	0.057 U R	0.071 U J	0.05 U
Dieldrin	ug/L	0.1 U	0.1 U		0.1 U	0.11 U R	0.14 U J	0.1 U
4,4'-DDE	ug/L	0.1 U	0.1 U		0.1 U	0.11 U R	0.14 U J	0.1 U
Endrin	ug/L	0.1 U	0.1 U		0.1 U	0.11 U R	0.14 U J	0.1 U
Endosulfan II	ug/L	0.1 U	0.1 U		0.1 U	0.11 U R	0.14 U J	0.1 U
4,4'-DDD	ug/L	0.1 U	0.1 U		0.1 U	0.11 U R	0.14 U J	0.1 U
Endosulfan sulfate	ug/L	0.1 U	0.1 U		0.1 U	0.11 U R	0.14 U J	0.1 U
4,4'-DDT	ug/L	0.1 U	0.1 U		0.1 U	0.11 U R	0.14 U J	0.1 U
Methoxychlor	ug/L	0.5 U	0.5 U		0.5 U	0.57 U R	0.71 U J	0.5 U
Endrin ketone	ug/L	0.1 U	0.1 U		0.1 U	0.11 U R	0.14 U J	0.1 U
Endrin aldehyde	ug/L	0.1 U			0.1 U			0.1 U
alpha-Chlordane	ug/L	0.05 U	0.5 U		0.05 U	0.57 U R	0.71 U J	0.05 U
gamma-Chlordane	ug/L	0.05 U	0.5 U		0.05 U	0.57 U R	0.71 U J	0.05 U
Toxaphene	ug/L	5 U	1 U		5 U	1.1 U R	1.4 U J	5 U
Aroclor-1016	ug/L	1 U	0.5 U		1 U	0.57 U R	0.71 U J	1 U
Aroclor-1221	ug/L	2 U	0.5 U		2 U	0.57 U R	0.71 U J	2 U
Aroclor-1232	ug/L	1 U	0.5 U		1 U	0.57 U R	0.71 U J	1 U
Aroclor-1242	ug/L	1 U	0.5 U		1 U	0.57 U R	0.71 U J	1 U
Aroclor-1248	ug/L	1 U	0.5 U		1 U	0.57 U R	0.71 U J	1 U
Aroclor-1254	ug/L	1 U	1 U		1 U	1.1 U R	1.4 U J	1 U
Aroclor-1260	ug/L	1 U	1 U		1 U	1.1 U R	1.4 U J	1 U
HERBICIDES								
2,4-D	ug/L	1 U	1 U		1 U	1 U		1 U
2,4-DB	ug/L	1 U	1 U		1 U	1 U		1 U
2,4,5-T	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
Dalapon	ug/L	2.3 U	2.3 U		2.3 U	2.4 U		2.3 U
Dicamba	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
Dichloroprop	ug/L	1 U	1 U		1 U	1 U		1 U
Dinoseb	ug/L	0.5 U	0.5 U		0.5 U	0.5 U		0.5 U
MCPA	ug/L	100 U	100 U		100 U	100 U		100 U
MCPP	ug/L	100 U	100 U		100 U	100 U		100 U
METALS								
Aluminum	ug/L	72.6 U	2730	24.6 U	972	146 J		72 U
Antimony	ug/L	49.9 UJ	56 U J	53.4 U	49.9 UJ	77.3 R		49.5 UJ
Arsenic	ug/L	1.4 UJ	3.5 U	3.5 U	1.4 UJ	3.5 U		1.4 UJ
Barium	ug/L	40 J	77.8 J	32.4 R	68 J	97 J		67.9 J
Beryllium	ug/L	0.9 U	2.1 R	2.6 R	0.9 U	1.9 R		0.89 U
Cadmium	ug/L	2.8 U	2.9 U	3 U	3.3 J	2.9 U		2.8 U
Calcium	ug/L	102000	154000 J	101000	115000	45800 J		39200
Chromium	ug/L	2.7 UJ	19.7	6.2 U	4.2 J	6.2 U		2.7 UJ
Cobalt	ug/L	5.5 U	20 U	20.5 U	5.5 U	19.9 U		5.4 U
Copper	ug/L	4.7 U	14.5 U	10.2 U	4.7 U	14.4 U		4.7 U
Iron	ug/L	26.2 U	6040	7 U	1390	396 R		128
Lead	ug/L	0.8 U	2.1 J	1.2 U	0.8 U	1.2 U		0.8 U
Magnesium	ug/L	14100	14300	13800	13000	17300 R		14700
Manganese	ug/L	29.6	931	454	77.9	113		43.7
Mercury	ug/L	0.09 UJ	0.14 R	0.1 R	0.09 UJ	0.12 R		0.09 UJ
Nickel	ug/L	7.5 UJ	16 U	14.8 U	7.5 UJ	15.9 U		7.4 UJ
Potassium	ug/L	2420 J	2610 J	2610 J	2250 J	2530 J		2210 J
Selenium	ug/L	1 UJ	1 U	1 U	1.6 J	1 U		1 UJ
Silver	ug/L	5.5 U	9.1 U	3.4 U	5.5 U	9.1 U		5.4 U
Sodium	ug/L	10600	7540 J	7270	16800	77600 J		91000
Thallium	ug/L	2.6 U	3.2 U	3.2 U	2.6 U	3.2 U		2.6 U
Vanadium	ug/L	6.8 UJ	30.6 U	9.5 U	6.8 UJ	30.5 U		6.7 UJ
Zinc	ug/L	7 J	34.1 R	6.5 U	15.7 J	13.4 U		13.9 J
Cyanide	ug/L	10 UJ	10 U J		10 UJ	10 U J		10 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

			PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-42D	MW-42D	MW-42D	MW42D	MW-43	MW44	MW45
WKST B	DATE	01/13/92	01/13/92	01/13/92	06/23/93	06/30/93	07/15/93	07/15/93
	ES ID	MW-42D	MW-42DRE(4)	MW-42DFII	MW42D	MW-43	MW44	MW45
	LAB ID	152410	152410	152430	167233	167932	169106	169106
COMPOUND	UNITS							
Chloromethane	ug/L	10 U				10 U	710 U	10 U
Bromomethane	ug/L	10 U				10 U	710 U	10 U
Vinyl Chloride	ug/L	10 U				10 U	22000	10 U
Chloroethane	ug/L	10 U				10 U	710 U	10 U
Methylene Chloride	ug/L	5 U				10 U	710 U	10 U
Acetone	ug/L	10 U				10 U	710 U	10 U
Carbon Disulfide	ug/L	5 U				10 U	710 U	10 U
1,1-Dichloroethene	ug/L	5 U				10 U	200 J	10 U
1,1-Dichloroethane	ug/L	5 U				10 U	160 J	10 U
1,2-Dichloroethene (total)	ug/L	5 U				10 U	73000	10 U
Chloroform	ug/L	5 U				10 U	710 U	10 U
1,2-Dichloroethane	ug/L	5 U				10 U	710 U	10 U
2-Butanone	ug/L	10 U				10 U	710 U	10 U
1,1,1-Trichloroethane	ug/L	5 U				10 U	710 U	10 U
Carbon Tetrachloride	ug/L	5 U				10 U	710 U	10 U
Vinyl Acetate	ug/L	10 U						
Bromodichloromethane	ug/L	5 U				10 U	710 U	10 U
1,2-Dichloropropane	ug/L	5 U				10 U	710 U	10 U
cis-1,3-Dichloropropene	ug/L	5 U				10 U	710 U	10 U
Trichloroethene	ug/L	5 U				10 U	37000	10 U
Dibromochloromethane	ug/L	5 U				10 U	710 U	10 U
1,1,2-Trichloroethane	ug/L	5 U				10 U	710 U	10 U
Benzene	ug/L	5 U				10 U	170 J	10 U
trans-1,3-Dichloropropene	ug/L	5 U				10 U	710 U	10 U
Bromoform	ug/L	5 U				10 U	710 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U				10 U	710 U	10 U
2-Hexanone	ug/L	10 U				10 U	710 U	10 U
Tetrachloroethene	ug/L	5 U				10 U	710 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	5 U				10 U	710 U	10 U
Toluene	ug/L	5 U				10 U	880	10 U
Chlorobenzene	ug/L	5 U				10 U	710 U	10 U
Ethylbenzene	ug/L	5 U				10 U	130 J	10 U
Styrene	ug/L	5 U				10 U	710 U	10 U
Xylene (total)	ug/L	5 U				10 U	590 J	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-42D	MW-42D	MW-42D	MW42D	MW-43	MW44	MW45
WKST B	DATE	01/13/92	01/13/92	01/13/92	06/23/93	06/30/93	07/15/93	07/15/93
	ES ID	MW-42D	MW-42DRE(4)	MW-42DFII	MW42D	MW-43	MW44	MW45
	LAB ID	152410	152410	152430	187233	187932	189106	189106
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L				0.5 U			
Chloromethane	ug/L				0.5 U			
Vinyl Chloride	ug/L				0.5 U			
Bromomethane	ug/L				0.5 U			
Chloroethane	ug/L				0.5 U			
Trichlorofluoromethane	ug/L				0.5 U			
1,1-Dichloroethene	ug/L				0.5 U			
Acetone	ug/L				5 U			
Carbon Disulfide	ug/L				0.5 U			
Methylene Chloride	ug/L				0.5 U			
trans-1,2-Dichloroethene	ug/L				0.5 U			
1,1-Dichloroethane	ug/L				0.5 U			
2,2-Dichloropropane	ug/L				0.5 U			
cis-1,2-Dichloroethene	ug/L				0.5 U			
2-Butanone	ug/L				5 U			
Bromochloromethane	ug/L				0.5 U			
Chloroform	ug/L				0.5 U			
1,1,1-Trichloroethane	ug/L				0.5 U			
Carbon Tetrachloride	ug/L				0.5 U			
1,1-Dichloropropene	ug/L				0.5 U			
Benzene	ug/L				0.5 U			
1,2-Dichloroethane	ug/L				0.5 U			
Trichloroethene	ug/L				0.5 U			
1,2-Dichloropropane	ug/L				0.5 U			
Dibromomethane	ug/L				0.5 U			
Bromodichloromethane	ug/L				0.5 U			
cis-1,3-Dichloropropene	ug/L				0.5 U			
4-Methyl-2-Pentanone	ug/L				5 U			
Toluene	ug/L				0.5 U			
trans-1,3-Dichloropropene	ug/L				0.5 U			
1,1,2-Trichloroethane	ug/L				0.5 U			
Tetrachloroethene	ug/L				0.5 U			
1,3-Dichloropropane	ug/L				0.5 U			
2-Hexanone	ug/L				5 U			
Dibromochloromethane	ug/L				0.5 U			
1,2-Dibromoethane	ug/L				0.5 U			
Chlorobenzene	ug/L				0.5 U			
1,1,1,2-Tetrachloroethane	ug/L				0.5 U			
Ethylbenzene	ug/L				0.5 U			
Styrene	ug/L				0.5 U			
Bromoform	ug/L				0.5 U			
Isopropylbenzene	ug/L				0.5 U			
Bromobenzene	ug/L				0.5 U			
1,1,2,2-Tetrachloroethane	ug/L				0.5 U			
1,2,3-Trichloropropane	ug/L				0.5 U			
n-Propylbenzene	ug/L				0.5 U			
2-Chlorotoluene	ug/L				0.5 U			
4-Chlorotoluene	ug/L				0.5 U			
1,3,5-Trimethylbenzene	ug/L				0.5 U			
tert-Butylbenzene	ug/L				0.5 U			
1,2,4-Trimethylbenzene	ug/L				0.5 U			
sec-Butylbenzene	ug/L				0.5 U			
1,3-Dichlorobenzene	ug/L				0.5 U			
1,4-Dichlorobenzene	ug/L				0.5 U			
p-Isopropyltoluene	ug/L				0.5 U			
1,2-Dichlorobenzene	ug/L				0.5 U			
n-Butylbenzene	ug/L				0.5 U			
1,2-Dibromo-3-Chloropropane	ug/L				0.5 U			
1,2,4-Trichlorobenzene	ug/L				0.5 U			
Hexachlorobutadiene	ug/L				0.5 U			
Naphthalene	ug/L				0.5 U			
1,2,3-Trichlorobenzene	ug/L				0.5 U			
Xylene (total)	ug/L				0.5 U			

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-42D	MW-42D	MW-42D	MW42D	MW-43	MW44	MW45
WKST B	DATE	01/13/92	01/13/92	01/13/92	06/23/93	06/30/93	07/15/93	07/15/93
	ES ID	MW-42D	MW-42DRE(4)	MW-42DFII	MW42D	MW-43	MW44	MW45
	LAB ID	152410	152410	152430	187233	187932	189106	189106
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U			10 U	10 U	5 J	10 U
bis(2-Chloroethyl) ether	ug/L	10 U			10 U	10 U	10 U	10 U
2-Chlorophenol	ug/L	10 U			10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	ug/L	10 U			10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	10 U			10 U	10 U	10 U	10 U
Benzyl Alcohol	ug/L	10 U						
1,2-Dichlorobenzene	ug/L	10 U			10 U	10 U	10 U	10 U
2-Methylphenol	ug/L	10 U			10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U			10 U	10 U	10 U	10 U
4-Methylphenol	ug/L	10 U			10 U	10 U	4 J	10 U
N-Nitroso-di-n-propylamine	ug/L	10 U			10 U	10 U	10 U	10 U
Hexachloroethane	ug/L	10 U			10 U	10 U	10 U	10 U
Nitrobenzene	ug/L	10 U			10 U	10 U	10 U	10 U
Isophorone	ug/L	10 U			10 U	10 U	10 U	10 U
2-Nitrophenol	ug/L	10 U			10 U	10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	10 U			10 U	10 U	10 U	10 U
Benzoic acid	ug/L	52 U						
bis(2-Chloroethoxy) methane	ug/L	10 U			10 U	10 U	10 U	10 U
2,4-Dichlorophenol	ug/L	10 U			10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	ug/L	10 U			10 U	10 U	10 U	10 U
Naphthalene	ug/L	10 U			10 U	10 U	56 J	10 U
4-Chloroaniline	ug/L	10 U			10 U	10 U	10 U	10 U
Hexachlorobutadiene	ug/L	10 U			10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	ug/L	10 U			10 U	10 U	10 U	10 U
2-Methylnaphthalene	ug/L	10 U			10 U	10 U	12 J	10 U
Hexachlorocyclopentadiene	ug/L	10 U			10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	ug/L	10 U			10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	ug/L	52 U			25 U	25 U	25 U	25 U
2-Chloronaphthalene	ug/L	10 U			10 U	10 U	10 U	10 U
2-Nitroaniline	ug/L	52 U			25 U	25 U	25 U	25 U
Dimethylphthalate	ug/L	10 U			10 U	10 U	10 U	10 U
Acenaphthylene	ug/L	10 U			10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	ug/L	10 U			10 U	10 U	10 U	10 U
3-Nitroaniline	ug/L	52 U			25 U	25 U	25 U	25 U
Acenaphthene	ug/L	10 U			10 U	10 U	10 U	10 U
2,4-Dinitrophenol	ug/L	52 U			25 U	25 U	25 U	25 U
4-Nitrophenol	ug/L	52 U			25 U	25 U	25 U	25 U
Dibenzofuran	ug/L	10 U			10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	ug/L	10 U			10 U	10 U	10 U	10 U
Diethylphthalate	ug/L	10 U			10 U	10 U	1 J	10 U
4-Chlorophenyl-phenylether	ug/L	10 U			10 U	10 U	10 U	10 U
Fluorene	ug/L	10 U			10 U	10 U	10 U	10 U
4-Nitroaniline	ug/L	52 U			25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	ug/L	52 U			25 U	25 U	25 U	25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U			10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	ug/L	10 U			10 U	10 U	10 U	10 U
Hexachlorobenzene	ug/L	10 U			10 U	10 U	10 U	10 U
Pentachlorophenol	ug/L	52 U			25 U	25 U	54 J	25 U
Phenanthrene	ug/L	10 U			10 U	10 U	10 U	10 U
Anthracene	ug/L	10 U			10 U	10 U	10 U	10 U
Carbazole	ug/L				10 U	10 U	10 U	10 U
Di-n-butylphthalate	ug/L	10 U			10	10 U	2 J	2 J
Fluoranthene	ug/L	10 U			10 U	10 U	10 U	10 U
Pyrene	ug/L	10 U			10 U	10 U	10 U	10 U
Butylbenzylphthalate	ug/L	10 U			10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	ug/L	21 U			10 U	10 U	10 U	10 U
Benzo(a)anthracene	ug/L	10 U			10 U	10 U	10 U	10 U
Chrysene	ug/L	10 U			10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U			14 U	13 U	10 U	10 U
Di-n-octylphthalate	ug/L	10 U			10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	ug/L	10 U			10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	ug/L	10 U			10 U	10 U	10 U	10 U
Benzo(a)pyrene	ug/L	10 U			10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U			10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	ug/L	10 U			10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	ug/L	10 U			10 U	10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST B	MATRIX LOCATION DATE ES ID LAB ID UNITS	PHASE I WATER MW-42D 01/13/92 MW-42D 152410	PHASE I WATER MW-42D 01/13/92 MW-42DRE(4) 152410	PHASE I WATER MW-42D 01/13/92 MW-42DFII 152430	PHASE II WATER MW42D 06/23/93 MW42D 187233	PHASE II WATER MW-43 06/30/93 MW-43 187932	PHASE II WATER MW44 07/15/93 MW44 189106	PHASE II WATER MW45 07/15/93 MW45 189108
COMPOUND								
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.053 U R	0.052 U J		0.05 U	0.05 U	0.056 U	0.05 U
beta-BHC	ug/L	0.053 U R	0.052 U J		0.05 U	0.05 U	0.056 U	0.05 U
delta-BHC	ug/L	0.053 U R	0.052 U J		0.05 U	0.05 U	0.056 U	0.05 U
gamma-BHC (Lindane)	ug/L	0.053 U R	0.052 U J		0.05 U	0.05 U	0.056 U	0.05 U
Heptachlor	ug/L	0.053 U R	0.052 U J		0.05 U	0.05 U	0.056 U	0.05 U
Aldrin	ug/L	0.053 U R	0.052 U J		0.05 U	0.05 U	0.056 U	0.05 U
Heptachlor epoxide	ug/L	0.053 U R	0.052 U J		0.05 U	0.05 U	0.056 U	0.05 U
Endosulfan I	ug/L	0.053 U R	0.052 U J		0.05 U	0.05 U	0.056 U	0.05 U
Dieldrin	ug/L	0.11 U R	0.1 U J		0.1 U	0.1 U	0.11 U	0.1 U
4,4'-DDE	ug/L	0.11 U R	0.1 U J		0.1 U	0.1 U	0.11 U	0.1 U
Endrin	ug/L	0.11 U R	0.1 U J		0.1 U	0.1 U	0.11 U	0.1 U
Endosulfan II	ug/L	0.11 U R	0.1 U J		0.1 U	0.1 U	0.11 U	0.1 U
4,4'-DDD	ug/L	0.11 U R	0.1 U J		0.1 U	0.1 U	0.11 U	0.1 U
Endosulfan sulfate	ug/L	0.11 U R	0.1 U J		0.1 U	0.1 U	0.11 U	0.1 U
4,4'-DDT	ug/L	0.11 U R	0.1 U J		0.1 U	0.1 U	0.11 U	0.1 U
Methoxychlor	ug/L	0.53 U R	0.52 U J		0.5 U	0.5 U	0.56 U	0.5 U
Endrin ketone	ug/L	0.11 U R	0.1 U J		0.1 U	0.1 U	0.11 U	0.1 U
Endrin aldehyde	ug/L				0.1 U	0.1 U	0.11 U	0.1 U
alpha-Chlordane	ug/L	0.53 U R	0.52 U J		0.05 U	0.05 U	0.056 U	0.05 U
gamma-Chlordane	ug/L	0.53 U R	0.52 U J		0.05 U	0.05 U	0.056 U	0.05 U
Toxaphene	ug/L	1.1 U R	1 U J		5 U	5 U	5.6 U	5 U
Aroclor-1016	ug/L	0.53 U R	0.52 U J		1 U	1 U	1.1 U	1 U
Aroclor-1221	ug/L	0.53 U R	0.52 U J		2 U	2 U	2.3 U	2 U
Aroclor-1232	ug/L	0.53 U R	0.52 U J		1 U	1 U	1.1 U	1 U
Aroclor-1242	ug/L	0.53 U R	0.52 U J		1 U	1 U	1.1 U	1 U
Aroclor-1248	ug/L	0.53 U R	0.52 U J		1 U	1 U	1.1 U	1 U
Aroclor-1254	ug/L	1.1 U R	1 U J		1 U	1 U	1.1 U	1 U
Aroclor-1260	ug/L	1.1 U R	1 U J		1 U	1 U	1.1 U	1 U
HERBICIDES								
2,4-D	ug/L	1.2 U			1 U	1 U	1.2 U	1.1 U
2,4-DB	ug/L	1.2 U			1 U	1 U	1.2 U	1.1 U
2,4,5-T	ug/L	0.1 U			0.1 U	0.1 U	0.12 U	0.11 U
2,4,5-TP (Silvex)	ug/L	0.1 U			0.1 U	0.1 U	0.12 U	0.11 U
Dalapon	ug/L	2.7 U			2.3 U	2.3 U	2.7 U	2.4 U
Dicamba	ug/L	0.1 U			0.1 U	0.1 U	0.12 U	0.11 U
Dichloroprop	ug/L	1.2 U			1 U	1 U	1.2 U	1.1 U
Dinoseb	ug/L	0.6 U			0.5 U	0.5 U	0.56 U	0.51 U
MCPA	ug/L	120 U			100 U	100 U	120 U	110 U
MCPP	ug/L	120 U			100 U	100 U	120 U	110 U
METALS								
Aluminum	ug/L	209		24.5 U	72.5 U	52700	12300 J	21300 J
Antimony	ug/L	58.5 U J		53.2 U	49.9 UJ	49.8 UJ	49.7 U	49.6 U
Arsenic	ug/L	3.5 U		3.5 U	1.4 UJ	1.4 UJ	7.8 J	2.7 J
Barium	ug/L	112 J		96.3 J	96 J	358	317	243
Beryllium	ug/L	2.1 R		2.5 R	0.9 U	2.5 J	1.5 J	1.6 J
Cadmium	ug/L	2.9 U		3 U	2.8 U	2.8 U	2.8 U	2.8 U
Calcium	ug/L	67300 J		58000	59200	403000	370000	161000
Chromium	ug/L	6.7 J		6.2 U	2.7 UJ	86.2 J	18.2 J	29.1 J
Cobalt	ug/L	19.6 U		20.4 U	5.5 U	36.1 J	22.5 J	26.3 J
Copper	ug/L	14.4 U		10.2 U	4.7 U	61.4	12.9 J	8.7 J
Iron	ug/L	683 R		7 U	106	86500	18500 J	30100 J
Lead	ug/L	1.2 U		1.2 U	0.79 U	21.9	147	5.8
Magnesium	ug/L	26200 J		32600	30100	36100	41100	22100
Manganese	ug/L	169		112	56	2260	7120	1010
Mercury	ug/L	0.15 R		0.12 R	0.09 UJ	0.35 J	0.38	0.18 J
Nickel	ug/L	15.6 U		14.8 U	7.5 UJ	107 J	30.5 J	45.3 J
Potassium	ug/L	9470		11200	2950 J	10300	6680	6220
Selenium	ug/L	1 U		1 U	0.99 UJ	5 UJ	10 UJ	0.99 UJ
Silver	ug/L	9 U		4.4 R	5.5 U	5.5 U	5.5 U	5.5 U
Sodium	ug/L	18700 J		19700	17200	11900	37600	8420
Thallium	ug/L	3.2 U		3.2 U	2.6 U	2.6 U	25.9 U	2.6 U
Vanadium	ug/L	30.3 U		9.5 U	6.8 UJ	73.4 J	13.3 J	26.2 J
Zinc	ug/L	13.4 U		6.5 U	4.9 J	223	117 J	116 J
Cyanide	ug/L	10 U J			10 UJ	10 UJ	4.3 J	1.3 J

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW48	MW47	MW47RE	MW48	MW49D	MW50D	MW51D
WKST B	DATE	07/14/93	07/10/93	07/10/93	07/15/93	07/14/93	07/14/93	07/10/93
	ES ID	MW46	MW47	MW47RE	MW48	MW49D	MW50D	MW51D
	LAB ID	189023	188722	188722	189109	189026	189026	188723
COMPOUND	UNITS							
Chloromethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Chloroethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	120	10 U		10 U	10 U	10 U	10 U
Chloroform	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
2-Butanone	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Vinyl Acetate	ug/L							
Bromodichloromethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Trichloroethene	ug/L	47	10 U		10 U	10 U	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U		10 U	10 U	10 U	5 J
trans-1,3-Dichloropropene	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Styrene	ug/L	10 U	10 U		10 U	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U		10 U	10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW46	MW47	MW47RE	MW48	MW49D	MW50D	MW51D
WKST B	DATE	07/14/93	07/10/93	07/10/93	07/15/93	07/14/93	07/14/93	07/10/93
	ES ID	MW46	MW47	MW47RE	MW48	MW49D	MW50D	MW51D
	LAB ID	169023	188722	188722	169109	169025	169026	188723
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 / WKST B	MATRIX	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER
	LOCATION	MW46	MW47	MW47RE	MW48	MW49D	MW50D	MW51D
	DATE	07/14/93	07/10/93	07/10/93	07/15/93	07/14/93	07/14/93	07/10/93
	ES ID	MW46	MW47	MW47RE	MW48	MW49D	MW50D	MW51D
	LAB ID	169023	168722	168722	169109	169025	169026	168723
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl) ether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol	ug/L							
1,2-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	ug/L							
bis(2-Chloroethoxy) methane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Dimethylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acenaphthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitrophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Dibenzofuran	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Phenanthrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	ug/L	0.5 J	10 U	10 U	2 J	1 J	10	10 U
Fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	10 U	10 U	10 U	10 U	15 U	15 U
Di-n-octylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW46	MW47	MW47RE	MW48	MW49D	MW50D	MW51D
WKST B	DATE	07/14/93	07/10/93	07/10/93	07/15/93	07/14/93	07/14/93	07/10/93
	ES ID	MW46	MW47	MW47RE	MW48	MW49D	MW50D	MW51D
	LAB ID	189023	166722	166722	189109	189025	189026	166723
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	ug/L	0 05 U	0.026 JP		0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
Endrin	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	ug/L	0.5 U	0.52 U		0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
gamma-Chlordane	ug/L	0.05 U	0.052 U		0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	ug/L	5 U	5.2 U		5 U	5 U	5 U	5 U
Aroclor-1016	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
Aroclor-1221	ug/L	2 U	2.1 U		2 U	2 U	2 U	2 U
Aroclor-1232	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
Aroclor-1242	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
Aroclor-1248	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
Aroclor-1254	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
Aroclor-1260	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
HERBICIDES								
2,4-D	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
2,4-DB	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
2,4,5-T	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
Dalapon	ug/L	2.3 U	2.3 U		2.3 U	2.3 U	2.3 U	2.3 U
Dicamba	ug/L	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
Dichloroprop	ug/L	1 U	1 U		1 U	1 U	1 U	1 U
Dinoseb	ug/L	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U
MCPA	ug/L	100 U	100 U		100 U	100 U	100 U	100 U
MCPP	ug/L	100 U	100 U		100 U	100 U	100 U	100 U
METALS								
Aluminum	ug/L	55300	17900		22700 J	82.9 J	81.6 J	113 J
Antimony	ug/L	48.7 U	49.6 UJ		49.5 U	53.6 R	49.7 R	49.6 UJ
Arsenic	ug/L	3.1 J	1.7 J		3.9 J	1.4 U	1.4 U	1.4 UJ
Barium	ug/L	813	214		259	95 J	65.9 J	61.2 J
Beryllium	ug/L	2.5 J	0.89 U		1.8 J	0.9 U	0.89 U	0.9 U
Cadmium	ug/L	2.8 U	2.8 U		2.8 U	2.8 U	2.8 U	2.6 U
Calcium	ug/L	459000	153000		202000	86800	45900	103000
Chromium	ug/L	88.4	27.5 J		36.2 J	2.7 U	2.7 U	2.7 UJ
Cobalt	ug/L	36.7 J	11.2 J		27.8 J	5.5 U	5.5 U	5.5 U
Copper	ug/L	49.6	18 J		14.4 J	5 J	7 J	4.7 U
Iron	ug/L	85600 J	23400		34700 J	719 J	112 J	121
Lead	ug/L	23	8.3		22	0.59 U	0.6 U	0.59 U
Magnesium	ug/L	43600	18700		25800	20600	20800	15400
Manganese	ug/L	2770	614		1230	96.9	72.2	81.7
Mercury	ug/L	0.41 J	0.09 UJ		2.3	0.09 UJ	0.09 UJ	0.09 UJ
Nickel	ug/L	101	30 J		50 J	7.5 U	7.4 U	7.5 UJ
Potassium	ug/L	11600	4730 J		5520	2520 J	2600 J	774 J
Selenium	ug/L	2.9 J	1.5 UJ		10 UJ	1.5 U	1.5 U	1.5 UJ
Silver	ug/L	7.2 J	5.5 U		5.5 U	5.5 U	5.6 J	5.5 U
Sodium	ug/L	11700	11000		10400	12200	21100	12100
Thallium	ug/L	2.8 U	2.6 U		2.6 U	2.6 U	2.6 U	2.6 U
Vanadium	ug/L	61.9	27.3 J		29.4 J	6.8 U	6.7 U	6.8 UJ
Zinc	ug/L	240	59.2 R		149 J	22.3	23.4	14.4 R
Cyanide	ug/L	1.2 U	4.4 UJ		1.2 U	1.7 J	1.4 J	5.3 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW51DRE	MW52D	MW53	MW53 RE	MW54D	MW55D	MW56
WKST B	DATE	07/10/93	07/02/93	07/13/93	07/11/93	07/13/93	07/16/93	07/02/93
	ES ID	MW51DRE	MW52D	MW53	MW53 RE	MW54D	MW55D	MW56
	LAB ID	186723	186152	188802	188802R1	188803	189110	186153
COMPOUND	UNITS							
Chloromethane	ug/L		10 U	10 U		10 U	10 U	10 U
Bromomethane	ug/L		10 U	10 U		10 U	10 U	10 U
Vinyl Chloride	ug/L		10 U	10 U		10 U	10 U	10 U
Chloroethane	ug/L		10 U	10 U		10 U	10 U	10 U
Methylene Chloride	ug/L		10 U	10 U		10 U	10 U	10 U
Acetone	ug/L		10 U	10 U		10 U	10 U	10 U
Carbon Disulfide	ug/L		10 U	10 U		10 U	10 U	10 U
1,1-Dichloroethene	ug/L		10 U	10 U		10 U	10 U	10 U
1,1-Dichloroethane	ug/L		10 U	10 U		10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L		10 U	81		10 U	10 U	10 U
Chloroform	ug/L		10 U	10 U		10 U	10 U	10 U
1,2-Dichloroethane	ug/L		10 U	10 U		10 U	10 U	10 U
2-Butanone	ug/L		10 U	10 U		10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L		10 U	10 U		10 U	10 U	10 U
Carbon Tetrachloride	ug/L		10 U	10 U		10 U	10 U	10 U
Vinyl Acetate	ug/L							
Bromodichloromethane	ug/L		10 U	10 U		10 U	10 U	10 U
1,2-Dichloropropane	ug/L		10 U	10 U		10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L		10 U	10 U		10 U	10 U	10 U
Trichloroethene	ug/L		10 U	4 J		10 U	10 U	10 U
Dibromochloromethane	ug/L		10 U	10 U		10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L		10 U	10 U		10 U	10 U	10 U
Benzene	ug/L		10 U	10 U		10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L		10 U	10 U		10 U	10 U	10 U
Bromoform	ug/L		10 U	10 U		10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L		10 U	10 U		10 U	10 U	10 U
2-Hexanone	ug/L		10 U	10 U		10 U	10 U	10 U
Tetrachloroethene	ug/L		10 U	10 U		10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L		10 U	10 U		10 U	10 U	10 U
Toluene	ug/L		10 U	10 U		10 U	10 U	10 U
Chlorobenzene	ug/L		10 U	10 U		10 U	10 U	10 U
Ethylbenzene	ug/L		10 U	10 U		10 U	10 U	10 U
Styrene	ug/L		10 U	10 U		10 U	10 U	10 U
Xylene (total)	ug/L		10 U	10 U		10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW51DRE	MW52D	MW53	MW53 RE	MW54D	MW55D	MW56
WKST B	DATE	07/10/93	07/02/93	07/13/93	07/11/93	07/13/93	07/15/93	07/02/93
	ES ID	MW51DRE	MW52D	MW53	MW53 RE	MW54D	MW55D	MW56
	LAB ID	188723	188152	188802	188802R1	188803	189110	188153
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW51DRE	MW52D	MW53	MW53 RE	MW54D	MW55D	MW56
WKST B	DATE	07/10/93	07/02/93	07/13/93	07/11/93	07/13/93	07/15/93	07/02/93
	ES ID	MW51DRE	MW52D	MW53	MW53 RE	MW54D	MW55D	MW56
	LAB ID	186723	186152	186802	186802R1	186803	189110	186153
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
bis(2-Chloroethyl) ether	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2-Chlorophenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
1,3-Dichlorobenzene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
1,4-Dichlorobenzene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Benzyl Alcohol	ug/L							
1,2-Dichlorobenzene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2-Methylphenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
4-Methylphenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
N-Nitroso-di-n-propylamine	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Hexachloroethane	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Nitrobenzene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Isophorone	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2-Nitrophenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2,4-Dimethylphenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Benzoic acid	ug/L							
bis(2-Chloroethoxy) methane	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2,4-Dichlorophenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
1,2,4-Trichlorobenzene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Naphthalene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
4-Chloroaniline	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Hexachlorobutadiene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
4-Chloro-3-methylphenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2-Methylnaphthalene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Hexachlorocyclopentadiene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2,4,6-Trichlorophenol	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2,4,5-Trichlorophenol	ug/L	25 U	27 U	25 U		25 U	25 U	33 U
2-Chloronaphthalene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2-Nitroaniline	ug/L	25 U	27 U	25 U		25 U	25 U	33 U
Dimethylphthalate	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Acenaphthylene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2,6-Dinitrotoluene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
3-Nitroaniline	ug/L	25 U	27 U	25 U		25 U	25 U	33 U
Acenaphthene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2,4-Dinitrophenol	ug/L	25 U	27 U	25 U		25 U	25 U	33 U
4-Nitrophenol	ug/L	25 U	27 U	25 U		25 U	25 U	33 U
Dibenzofuran	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
2,4-Dinitrotoluene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Diethylphthalate	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
4-Chlorophenyl-phenylether	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Fluorene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
4-Nitroaniline	ug/L	25 U	27 U	25 U		25 U	25 U	33 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	27 U	25 U		25 U	25 U	33 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
4-Bromophenyl-phenylether	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Hexachlorobenzene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Pentachlorophenol	ug/L	25 U	27 U	25 U		25 U	25 U	33 U
Phenanthrene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Anthracene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Carbazole	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Di-n-butylphthalate	ug/L	10 U	9 J	1 J		1 J	9 J	13 U
Fluoranthene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Pyrene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Butylbenzylphthalate	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
3,3'-Dichlorobenzidine	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Benzo(a)anthracene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Chrysene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	17 U	10 U		10 U	13 U	78 U
Di-n-octylphthalate	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Benzo(b)fluoranthene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Benzo(k)fluoranthene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Benzo(a)pyrene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Dibenz(a,h)anthracene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U
Benzo(g,h,i)perylene	ug/L	10 U	11 U	10 U		10 U	10 U	13 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3
WKST B

COMPOUND	MATRIX / LOCATION / DATE / ES ID / LAB ID / UNITS	PHASE II WATER MW51DRE 07/10/93 MW51DRE 166723	PHASE II WATER MW52D 07/02/93 MW52D 166152	PHASE II WATER MW53 07/13/93 MW53 166602	PHASE II WATER MW53 RE 07/11/93 MW53 RE 166602R1	PHASE II WATER MW54D 07/13/93 MW54D 166603	PHASE II WATER MW55D 07/15/93 MW55D 169110	PHASE II WATER MW56 07/02/93 MW56 166153
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
beta-BHC	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
delta-BHC	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
gamma-BHC (Lindane)	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
Heptachlor	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
Aldrin	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
Heptachlor epoxide	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
Endosulfan I	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
Dieldrin	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
4,4'-DDE	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
Endrin	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
Endosulfan II	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
4,4'-DDD	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
Endosulfan sulfate	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
4,4'-DDT	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
Methoxychlor	ug/L		0.5 UJ	0.5 U		0.5 U	0.5 UJ	0.51 U
Endrin ketone	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
Endrin aldehyde	ug/L		0.1 UJ	0.1 U		0.1 U	0.1 UJ	0.1 U
alpha-Chlordane	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
gamma-Chlordane	ug/L		0.05 UJ	0.05 U		0.05 U	0.05 UJ	0.051 U
Toxaphene	ug/L		5 UJ	5 U		5 U	5 UJ	5.1 U
Aroclor-1016	ug/L		1 UJ	1 U		1 U	1 UJ	1 U
Aroclor-1221	ug/L		2 UJ	2 U		2 U	2 UJ	2 U
Aroclor-1232	ug/L		1 UJ	1 U		1 U	1 UJ	1 U
Aroclor-1242	ug/L		1 UJ	1 U		1 U	1 UJ	1 U
Aroclor-1248	ug/L		1 UJ	1 U		1 U	1 UJ	1 U
Aroclor-1254	ug/L		1 UJ	1 U		1 U	1 UJ	1 U
Aroclor-1260	ug/L		1 UJ	1 U		1 U	1 UJ	1 U
HERBICIDES								
2,4-D	ug/L		1 U	1 R	1 R	1 U	1 U	1 U
2,4-DB	ug/L		1 U	1 R	1 R	1 U	1 U	1 U
2,4,5-T	ug/L		0.1 U	0.1 R	0.1 R	0.1 U	0.1 U	0.1 U
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 R	0.1 R	0.1 U	0.1 U	0.1 U
Dalapon	ug/L		2.3 U	2.3 R	2.7 J	2.3 U	2.3 U	2.3 U
Dicamba	ug/L		0.1 U	0.1 R	0.1 R	0.1 U	0.1 U	0.1 U
Dichloroprop	ug/L		1 U	1 R	1 R	1 U	1 U	1 U
Dinoseb	ug/L		0.5 U	0.5 R	0.51 R	0.5 U	0.5 U	0.51 U
MCPA	ug/L		100 U	100 R	100 R	100 U	100 U	100 U
MCPP	ug/L		100 U	100 R	100 R	100 U	100 U	100 U
METALS								
Aluminum	ug/L		31200	47700		246	4140 J	226000
Antimony	ug/L		49.7 UJ	56.1 R		54.2 R	49.5 U	191 J
Arsenic	ug/L		2.8 J	5.3 J		1.4 U	1.9 U	1.4 UJ
Barium	ug/L		271	325		151 J	117 J	1460
Beryllium	ug/L		2.2 J	2.5 J		0.9 U	0.89 U	11.7
Cadmium	ug/L		2.8 U	2.6 U		2.8 U	2.8 U	2.8 U
Calcium	ug/L		23700 R	166000		64600	8580	267000
Chromium	ug/L		23.8 J	76.2		2.7 U	7.1 J	351 J
Cobalt	ug/L		8.3 J	54.5		5.5 U	5.4 U	201
Copper	ug/L		13.9 J	70.5		5.5 J	4.7 UJ	272
Iron	ug/L		24800	80900 J		507 J	5310 J	379000
Lead	ug/L		14	25.8		0.59 U	1.3 J	44.3
Magnesium	ug/L		11700	34400		20700	2950 J	100000
Manganese	ug/L		340	2930		145	86.2	10600
Mercury	ug/L		0.09 UJ	0.09 UJ		0.09 UJ	0.09 U	0.13 J
Nickel	ug/L		33.4 J	107		7.5 U	7.4 UJ	533 J
Potassium	ug/L		5020	9260		2910 J	2670 J	24800
Selenium	ug/L		1.5 UJ	1.5 U		1.5 U	1 UJ	1.5 UJ
Silver	ug/L		5.5 U	5.5 U		5.5 U	5.4 U	5.4 U
Sodium	ug/L		126000	33000		29500	114000	19500
Thallium	ug/L		2.6 U	2.6 U		2.6 U	2.6 U	2.6 U
Vanadium	ug/L		26.1 J	71.2		6.8 U	6.7 UJ	317 J
Zinc	ug/L		111	264		8 J	57.9 R	1100
Cyanide	ug/L		10 UJ	1.6 J		2.1 J	1.2 U	10 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER
SUMGW.WK3	LOCATION	MW57D	MW58D	MW60	MW62	MW64	MW66	MW68
WKST B	DATE	07/02/93	07/10/93	07/13/93	07/10/93	07/15/93	07/14/93	07/10/93
	ES ID	MW57D	MW58D	MW60	MW62	MW64	MW66	MW68
	LAB ID	188154	188724	188804	188726	189111	189027	188727
COMPOUND	UNITS							
Chloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	10 U	23000	10 U	10 U
Chloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	10 U	170	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	150	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	47	80	74000	120	10 U
Chloroform	ug/L	10 U	10 U	10 U	10 U	5 J	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	72	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate	ug/L							
Bromodichloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	200	5 J	37000	46	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U	10 U	10 U	150	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U	77	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	10 U	2 J	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U	10 U	10 U	900 J	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	10 U	100	10 U	10 U
Styrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	10 U	540	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW57D	MW56D	MW60	MW62	MW64	MW66	MW68
WKST B	DATE	07/02/93	07/10/93	07/13/93	07/10/93	07/15/93	07/14/93	07/10/93
	ES ID	MW57D	MW56D	MW60	MW62	MW64	MW66	MW68
	LAB ID	188154	188724	188804	188726	189111	189027	188727
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST B	MATRIX LOCATION DATE ES ID LAB ID UNITS	PHASE II WATER MW57D 07/02/93 MW57D 166154	PHASE II WATER MW58D 07/10/93 MW58D 166724	PHASE II WATER MW60 07/13/93 MW60 166804	PHASE II WATER MW62 07/10/93 MW62 166726	PHASE II WATER MW64 07/15/93 MW64 169111	PHASE II WATER MW66 07/14/93 MW66 169027	PHASE II WATER MW68 07/10/93 MW68 166727
COMPOUND								
SEMIVOLATILES								
Phenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl) ether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol	ug/L							
1,2-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	ug/L	10 U	10 U	10 U	10 U	6 J	10 U	10 U
N-Nitroso-di-n-propylamine	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	ug/L							
bis(2-Chloroethoxy) methane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	ug/L	10 U	10 U	10 U	10 U	65 J	10 U	10 U
4-Chloroaniline	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	ug/L	10 U	10 U	10 U	10 U	13 J	10 U	10 U
Hexachlorocyclopentadiene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Dimethylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acenaphthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitrophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Dibenzofuran	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	ug/L	10 U	10 U	10 U	10 U	2 J	10 U	10 U
4-Chlorophenyl-phenylether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	ug/L	25 U	25 U	25 U	25 U	74 J	25 U	25 U
Phenanthrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	ug/L	10 U	10 U	2 J	10 U	2 J	0.6 J	9 J
Fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	ug/L	44 U	10 U	10 U	12 U	10 U	10 U	10 U
Di-n-octylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 / WKST B	MATRIX	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER
	LOCATION	MW57D	MW58D	MW60	MW62	MW64	MW66	MW68
	DATE	07/02/93	07/10/93	07/13/93	07/10/93	07/15/93	07/14/93	07/10/93
	ES ID	MW57D	MW58D	MW60	MW62	MW64	MW66	MW68
	LAB ID	188154	188724	188804	188726	189111	189027	188727
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
beta-BHC	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
delta-BHC	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
gamma-BHC (Lindane)	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
Heptachlor	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
Aldrin	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
Heptachlor epoxide	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
Endosulfan I	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
Dieldrin	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
4,4'-DDE	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
Endrin	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
Endosulfan II	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
4,4'-DDD	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
Endosulfan sulfate	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
4,4'-DDT	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
Methoxychlor	ug/L	0.52 UJ	0.5 UJ	0.5 U	0.5 U	0.55 U	0.52 U	0.5 UJ
Endrin ketone	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
Endrin aldehyde	ug/L	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ
alpha-Chlordane	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
gamma-Chlordane	ug/L	0.052 UJ	0.05 UJ	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ
Toxaphene	ug/L	5.2 UJ	5 UJ	5 U	5 U	5.5 U	5.2 U	5 UJ
Aroclor-1016	ug/L	1 UJ	1 UJ	1 U	1 U	1.1 U	1 U	1 UJ
Aroclor-1221	ug/L	2.1 UJ	2 UJ	2 U	2 U	2.2 U	2.1 U	2 UJ
Aroclor-1232	ug/L	1 UJ	1 UJ	1 U	1 U	1.1 U	1 U	1 UJ
Aroclor-1242	ug/L	1 UJ	1 UJ	1 U	1 U	1.1 U	1 U	1 UJ
Aroclor-1248	ug/L	1 UJ	1 UJ	1 U	1 U	1.1 U	1 U	1 UJ
Aroclor-1254	ug/L	1 UJ	1 UJ	1 U	1 U	1.1 U	1 U	1 UJ
Aroclor-1260	ug/L	1 UJ	1 UJ	1 U	1 U	1.1 U	1 U	1 UJ
HERBICIDES								
2,4-D	ug/L	1 U	1 U	1 U	1 U	1.2 U	1 U	1 U
2,4-DB	ug/L	1 U	1 U	1 U	1 U	1.2 U	1 U	1 U
2,4,5-T	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.12 U	0.1 U	0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.12 U	0.1 U	0.1 U
Dalapon	ug/L	2.3 U	2.3 U	2.3 U	2.3 U	2.7 U	2.3 U	2.3 U
Dicamba	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.18	0.1 U	0.1 U
Dichloroprop	ug/L	1 U	1 U	1 U	1 U	1.2 U	1 U	1 U
Dinoseb	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.58 U	0.5 U	0.5 U
MCPA	ug/L	100 U	100 U	100 U	100 U	120 U	100 U	100 U
MCPP	ug/L	100 U	100 U	100 U	100 U	120 U	100 U	100 U
METALS								
Aluminum	ug/L	18500	40100	54.7 J	142 J	45600 J	91200	76500
Antimony	ug/L	49.6 UJ	49.6 UJ	77.2 R	50 UJ	77.7	84.6 R	50 UJ
Arsenic	ug/L	2.8 J	3.3 J	1.4 U	1.4 UJ	8.3 J	2.3 J	4.3 J
Barium	ug/L	617	705	54.2 J	46.8 J	406	1190	1060
Beryllium	ug/L	1.2 J	3.5 J	0.89 U	0.9 U	2.4 J	4 J	5.4
Cadmium	ug/L	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
Calcium	ug/L	61800	71400	116000	113000	385000	481000	75100
Chromium	ug/L	32.2 J	59.2 J	2.7 U	2.7 UJ	77.8 J	143	111 J
Cobalt	ug/L	11.3 J	19.8 J	5.5 U	5.5 U	40.3 J	57.4	36.7 J
Copper	ug/L	18.1 J	32.3	5.8 J	4.7 U	49.2 J	75.4	53.2
Iron	ug/L	31000	50200	93.5 J	162	75700 J	141000 J	91100
Lead	ug/L	6.7	13.5	0.6 U	0.6 U	132	20.1	16.3
Magnesium	ug/L	12300	19100	11400	12700	54700	57800	31300
Manganese	ug/L	791	1100	6.4 J	32.3	7560	3290	1410
Mercury	ug/L	0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ	0.18 J	0.25 J	0.09 UJ
Nickel	ug/L	37.3 J	65.8 J	7.4 U	7.5 UJ	99 J	169	118 J
Potassium	ug/L	4830 J	11200	1560 J	1260 J	11600	16400	21700
Selenium	ug/L	1.5 UJ	1.5 UJ	1.5 U	1.5 UJ	9.9 UJ	1.5 U	1.5 UJ
Silver	ug/L	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
Sodium	ug/L	148000	147000	26600	14800	38400	11900	149000
Thallium	ug/L	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
Vanadium	ug/L	28.8 J	67.1 J	6.8 U	6.8 UJ	84.6 J	126	123 J
Zinc	ug/L	67.2	122	3.1 J	7.2 R	257 J	383	186
Cyanide	ug/L	10 UJ	3.6 UJ	4 J	1.2 UJ	3.4 J	1.2 U	3.5 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST B		PHASE II
	MATRIX	WATER
	LOCATION	MW66RE
	DATE	07/10/93
	ES ID	MW66RE
	LAB ID	166727
COMPOUND	UNITS	
Chloromethane	ug/L	
Bromomethane	ug/L	
Vinyl Chloride	ug/L	
Chloroethane	ug/L	
Methylene Chloride	ug/L	
Acetone	ug/L	
Carbon Disulfide	ug/L	
1,1-Dichloroethene	ug/L	
1,1-Dichloroethane	ug/L	
1,2-Dichloroethene (total)	ug/L	
Chloroform	ug/L	
1,2-Dichloroethane	ug/L	
2-Butanone	ug/L	
1,1,1-Trichloroethane	ug/L	
Carbon Tetrachloride	ug/L	
Vinyl Acetate	ug/L	
Bromodichloromethane	ug/L	
1,2-Dichloropropane	ug/L	
cis-1,3-Dichloropropene	ug/L	
Trichloroethene	ug/L	
Dibromochloromethane	ug/L	
1,1,2-Trichloroethane	ug/L	
Benzene	ug/L	
trans-1,3-Dichloropropene	ug/L	
Bromoform	ug/L	
4-Methyl-2-Pentanone	ug/L	
2-Hexanone	ug/L	
Tetrachloroethene	ug/L	
1,1,2,2-Tetrachloroethane	ug/L	
Toluene	ug/L	
Chlorobenzene	ug/L	
Ethylbenzene	ug/L	
Styrene	ug/L	
Xylene (total)	ug/L	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST B	MATRIX	PHASE II WATER
	LOCATION	MW66RE
	DATE	07/10/93
	ES ID	MW66RE
	LAB ID	166727
COMPOUND	UNITS	
VOC's (524.2)		
Dichlorodifluoromethane	ug/L	
Chloromethane	ug/L	
Vinyl Chloride	ug/L	
Bromomethane	ug/L	
Chloroethane	ug/L	
Trichlorofluoromethane	ug/L	
1,1-Dichloroethene	ug/L	
Acetone	ug/L	
Carbon Disulfide	ug/L	
Methylene Chloride	ug/L	
trans-1,2-Dichloroethene	ug/L	
1,1-Dichloroethane	ug/L	
2,2-Dichloropropane	ug/L	
cis-1,2-Dichloroethene	ug/L	
2-Butanone	ug/L	
Bromochloromethane	ug/L	
Chloroform	ug/L	
1,1,1-Trichloroethane	ug/L	
Carbon Tetrachloride	ug/L	
1,1-Dichloropropene	ug/L	
Benzene	ug/L	
1,2-Dichloroethane	ug/L	
Trichloroethene	ug/L	
1,2-Dichloropropane	ug/L	
Dibromomethane	ug/L	
Bromodichloromethane	ug/L	
cis-1,3-Dichloropropene	ug/L	
4-Methyl-2-Pentanone	ug/L	
Toluene	ug/L	
trans-1,3-Dichloropropene	ug/L	
1,1,2-Trichloroethane	ug/L	
Tetrachloroethene	ug/L	
1,3-Dichloropropane	ug/L	
2-Hexanone	ug/L	
Dibromochloromethane	ug/L	
1,2-Dibromoethane	ug/L	
Chlorobenzene	ug/L	
1,1,1,2-Tetrachloroethane	ug/L	
Ethylbenzene	ug/L	
Styrene	ug/L	
Bromoform	ug/L	
Isopropylbenzene	ug/L	
Bromobenzene	ug/L	
1,1,2,2-Tetrachloroethane	ug/L	
1,2,3-Trichloropropane	ug/L	
n-Propylbenzene	ug/L	
2-Chlorotoluene	ug/L	
4-Chlorotoluene	ug/L	
1,3,5-Trimethylbenzene	ug/L	
tert-Butylbenzene	ug/L	
1,2,4-Trimethylbenzene	ug/L	
sec-Butylbenzene	ug/L	
1,3-Dichlorobenzene	ug/L	
1,4-Dichlorobenzene	ug/L	
p-Isopropyltoluene	ug/L	
1,2-Dichlorobenzene	ug/L	
n-Butylbenzene	ug/L	
1,2-Dibromo-3-Chloropropane	ug/L	
1,2,4-Trichlorobenzene	ug/L	
Hexachlorobutadiene	ug/L	
Naphthalene	ug/L	
1,2,3-Trichlorobenzene	ug/L	
Xylene (total)	ug/L	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER
WKST 8	LOCATION	MW66RE
	DATE	07/10/93
	ES ID	MW66RE
	LAB ID	166727
COMPOUND	UNITS	
SEMIVOLATILES		
Phenol	ug/L	10 U
bis(2-Chloroethyl) ether	ug/L	10 U
2-Chlorophenol	ug/L	10 U
1,3-Dichlorobenzene	ug/L	10 U
1,4-Dichlorobenzene	ug/L	10 U
Benzyl Alcohol	ug/L	
1,2-Dichlorobenzene	ug/L	10 U
2-Methylphenol	ug/L	10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U
4-Methylphenol	ug/L	10 U
N-Nitroso-di-n-propylamine	ug/L	10 U
Hexachloroethane	ug/L	10 U
Nitrobenzene	ug/L	10 U
Isophorone	ug/L	10 U
2-Nitrophenol	ug/L	10 U
2,4-Dimethylphenol	ug/L	10 U
Benzoic acid	ug/L	
bis(2-Chloroethoxy) methane	ug/L	10 U
2,4-Dichlorophenol	ug/L	10 U
1,2,4-Trichlorobenzene	ug/L	10 U
Naphthalene	ug/L	10 U
4-Chloroaniline	ug/L	10 U
Hexachlorobutadiene	ug/L	10 U
4-Chloro-3-methylphenol	ug/L	10 U
2-Methylnaphthalene	ug/L	10 U
Hexachlorocyclopentadiene	ug/L	10 U
2,4,6-Trichlorophenol	ug/L	10 U
2,4,5-Trichlorophenol	ug/L	25 U
2-Chloronaphthalene	ug/L	10 U
2-Nitroaniline	ug/L	25 U
Dimethylphthalate	ug/L	10 U
Acenaphthylene	ug/L	10 U
2,6-Dinitrotoluene	ug/L	10 U
3-Nitroaniline	ug/L	25 U
Acenaphthene	ug/L	10 U
2,4-Dinitrophenol	ug/L	25 U
4-Nitrophenol	ug/L	25 U
Dibenzofuran	ug/L	10 U
2,4-Dinitrotoluene	ug/L	10 U
Diethylphthalate	ug/L	10 U
4-Chlorophenyl-phenylether	ug/L	10 U
Fluorene	ug/L	10 U
4-Nitroaniline	ug/L	25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U
4-Bromophenyl-phenylether	ug/L	10 U
Hexachlorobenzene	ug/L	10 U
Pentachlorophenol	ug/L	25 U
Phenanthrene	ug/L	10 U
Anthracene	ug/L	10 U
Carbazole	ug/L	10 U
Di-n-butylphthalate	ug/L	10 U
Fluoranthene	ug/L	10 U
Pyrene	ug/L	10 U
Butylbenzylphthalate	ug/L	10 U
3,3'-Dichlorobenzidine	ug/L	10 U
Benzo(a)anthracene	ug/L	10 U
Chrysene	ug/L	10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U
Di-n-octylphthalate	ug/L	10 U
Benzo(b)fluoranthene	ug/L	10 U
Benzo(k)fluoranthene	ug/L	10 U
Benzo(a)pyrene	ug/L	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U
Dibenz(a,h)anthracene	ug/L	10 U
Benzo(g,h,i)perylene	ug/L	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3 WKST B		PHASE II
	MATRIX	WATER
	LOCATION	MW66RE
	DATE	07/10/93
	ES ID	MW66RE
	LAB ID	166727
COMPOUND	UNITS	
PESTICIDES/PCBS		
alpha-BHC	ug/L	
beta-BHC	ug/L	
delta-BHC	ug/L	
gamma-BHC (Lindane)	ug/L	
Heptachlor	ug/L	
Aldrin	ug/L	
Heptachlor epoxide	ug/L	
Endosulfan I	ug/L	
Dieldrin	ug/L	
4,4'-DDE	ug/L	
Endrin	ug/L	
Endosulfan II	ug/L	
4,4'-DDD	ug/L	
Endosulfan sulfate	ug/L	
4,4'-DDT	ug/L	
Methoxychlor	ug/L	
Endrin ketone	ug/L	
Endrin aldehyde	ug/L	
alpha-Chlordane	ug/L	
gamma-Chlordane	ug/L	
Toxaphene	ug/L	
Aroclor-1016	ug/L	
Aroclor-1221	ug/L	
Aroclor-1232	ug/L	
Aroclor-1242	ug/L	
Aroclor-1248	ug/L	
Aroclor-1254	ug/L	
Aroclor-1260	ug/L	
HERBICIDES		
2,4-D	ug/L	
2,4-DB	ug/L	
2,4,5-T	ug/L	
2,4,5-TP (Silvex)	ug/L	
Dalapon	ug/L	
Dicamba	ug/L	
Dichloroprop	ug/L	
Dinoseb	ug/L	
MCPA	ug/L	
MCPP	ug/L	
METALS		
Aluminum	ug/L	
Antimony	ug/L	
Arsenic	ug/L	
Barium	ug/L	
Beryllium	ug/L	
Cadmium	ug/L	
Calcium	ug/L	
Chromium	ug/L	
Cobalt	ug/L	
Copper	ug/L	
Iron	ug/L	
Lead	ug/L	
Magnesium	ug/L	
Manganese	ug/L	
Mercury	ug/L	
Nickel	ug/L	
Potassium	ug/L	
Selenium	ug/L	
Silver	ug/L	
Sodium	ug/L	
Thallium	ug/L	
Vanadium	ug/L	
Zinc	ug/L	
Cyanide	ug/L	

SURFACE WATER AND SEDIMENT

SENECA ARMY DEPOT, ASH LANDFILL
SURFACE WATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SW-100	SW-100	SW-300	SW-400	SW-800	SW-800	SW-800	SW-800	ASH	ASH	ASH
	DEPTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
	DATE	12/10/91	12/10/91	11/15/91	11/15/91	11/16/91	11/16/91	11/16/91	11/16/91	12/09/92	12/09/92	12/09/92
	MAIN ID	W1012119(3)	W1012119RE(4)	W1511-79	W1511-80	W1611-83	W1611-84(1)	W1911-83A(2)	W1911-84A(1)	SW-WD	SW-WE	RBSDSW-2
	LAB ID	150730	150730	149120	149121	149236	149237	149454	149455	175889	175890	175888
	UNITS											
Chloromethane	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Bromomethane	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Chloroethane	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Methylene Chloride	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Acetone	ug/L	10 U		10 U	17 U	12 U	10 U			10 U	10 U	10 U
Carbon Disulfide	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
1,1-Dichloroethene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
1,1-Dichloroethane	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Chloroform	ug/L	5 U		5 U	2 J	5 U	5 U			10 U	10 U	10 U
1,2-Dichloroethane	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
2-Butanone	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Carbon Tetrachloride	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Vinyl Acetate	ug/L	10 U		10 U	10 U	10 U	10 U					
Bromodichloromethane	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
1,2-Dichloropropane	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Trichloroethene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Dibromochloromethane	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Benzene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Bromoform	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2-Hexanone	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Tetrachloroethene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Toluene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Chlorobenzene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Ethylbenzene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Styrene	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U
Xylene (total)	ug/L	5 U		5 U	5 U	5 U	5 U			10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
SURFACE WATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX LOCATION DEPTH DATE MAIN ID LAB ID UNITS	WATER SW-100 N/A 12/10/91 W1012119(3) 150730	WATER SW-100 N/A 12/10/91 W1012119RE(4) 150730	WATER SW-300 N/A 11/15/91 W1511-79 149120	WATER SW-400 N/A 11/15/91 W1511-80 149121	WATER SW-600 N/A 11/16/91 W1611-83 149236	WATER SW-600 N/A 11/16/91 W1611-84(1) 149237	WATER SW-800 N/A 11/16/91 W1911-83A(2) 149454	WATER SW-800 N/A 11/16/91 W1911-84A(1) 149455	WATER ASH 12/09/92 SW-WD 175889	WATER ASH 12/09/92 SW-WE 175890	WATER ASH 12/09/92 RBSDSW-2 175888
Semivolatiles												
Phenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
bis(2-Chloroethyl) ether	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2-Chlorophenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
1,3-Dichlorobenzene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Benzyl Alcohol	ug/L	10 U		10 U	10 U	10 U	10 U					
1,2-Dichlorobenzene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2-Methylphenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
4-Methylphenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
N-Nitroso-di-n-propylamine	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Hexachloroethane	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Nitrobenzene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Isophorone	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2-Nitrophenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Benzoic acid	ug/L	50 U		51 U	50 U	50 U	50 U					
bis(2-Chloroethoxy) methane	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2,4-Dichlorophenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
1,2,4-Trichlorobenzene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Naphthalene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
4-Chloroaniline	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Hexachlorobutadiene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
4-Chloro-3-methylphenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2-Methylnaphthalene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Hexachlorocyclopentadiene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2,4,6-Trichlorophenol	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2,4,5-Trichlorophenol	ug/L	50 U		51 U	50 U	50 U	50 U			25 U	25 U	25 U
2-Chloronaphthalene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2-Nitroaniline	ug/L	50 U		51 U	50 U	50 U	50 U			25 U	25 U	25 U
Dimethylphthalate	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Acenaphthylene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2,6-Dinitrotoluene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
3-Nitroaniline	ug/L	50 U		51 U	50 U	50 U	50 U			25 U	25 U	25 U
Acenaphthene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2,4-Dinitrophenol	ug/L	50 U		51 U	50 U	50 U	50 U			25 U	25 U	25 U
4-Nitrophenol	ug/L	50 U		51 U	50 U	50 U	50 U			25 U	25 U	25 U
Dibenzofuran	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
2,4-Dinitrotoluene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Diethylphthalate	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
4-Chlorophenyl-phenylether	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Fluorene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
4-Nitroaniline	ug/L	50 U		51 U	50 U	50 U	50 U			25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	ug/L	50 U		51 U	50 U	50 U	50 U			25 U	25 U	25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
4-Bromophenyl-phenylether	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Hexachlorobenzene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Pentachlorophenol	ug/L	50 U		51 U	50 U	50 U	50 U			25 U	25 U	25 U
Phenanthrene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Anthracene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Carbazole										10 U	10 U	10 U
Di-n-butylphthalate	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	0.3 J
Fluoranthene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Pyrene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Butylbenzylphthalate	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
3,3'-Dichlorobenzidine	ug/L	20 U		21 U	20 U	20 U	20 U			10 U	10 U	10 U
Benzo(a)anthracene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Chrysene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Di-n-octylphthalate	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Benzo(b)fluoranthene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Benzo(k)fluoranthene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Benzo(a)pyrene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Dibenz(a,h)anthracene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U
Benzo(g,h,i)perylene	ug/L	10 U		10 U	10 U	10 U	10 U			10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
SURFACE WATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SW-100	SW-100	SW-300	SW-400	SW-800	SW-800	SW-800	SW-800	ASH	ASH	ASH
	DEPTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
	DATE	12/10/91	12/10/91	11/15/91	11/15/91	11/16/91	11/16/91	11/16/91	11/16/91	12/09/92	12/09/92	12/09/92
	MAIN ID	W1012119(3)	W1012119RE(4)	W1511-79	W1511-80	W1611-83	W1611-84(1)	W1911-83A(2)	W1911-84A(1)	SW-WD	SW-WE	RBSDSW-:
	LAB ID	150730	150730	149120	149121	149236	149237	149454	149455	175889	175890	175888
	UNITS											
Pesticides/PCBs												
alpha-BHC	ug/L	0.05 U	0.05 U J	0.05 U	0.05 U	0.05 U	0.05 U			0.064 U	0.054 UJ	0.056 U
beta-BHC	ug/L	0.05 U	0.05 U J	0.05 U	0.05 U	0.05 U	0.05 U			0.064 U	0.054 UJ	0.056 U
delta-BHC	ug/L	0.05 U	0.05 U J	0.05 U	0.05 U	0.05 U	0.05 U			0.064 U	0.054 UJ	0.056 U
gamma-BHC (Lindane)	ug/L	0.05 U	0.05 U J	0.05 U	0.05 U	0.05 U	0.05 U			0.064 U	0.054 UJ	0.056 U
Heptachlor	ug/L	0.05 U	0.05 U J	0.05 U	0.05 U	0.05 U	0.05 U			0.064 U	0.054 UJ	0.056 U
Aldrin	ug/L	0.05 U	0.05 U J	0.05 U	0.05 U	0.05 U	0.05 U			0.064 U	0.054 UJ	0.056 U
Heptachlor epoxide	ug/L	0.05 U	0.05 U J	0.05 U	0.05 U	0.05 U	0.05 U			0.064 U	0.054 UJ	0.056 U
Endosulfan I	ug/L	0.05 U	0.05 U J	0.05 U	0.05 U	0.05 U	0.05 U			0.064 U	0.054 UJ	0.056 U
Dieldrin	ug/L	0.1 U	0.1 U J	0.1 U	0.099 U	0.1 U	0.1 U			0.13 U	0.11 UJ	0.11 U
4,4'-DDE	ug/L	0.1 U	0.1 U J	0.1 U	0.099 U	0.1 U	0.1 U			0.13 U	0.11 UJ	0.11 U
Endrin	ug/L	0.1 U	0.1 U J	0.1 U	0.099 U	0.1 U	0.1 U			0.13 U	0.11 UJ	0.11 U
Endosulfan II	ug/L	0.1 U	0.1 U J	0.1 U	0.099 U	0.1 U	0.1 U			0.13 U	0.11 UJ	0.11 U
4,4'-DDD	ug/L	0.1 U	0.1 U J	0.1 U	0.099 U	0.1 U	0.1 U			0.13 U	0.11 UJ	0.11 U
Endosulfan sulfate	ug/L	0.1 U	0.1 U J	0.1 U	0.099 U	0.1 U	0.1 U			0.13 U	0.11 UJ	0.11 U
4,4'-DDT	ug/L	0.1 U	0.1 U J	0.1 U	0.099 U	0.1 U	0.1 U			0.13 U	0.11 UJ	0.11 U
Methoxychlor	ug/L	0.5 U	0.5 U J	0.5 U	0.5 U	0.5 U	0.5 U			0.64 U	0.54 UJ	0.56 U
Endrin ketone	ug/L	0.1 U	0.1 U J	0.1 U	0.099 U	0.1 U	0.1 U			0.13 U	0.11 UJ	0.11 U
Endrin Aldehyde										0.13 U	0.11 UJ	0.11 U
alpha-Chlordane	ug/L	0.5 U	0.5 U J	0.5 U	0.5 U	0.5 U	0.5 U			0.064 U	0.054 UJ	0.056 U
gamma-Chlordane	ug/L	0.5 U	0.5 U J	0.5 U	0.5 U	0.5 U	0.5 U			0.064 U	0.054 UJ	0.056 U
Toxaphene	ug/L	1 U	1 U J	1 U	0.99 U	1 U	1 U			6.4 U	5.4 UJ	5.6 U
Aroclor-1016	ug/L	0.5 U	0.5 U J	0.5 U	0.5 U	0.5 U	0.5 U			1.3 U	1.1 UJ	1.1 U
Aroclor-1221	ug/L	0.5 U	0.5 U J	0.5 U	0.5 U	0.5 U	0.5 U			2.5 U	2.2 UJ	2.2 U
Aroclor-1232	ug/L	0.5 U	0.5 U J	0.5 U	0.5 U	0.5 U	0.5 U			1.3 U	1.1 UJ	1.1 U
Aroclor-1242	ug/L	0.5 U	0.5 U J	0.5 U	0.5 U	0.5 U	0.5 U			1.3 U	1.1 UJ	1.1 U
Aroclor-1248	ug/L	0.5 U	0.5 U J	0.5 U	0.5 U	0.5 U	0.5 U			1.3 U	1.1 UJ	1.1 U
Aroclor-1254	ug/L	1 U	1 U J	1 U	0.99 U	1 U	1 U			1.3 U	1.1 UJ	1.1 U
Aroclor-1260	ug/L	1 U	1 U J	1 U	0.99 U	1 U	1 U			1.3 U	1.1 UJ	1.1 U
Herbicides												
2,4-D	ug/L	1 U		1 U J	1 U J	1 U J	1 U J			1.2 U	1.3 U	1.1 U
2,4-DB	ug/L	1 U		1 U J	1 U J	1 U J	1 U J			1.2 U	1.3 U	1.1 U
2,4,5-T	ug/L	0.1 U		0.1 U J	0.1 U J	0.1 U J	0.1 U J			0.12 U	0.13 U	0.11 U
2,4,5-TP (Silvex)	ug/L	0.1 U		0.1 U J	0.1 U J	0.1 U J	0.1 U J			0.12 U	0.13 U	0.11 U
Dalapon	ug/L	2.3 U		2.4 U J	2.3 U J	2.3 U J	2.4 U J			2.8 U	3 U	2.5 U
Dicamba	ug/L	0.1 U		0.1 U J	0.1 U J	0.1 U J	0.1 U J			0.12 U	0.13 U	0.11 U
Dichloroprop	ug/L	1 U		1 U J	1 U J	1 U J	1 U J			1.2 U	1.3 U	1.1 U
Dinoseb	ug/L	0.5 U		0.5 U J	0.5 U J	0.5 U J	0.5 U J			0.6 U	0.64 U	0.55 U
MCPA	ug/L	100 U		100 U J	99 U J	100 U J	100 U J			120 U	130 U	110 U
MCPP	ug/L	100 U		100 U J	99 U J	100 U J	100 U J			120 U	130 U	110 U
Metals												
Aluminum	ug/l	203 J		2410 J	97.8 U J	97.6 U J	97.4 U J	-	-	599	2370	62.8 U
Antimony	ug/l	53.2 U J		141 J	55.7 U J	55.6 U J	55.5 U J	-	-	54 U	53.9 U	54.1 U
Arsenic	ug/l	2.9 U J		3.7 U J	3.7 U J	3.7 U J	3.7 U J	-	-	2.9 J	1.3 J	1.2 U
Barium	ug/l	35.4 J		84.8 J	24.9 J	44.6 J	46.9 J	-	-	66.2 J	113 J	12 U
Beryllium	ug/l	1.2 J		1.2 U J	1.2 U J	1.2 U J	1.2 U J	-	-	0.3 U	0.3 U	0.3 U
Cadmium	ug/l	3 U J		2.9 U J	2.9 U J	2.9 U J	2.9 U J	-	-	3.1 U	3.1 U	3.1 U
Calcium	ug/l	104000 J		125000 J	45800 J	71700 J	73400 J	-	-	99300	165000	204 U
Chromium	ug/l	6.2 U J		7.6 J	6.2 U J	6.2 J	6.1 U J	-	-	2 U	4.3 J	2 U
Cobalt	ug/l	20.4 U J		19.9 U J	19.9 U J	19.9 U J	19.8 U J	-	-	5 U	6.9 J	5 U
Copper	ug/l	15.7 J		14.5 U J	14.4 U J	14.4 U J	14.4 U J	-	-	4.7 R	21.7 J	3.4 J
Iron	ug/l	218 J		2060 J	17 U J	17 U J	16.9 U J	-	-	8750	3080	21.9 U
Lead	ug/l	1.2 U J		14.4 R	0.7 U J	0.7 U J	0.7 U J	-	-	4.5	42.3	0.9 U
Magnesium	ug/l	13200 J		11800 J	353 U J	9950 J	9960 J	-	-	12800	16700	264 U
Manganese	ug/l	6.3 J		488 J	3.2 U J	3.2 U J	3.2 U J	-	-	941	860	0.7 U
Mercury	ug/l	0.08 U J		0.08 U J	0.08 U J	0.08 U J	0.08 U J	-	-	0.08 U	0.15 J	0.08 U
Nickel	ug/l	14.7 U J		16 U J	15.9 U J	15.9 U J	15.9 U J	-	-	3.5 U	11.2 J	3.5 U
Potassium	ug/l	828 J		3850 J	4690 J	1830 J	1650 J	-	-	751 J	1740 J	446 U
Selenium	ug/l	1 U J		1.7 U J	1.7 U J	1.7 U J	1.7 U J	-	-	1.1 J	3.4 J	1.1 U
Silver	ug/l	3.4 U J		9.1 U J	9.1 U J	9 U J	9 U J	-	-	3.2 U	3.2 U	3.2 U
Sodium	ug/l	9470 J		19400 J	2180000 J	83400 J	84200 J	-	-	8200	13200	299 U
Thallium	ug/l	2.8 U J		2.8 U J	28 U J	2.8 U J	2.8 U J	-	-	2.6 U	2.6 U	2.6 U
Vanadium	ug/l	16.3 J		30.5 U J	30.5 U J	30.4 U J	30.3 U J	-	-	2.1 U	5.2 J	2.1 U
Zinc	ug/l	26.6 U J		187 J	16.6 U J	13.4 U J	19.6 U J	-	-	36.9 R	133	9.4 J
Cyanide	ug/l	10 U J		10 U J	10 U J	-	-	10 U J	10 U J	10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SW-100	SW-100	SW-100	SW-200	SW-300	SW-400	SW-600	SW-600
	DEPTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	DATE	11/15/91	11/15/91	12/10/91	11/15/91	11/15/91	11/15/91	11/16/91	11/16/91
	MAIN ID	S1511-78	S1611-83	S1012119	S1511-77	S1511-79	S1511-80	S1611-85	S1611-86(1)
	LAB ID	149231	149232	150727	149115	149116	149117	149233	149234
	UNITS								
VOCs									
Chloromethane	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
Bromomethane	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
Vinyl Chloride	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
Chloroethane	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
Methylene Chloride	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Acetone	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
Carbon Disulfide	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
1,1-Dichloroethene	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
1,1-Dichloroethane	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
1,2-Dichloroethene (total)	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Chloroform	ug/Kg	8 U	6 U	10 U	8 U	9 U	6 J	7 U	7 U
1,2-Dichloroethane	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
2-Butanone	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
1,1,1-Trichloroethane	ug/Kg	6 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Carbon Tetrachloride	ug/Kg	6 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Vinyl Acetate	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
Bromodichloromethane	ug/Kg	6 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
1,2-Dichloropropane	ug/Kg	8 U	8 U	10 U	8 U	9 U	11 U	7 U	7 U
cis-1,3-Dichloropropene	ug/Kg	8 U	8 U	10 U	8 U	9 U	11 U	7 U	7 U
Trichloroethene	ug/Kg	6 U	8 U	10 U	8 U	9 U	11 U	7 U	7 U
Dibromochloromethane	ug/Kg	8 U	6 U	10 U	6 U	9 U	11 U	7 U	7 U
1,1,2-Trichloroethane	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Benzene	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
trans-1,3-Dichloropropene	ug/Kg	6 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Bromoform	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
4-Methyl-2-Pentanone	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
2-Hexanone	ug/Kg	15 U	13 U	21 U	16 U	18 U	22 U	14 U	13 U
Tetrachloroethene	ug/Kg	8 U	8 U	10 U	8 U	9 U	11 U	7 U	7 U
1,1,2,2-Tetrachloroethane	ug/Kg	8 U	8 U	10 U	8 U	9 U	11 U	7 U	7 U
Toluene	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Chlorobenzene	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Ethylbenzene	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Styrene	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U
Xylene (total)	ug/Kg	8 U	6 U	10 U	8 U	9 U	11 U	7 U	7 U

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SW-100	SW-100	SW-100	SW-200	SW-300	SW-400	SW-600	SW-600
	DEPTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	DATE	11/15/91	11/15/91	12/10/91	11/15/91	11/15/91	11/15/91	11/16/91	11/16/91
	MAIN ID	S1511-78	S1611-83	S1012119	S1511-77	S1511-79	S1511-80	S1611-85	S1611-86(1)
	LAB ID	149231	149232	150727	149115	149116	149117	149233	149234
COMPOUND	UNITS								
Semivolatiles									
Phenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
bis(2-Chloroethyl) ether	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2-Chlorophenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
1,3-Dichlorobenzene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
1,4-Dichlorobenzene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Benzyl Alcohol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
1,2-Dichlorobenzene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2-Methylphenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
bis(2-Chloroisopropyl) ether	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
4-Methylphenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
N-Nitroso-di-n-propylamine	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Hexachloroethane	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Nitrobenzene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Isophorone	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2-Nitrophenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2,4-Dimethylphenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Benzoic acid	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
bis(2-Chloroethoxy) methane	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2,4-Dichlorophenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
1,2,4-Trichlorobenzene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Naphthalene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
4-Chloroaniline	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Hexachlorobutadiene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
4-Chloro-3-methylphenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2-Methylnaphthalene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Hexachlorocyclopentadiene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2,4,6-Trichlorophenol	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2,4,5-Trichlorophenol	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
2-Chloronaphthalene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2-Nitroaniline	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
Dimethylphthalate	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Acenaphthylene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	120 J	170 J
2,6-Dinitrotoluene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
3-Nitroaniline	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
Acenaphthene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2,4-Dinitrophenol	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
4-Nitrophenol	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
Dibenzofuran	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
2,4-Dinitrotoluene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Diethylphthalate	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
4-Chlorophenyl-phenylether	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Fluorene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
4-Nitroaniline	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
4,6-Dinitro-2-methylphenol	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
N-Nitrosodiphenylamine (1)	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
4-Bromophenyl-phenylether	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Hexachlorobenzene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Pentachlorophenol	ug/Kg	5000 U	6000 U		5100 U	5100 U	5700 U	4300 U	4500 U
Phenanthrene	ug/Kg	1000 U	1200 U		1100 U	1100 U	270 J	720 J	1200
Anthracene	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	180 J	270 J
Carbazole	ug/Kg								
Di-n-butylphthalate	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Fluoranthene	ug/Kg	120 J	1200 U		1100 U	130 J	630 J	5500	7400
Pyrene	ug/Kg	94 J	1200 U		130 J	180 J	740 J	4400	6700
Butylbenzylphthalate	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
3,3'-Dichlorobenzidine	ug/Kg	2000 U	2500 U		2100 U	2100 U	2400 U	1800 U	1900 U
Benzo(a)anthracene	ug/Kg	1000 U	1200 U		1100 U	97 J	410 J	3300	4900
Chrysene	ug/Kg	1000 U	1200 U		1100 U	130 J	520 J	3600	5300
bis(2-Ethylhexyl)phthalate	ug/Kg	1000 U	1200 U		100 J	210 J	1200 U	880 U J	4300 J
Di-n-octylphthalate	ug/Kg	1000 U	1200 U		1100 U	1100 U	1200 U	880 U	940 U
Benzo(b)fluoranthene	ug/Kg	1000 U	1200 U		1100 U	1100 U	450 J	3100	4500
Benzo(k)fluoranthene	ug/Kg	1000 U	1200 U		1100 U	97 J	450 J	2400	3700
Benzo(a)pyrene	ug/Kg	1000 U	1200 U		1100 U	110 J	460 J	2600	3900
Indeno(1,2,3-cd)pyrene	ug/Kg	1000 U	1200 U		1100 U	1100 U	340 J	1700	2400
Dibenz(a,h)anthracene	ug/Kg	1000 U	1200 U		1100 U	1100 U	160 J	690 J	1300
Benzo(g,h,i)perylene	ug/Kg	1000 U	1200 U		1100 U	1100 U	340 J	1600	2300

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SW-100	SW-100	SW-100	SW-200	SW-300	SW-400	SW-600	SW-600
	DEPTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	DATE	11/15/91	11/15/91	12/10/91	11/15/91	11/15/91	11/15/91	11/16/91	11/16/91
	MAIN ID	S1511-78	S1611-83	S1012119	S1511-77	S1511-79	S1511-80	S1611-85	S1611-86(1)
	LAB ID	149231	149232	150727	149115	149116	149117	149233	149234
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	25 U	30 U		26 U	25 U	29 U	21 U	23 U
beta-BHC	ug/Kg	25 U	30 U		26 U	25 U	29 U	21 U	23 U
delta-BHC	ug/Kg	25 U	30 U		26 U	25 U	29 U	21 U	23 U
gamma-BHC (Lindane)	ug/Kg	25 U	30 U		26 U	25 U	29 U	21 U	23 U
Heptachlor	ug/Kg	25 U	30 U		26 U	25 U	29 U	21 U	23 U
Aldrin	ug/Kg	25 U	30 U		26 U	25 U	29 U	21 U	23 U
Heptachlor epoxide	ug/Kg	25 U	30 U		26 U	25 U	29 U	21 U	23 U
Endosulfan I	ug/Kg	25 U	30 U		26 U	25 U	29 U	21 U	23 U
Dieldrin	ug/Kg	50 U	60 U		51 U	51 U	57 U	43 U	45 U
4,4'-DDE	ug/Kg	50 U	60 U		51 U	51 U	63	43 U	45 U
Endrin	ug/Kg	50 U	60 U		51 U	51 U	57 U	43 U	45 U
Endosulfan II	ug/Kg	50 U	60 U		51 U	51 U	57 U	43 U	45 U
4,4'-DDD	ug/Kg	50 U	60 U		51 U	51 U	57 U	43 U	45 U
Endosulfan sulfate	ug/Kg	50 U	60 U		51 U	51 U	57 U	43 U	45 U
4,4'-DDT	ug/Kg	50 U	60 U		51 U	51 U	57 U	43 U	45 U
Methoxychlor	ug/Kg	250 U	300 U		260 U	250 U	290 U	210 U	230 U
Endrin ketone	ug/Kg	50 U	60 U		51 U	51 U	57 U	43 U	45 U
Endrin aldehyde									
alpha-Chlordane	ug/Kg	250 U	300 U		260 U	250 U	290 U	210 U	230 U
gamma-Chlordane	ug/Kg	250 U	300 U		260 U	250 U	290 U	210 U	230 U
Toxaphene	ug/Kg	500 U	600 U		510 U	510 U	570 U	430 U	450 U
Aroclor-1016	ug/Kg	250 U	300 U		260 U	250 U	290 U	210 U	230 U
Aroclor-1221	ug/Kg	250 U	300 U		260 U	250 U	290 U	210 U	230 U
Aroclor-1232	ug/Kg	250 U	300 U		260 U	250 U	290 U	210 U	230 U
Aroclor-1242	ug/Kg	250 U	300 U		260 U	250 U	290 U	210 U	230 U
Aroclor-1248	ug/Kg	250 U	300 U		260 U	250 U	290 U	210 U	230 U
Aroclor-1254	ug/Kg	500 U	600 U		510 U	510 U	570 U	430 U	450 U
Aroclor-1260	ug/Kg	500 U	600 U		510 U	510 U	570 U	430 U	450 U
Herbicides									
2,4-D	ug/Kg	77 U J	94 U		79 U J	79 U J	88 U J	67 U J	71 U J
2,4-DB	ug/Kg	77 U J	94 U		79 U J	79 U J	88 U J	67 U J	71 U J
2,4,5-T	ug/Kg	8 U J	9 U		8 U J	8 U J	9 U J	7 U J	7 U J
2,4,5-TP (Silvex)	ug/Kg	8 U J	9 U		8 U J	8 U J	9 U J	7 U J	7 U J
Dalapon	ug/Kg	190 U J	230 U		190 U J	190 U J	210 U J	160 U J	170 U J
Dicamba	ug/Kg	8 U J	9 U		8 U J	8 U J	9 U J	7 U J	7 U J
Dichloroprop	ug/Kg	77 U J	94 U		79 U J	79 U J	88 U J	67 U J	71 U J
Dinoseb	ug/Kg	39 U J	47 U		40 U J	40 U J	44 U J	33 U J	36 U J
MCPA	ug/Kg	7700 U J	9400 U		7900 U J	7900 U J	8800 U J	6700 U J	7100 U J
MCPP	ug/Kg	7700 U J	9400 U		7900 U J	7900 U J	8800 U J	6700 U J	7100 U J
Metals									
Aluminum	mg/Kg	17400	17400		14200	7340	12100	17400	20900
Antimony	mg/Kg	13.9 U	10.8 J		12.9 U	9.1 U	11.1 U	9.4 U	12.6 U
Arsenic	mg/Kg	3	3.5		7.9	3.4	8.7	8	10.5
Barium	mg/Kg	129	126		110	52.7	79	157	227
Beryllium	mg/Kg	1.1 J	1 R		0.9 J	0.45 J	0.75 J	1.1	1.2
Cadmium	mg/Kg	3.5	3.3		2.3	2	2.3	3	3.9
Calcium	mg/Kg	10600	13600		11400	229000	37300	9860	14200
Chromium	mg/Kg	26	25.4		20.7	13.2	21.8	26.5	33.4
Cobalt	mg/Kg	8.7 J	11.7		7.8 J	8.6 J	9.1 J	11.7	12.9
Copper	mg/Kg	58	58.6		41.2	14.9	31.2	39.2	43
Iron	mg/Kg	26300	27900		23600	16200	22900	33100	36400
Lead	mg/Kg	85.4	100		26.7	23.9	63.7	219	197
Magnesium	mg/Kg	5000	5250		4790	7240	11000	5460	6400
Manganese	mg/Kg	468	511 J		462	1040	383	837	999
Mercury	mg/Kg	0.11 J	0.08		0.1 J	0.06 J	0.12 J	0.12	0.07 J
Nickel	mg/Kg	28.1	28		24.8	22	32	29.6	35.8
Potassium	mg/Kg	2150	1670		2020	750 J	1740	1850	2510
Selenium	mg/Kg	0.66 J	0.52 J		2 U	0.48 U	0.39 U	0.38 U	2.1 U
Silver	mg/Kg	2.1 U	0.69		2.1 U	1.5 U	1.8 U	1.5 U	2 U
Sodium	mg/Kg	106 U	106		74.6 U	140 J	97.9 J	54.4 U	80.2 J
Thallium	mg/Kg	0.71 U	0.52		0.65 U	0.78 U	0.65 U	0.62 U	0.69 U
Vanadium	mg/Kg	26.1	23.6		23.1	10.7	21.8	29	30.7
Zinc	mg/Kg	495	523		144	278	661	448	600
Cyanide	mg/Kg	0.86 U	0.89		0.92 U	0.85 U	1 U	0.7 U	0.82 U

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SW-700	SW-700	SW-800	SW-900	SW-900	SW-901	ASH	ASH
	DEPTH	N/A	N/A	N/A	N/A	N/A	N/A		
	DATE	11/20/91	11/20/91	11/16/91	11/21/91	11/20/91	11/15/91	12/09/92	12/09/92
	MAIN ID	S2011-88	S2011-88RE(4)	S1611-83	S2011-87	S2011-87	S1511-76	SD-WA	SD-WB
	LAB ID	149452	149452	149232	149451	149451	149114	175894	175895
	UNITS								
VOCs									
Chloromethane	ug/Kg	14 U				32 U		16 U	34 U
Bromomethane	ug/Kg	14 U				32 U		16 U	34 U
Vinyl Chloride	ug/Kg	14 U				32 U		16 U	34 U
Chloroethane	ug/Kg	14 U				32 U		16 U	34 U
Methylene Chloride	ug/Kg	7 U				16 U		16 U	34 U
Acetone	ug/Kg	14 U				54 U		16 U	34 U
Carbon Disulfide	ug/Kg	7 U				16 U		16 U	34 U
1,1-Dichloroethene	ug/Kg	7 U				16 U		16 U	15 J
1,1-Dichloroethane	ug/Kg	7 U				16 U		16 U	34 U
1,2-Dichloroethene (total)	ug/Kg	7 U				16 U		16 U	640
Chloroform	ug/Kg	7 U				16 U		4 J	34 U
1,2-Dichloroethane	ug/Kg	7 U				16 U		16 U	34 U
2-Butanone	ug/Kg	14 U				32 U		16 U	34 U
1,1,1-Trichloroethane	ug/Kg	7 U				16 U		16 U	34 U
Carbon Tetrachloride	ug/Kg	7 U				16 U		16 U	34 U
Vinyl Acetate	ug/Kg	14 U				32 U			
Bromodichloromethane	ug/Kg	7 U				16 U		16 U	34 U
1,2-Dichloropropane	ug/Kg	7 U				16 U		16 U	34 U
cis-1,3-Dichloropropene	ug/Kg	7 U				16 U		16 U	34 U
Trichloroethene	ug/Kg	7 U				16 U		16 U	11 J
Dibromochloromethane	ug/Kg	7 U				16 U		16 U	34 U
1,1,2-Trichloroethane	ug/Kg	7 U				16 U		16 U	34 U
Benzene	ug/Kg	7 U				16 U		16 U	34 U
trans-1,3-Dichloropropene	ug/Kg	7 U				16 U		16 U	34 U
Bromoform	ug/Kg	7 U				16 U		16 U	34 U
4-Methyl-2-Pentanone	ug/Kg	14 U				32 U		16 U	34 U
2-Hexanone	ug/Kg	14 U				32 U		16 U	34 U
Tetrachloroethene	ug/Kg	7 U				16 U		16 U	34 U
1,1,2,2-Tetrachloroethane	ug/Kg	7 U				16 U		16 U	34 U
Toluene	ug/Kg	7 U				16 U		16 U	34 U
Chlorobenzene	ug/Kg	7 U				16 U		16 U	34 U
Ethylbenzene	ug/Kg	7 U				16 U		16 U	34 U
Styrene	ug/Kg	7 U				16 U		16 U	34 U
Xylene (total)	ug/Kg	7 U				16 U		16 U	34 U

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SW-700	SW-700	SW-800	SW-900	SW-900	SW-901	ASH	ASH
	DEPTH	N/A	N/A	N/A	N/A	N/A	N/A		
	DATE	11/20/91	11/20/91	11/16/91	11/21/91	11/20/91	11/15/91	12/09/92	12/09/92
	MAIN ID	S2011-88	S2011-88RE(4)	S1611-83	S2011-87	S2011-87	S1511-76	SD-WA	SD-WB
	LAB ID	149452	149452	149232	149451	149451	149114	175894	175895
COMPOUND	UNITS								
Semivolatiles									
Phenol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
bis(2-Chloroethyl) ether	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2-Chlorophenol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
1,3-Dichlorobenzene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
1,4-Dichlorobenzene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Benzyl Alcohol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U		
1,2-Dichlorobenzene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2-Methylphenol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
bis(2-Chloroisopropyl) ether	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
4-Methylphenol	ug/Kg	940 U	480 U	760 U	2100 U J	100 J	930 U	440 U	430 UJ
N-Nitroso-di-n-propylamine	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Hexachloroethane	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Nitrobenzene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Isophorone	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2-Nitrophenol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2,4-Dimethylphenol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Benzoic acid	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U		
bis(2-Chloroethoxy) methane	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2,4-Dichlorophenol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
1,2,4-Trichlorobenzene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Naphthalene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
4-Chloroaniline	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Hexachlorobutadiene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
4-Chloro-3-methylphenol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2-Methylnaphthalene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Hexachlorocyclopentadiene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2,4,6-Trichlorophenol	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2,4,5-Trichlorophenol	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U	1100 U	1000 UJ
2-Chloronaphthalene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2-Nitroaniline	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U	1100 U	1000 UJ
Dimethylphthalate	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Acenaphthylene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2,6-Dinitrotoluene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
3-Nitroaniline	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U	1100 U	1000 UJ
Acenaphthene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2,4-Dinitrophenol	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U	1100 U	1000 UJ
4-Nitrophenol	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U	1100 U	1000 UJ
Dibenzofuran	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
2,4-Dinitrotoluene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Diethylphthalate	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
4-Chlorophenyl-phenylether	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Fluorene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
4-Nitroaniline	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U	1100 U	1000 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U	1100 U	1000 UJ
N-Nitrosodiphenylamine (1)	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
4-Bromophenyl-phenylether	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Hexachlorobenzene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Pentachlorophenol	ug/Kg	4600 U	2300 U	3700 U	10000 U J	5100 U	4500 U	1100 U	1000 UJ
Phenanthrene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	99 J	440 U	64 J
Anthracene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Carbazole	ug/Kg							440 U	430 UJ
Di-n-butylphthalate	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Fluoranthene	ug/Kg	940 U	95 J	78 J	2100 U J	1100 U	130 J	440 U	110 J
Pyrene	ug/Kg	940 U	110 J	760 U	2100 U J	1100 U	140 J	440 U	100 J
Butylbenzylphthalate	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
3,3'-Dichlorobenzidine	ug/Kg	1900 U	960 U	1500 U	4200 U J	2100 U	1900 U	440 U	430 UJ
Benzo(a)anthracene	ug/Kg	940 U	59 J	760 U	2100 U J	1100 U	88 J	440 U	48 J
Chrysene	ug/Kg	940 U	84 J	760 U	2100 U J	1100 U	120 J	440 U	64 J
bis(2-Ethylhexyl)phthalate	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	100 J	440 U	430 UJ
Di-n-octylphthalate	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Benzo(b)fluoranthene	ug/Kg	940 U	80 J	760 U	2100 U J	1100 U	96 J	440 U	47 J
Benzo(k)fluoranthene	ug/Kg	940 U	66 J	760 U	2100 U J	1100 U	930 U	440 U	52 J
Benzo(a)pyrene	ug/Kg	940 U	71 J	760 U	2100 U J	1100 U	100 J	440 U	35 J
Indeno(1,2,3-cd)pyrene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	36 J
Dibenz(a,h)anthracene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	430 UJ
Benzo(g,h,i)perylene	ug/Kg	940 U	480 U	760 U	2100 U J	1100 U	930 U	440 U	42 J

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SW-700	SW-700	SW-800	SW-900	SW-900	SW-901	ASH	ASH
	DEPTH	N/A	N/A	N/A	N/A	N/A	N/A		
	DATE	11/20/91	11/20/91	11/16/91	11/21/91	11/20/91	11/15/91	12/09/92	12/09/92
	MAIN ID	S2011-88	S2011-88RE(4)	S1611-83	S2011-87	S2011-87	S1511-76	SD-WA	SD-WB
	LAB ID	149452	149452	149232	149451	149451	149114	175894	175895
COMPOUND	UNITS								
Pesticides/PCBs									
alpha-BHC	ug/Kg	23 U		18 U	51 U	23 U	23 U	2.3 U	2.3 U
beta-BHC	ug/Kg	23 U		18 U	51 U	23 U	23 U	2.3 U	2.3 U
delta-BHC	ug/Kg	23 U		18 U	51 U	23 U	23 U	2.3 U	2.3 U
gamma-BHC (Lindane)	ug/Kg	23 U		18 U	51 U	23 U	23 U	2.3 U	2.3 U
Heptachlor	ug/Kg	23 U		18 U	51 U	23 U	23 U	2.3 U	2.3 U
Aldrin	ug/Kg	23 U		18 U	51 U	23 U	23 U	2.3 U	2.3 U
Heptachlor epoxide	ug/Kg	23 U		18 U	51 U	23 U	23 U	2.3 U	2.3 U
Endosulfan I	ug/Kg	23 U		18 U	51 U	23 U	23 U	2.3 U	2.3 U
Dieldrin	ug/Kg	46 U		37 U	100 U	46 U	45 U	4.5 U	4.4 U
4,4'-DDE	ug/Kg	46 U		37 U	100 U	46 U	45 U	4.5 U	3.5 J
Endrin	ug/Kg	46 U		37 U	100 U	46 U	45 U	4.5 U	4.4 U
Endosulfan II	ug/Kg	46 U		37 U	100 U	46 U	45 U	4.5 U	4.4 U
4,4'-DDD	ug/Kg	46 U		37 U	100 U	46 U	45 U	4.5 U	4.4 U
Endosulfan sulfate	ug/Kg	46 U		37 U	100 U	46 U	45 U	4.5 U	2.1 J
4,4'-DDT	ug/Kg	46 U		37 U	100 U	46 U	45 U	4.5 U	4.4 U
Methoxychlor	ug/Kg	230 U		180 U	510 U	230 U	230 U	23 U	23 U
Endrin ketone	ug/Kg	46 U		37 U	100 U	46 U	45 U	4.5 U	4.4 U
Endrin aldehyde								4.5 U	4.4 U
alpha-Chlordane	ug/Kg	230 U		180 U	510 U	230 U	230 U	2.3 U	2.3 U
gamma-Chlordane	ug/Kg	230 U		180 U	510 U	230 U	230 U	2.3 U	2.3 U
Toxaphene	ug/Kg	460 U		370 U	1000 U	460 U	450 U	230 U	230 U
Aroclor-1016	ug/Kg	230 U		180 U	510 U	230 U	230 U	45 U	44 U
Aroclor-1221	ug/Kg	230 U		180 U	510 U	230 U	230 U	91 U	89 U
Aroclor-1232	ug/Kg	230 U		180 U	510 U	230 U	230 U	45 U	44 U
Aroclor-1242	ug/Kg	230 U		180 U	510 U	230 U	230 U	45 U	44 U
Aroclor-1248	ug/Kg	230 U		180 U	510 U	230 U	230 U	45 U	44 U
Aroclor-1254	ug/Kg	460 U		370 U	1000 U	460 U	450 U	45 U	44 U
Aroclor-1260	ug/Kg	460 U		370 U	1000 U	460 U	450 U	45 U	44 U
Herbicides									
2,4-D	ug/Kg	71 U J		57 U J	160 U J		70 U J	68 U	66 U
2,4-DB	ug/Kg	71 U J		57 U J	160 U J		70 U J	68 U	66 U
2,4,5-T	ug/Kg	7 U J		6 U J	16 U J		7 U J	6.8 U	6.6 U
2,4,5-TP (Silvex)	ug/Kg	7 U J		6 U J	16 U J		7 U J	6.8 U	6.6 U
Dalapon	ug/Kg	170 U J		140 U J	390 U J		170 U J	160 U	160 U
Dicamba	ug/Kg	7 U J		6 U J	16 U J		7 U J	6.8 U	6.6 U
Dichloroprop	ug/Kg	71 U J		57 U J	160 U J		70 U J	68 U	66 U
Dinoseb	ug/Kg	36 U J		29 U J	80 U J		35 U J	34 U	33 U
MCPA	ug/Kg	7100 U J		5700 U J	16000 U J		7000 U J	6800 U	6600 U
MCPP	ug/Kg	7100 U J		5700 U J	16000 U J		7000 U J	6800 U	6600 U
Metals									
Aluminum	mg/Kg	12700 J		13500	13900 J		13000	14600	11900
Antimony	mg/Kg	11.8 U J		11.3 U	35.4 U J		15.4 U	11.6 UJ	8.7 UJ
Arsenic	mg/Kg	7.3 J		5.7	9 J		6.6	4.4 J	12.1 J
Barium	mg/Kg	120 J		81.6	139 J		100	61.5	111
Beryllium	mg/Kg	0.73 J		0.81 J	1.1 J		0.98 J	0.82 J	0.66 J
Cadmium	mg/Kg	2.4 J		4.1	2.5 J		2.6	0.66 U	0.5 U
Calcium	mg/Kg	46900 J		42900	105000 J		24100	4770	12500
Chromium	mg/Kg	21.3 J		22.8	22.6 J		24.1	22.5	22.6
Cobalt	mg/Kg	12.5 J		17	12.7 U J		8.8 J	10 J	9.2
Copper	mg/Kg	22.6 J		16.7	24.3 J		33.9	26.7	43.5
Iron	mg/Kg	28200 J		36800	23900 J		26800	26400	24000
Lead	mg/Kg	37.3 J		8.5	21.5 J		31.3	19.2	91.9
Magnesium	mg/Kg	14900 J		7090	6280 J		4920	4090	5050
Manganese	mg/Kg	913 J		1050	447 J		340	591	429
Mercury	mg/Kg	0.05 U J		0.04 U	0.12 U J		0.05 J	0.02 U	0.1
Nickel	mg/Kg	27.9 J		37.8	22.8 J		28.3	29.4	28.3
Potassium	mg/Kg	1470 J		975 J	1690 J		1710	2110	1260
Selenium	mg/Kg	1.8 U J		0.27 U	0.95 U J		1.8 U	1 J	0.27 J
Silver	mg/Kg	1.9 U J		1.7 U	5.8 U J		2.5 U	0.68 U	0.66 J
Sodium	mg/Kg	68.3 U J		195 J	205 U J		89 U	63.9 U	90.5 J
Thallium	mg/Kg	0.8 U J		0.45 U	1.6 U J		0.58 U	0.61 U	0.51 U
Vanadium	mg/Kg	20.6 J		20.3	29.1 J		21.6	21.6	20
Zinc	mg/Kg	255 J		100	339 J		370	76	834
Cyanide	mg/Kg	0.83 U J		0.65 U	1.9 U J		0.82 U	0.79 U	0.57 U

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND										
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DEPTH									
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	MAIN ID	SD-WBRE	SD-WB1	SD-WB1RE	SD-WC	SD-WCRE	SD-WD	SD-WE	SD-WERE	SD-WF
	LAB ID	175895R1	175896	175896R1	175897	175897R1	175898	175899	175899R1	175900
COMPOUND	UNITS		DUP SD-WB							
VOCs										
Chloromethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
Bromomethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
Vinyl Chloride	ug/Kg		13 U		12 U		16 U	15 U		12 U
Chloroethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
Methylene Chloride	ug/Kg		13 U		12 U		16 U	15 U		12 U
Acetone	ug/Kg		9 J		12 U		19	8 J		12 U
Carbon Disulfide	ug/Kg		13 U		12 U		16 U	15 U		12 U
1,1-Dichloroethene	ug/Kg		18		12 U		16 U	15 U		12 U
1,1-Dichloroethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
1,2-Dichloroethene (total)	ug/Kg		590		12 U		16 U	15 U		12 U
Chloroform	ug/Kg		13 U		12 U		16 U	15 U		12 U
1,2-Dichloroethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
2-Butanone	ug/Kg		13 U		12 U		16 U	15 U		12 U
1,1,1-Trichloroethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
Carbon Tetrachloride	ug/Kg		13 U		12 U		16 U	15 U		12 U
Vinyl Acetate	ug/Kg									
Bromodichloromethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
1,2-Dichloropropane	ug/Kg		13 U		12 U		16 U	15 U		12 U
cis-1,3-Dichloropropene	ug/Kg		13 U		12 U		16 U	15 U		12 U
Trichloroethene	ug/Kg		7 J		12 U		16 U	15 U		12 U
Dibromochloromethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
1,1,2-Trichloroethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
Benzene	ug/Kg		13 U		12 U		16 U	15 U		12 U
trans-1,3-Dichloropropene	ug/Kg		13 U		12 U		16 U	15 U		12 U
Bromoform	ug/Kg		13 U		12 U		16 U	15 U		12 U
4-Methyl-2-Pentanone	ug/Kg		13 U		12 U		16 U	15 U		12 U
2-Hexanone	ug/Kg		13 U		12 U		16 U	15 U		12 U
Tetrachloroethene	ug/Kg		13 U		12 U		16 U	15 U		12 U
1,1,2,2-Tetrachloroethane	ug/Kg		13 U		12 U		16 U	15 U		12 U
Toluene	ug/Kg		13 U		12 U		16 U	15 U		12 U
Chlorobenzene	ug/Kg		13 U		12 U		16 U	15 U		12 U
Ethylbenzene	ug/Kg		13 U		12 U		16 U	15 U		12 U
Styrene	ug/Kg		13 U		12 U		16 U	15 U		12 U
Xylene (total)	ug/Kg		13 U		12 U		16 U	15 U		12 U

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DEPTH									
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	MAIN ID	SD-WBRE	SD-WB1	SD-WB1RE	SD-WC	SD-WCRE	SD-WD	SD-WE	SD-WERE	SD-WF
	LAB ID	175895R1	175896	175896R1	175897	175897R1	175898	175899	175899R1	175900
	UNITS		DUP SD-WB							
Semivolatiles										
Phenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
bis(2-Chloroethyl) ether	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2-Chlorophenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
1,3-Dichlorobenzene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
1,4-Dichlorobenzene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Benzyl Alcohol	ug/Kg									
1,2-Dichlorobenzene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2-Methylphenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
bis(2-Chloroisopropyl) ether	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
4-Methylphenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
N-Nitroso-di-n-propylamine	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Hexachloroethane	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Nitrobenzene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Isophorone	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2-Nitrophenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2,4-Dimethylphenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Benzoic acid	ug/Kg									
bis(2-Chloroethoxy) methane	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2,4-Dichlorophenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
1,2,4-Trichlorobenzene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Naphthalene	ug/Kg	440 UJ	470 UJ	22 J	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
4-Chloroaniline	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Hexachlorobutadiene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
4-Chloro-3-methylphenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2-Methylnaphthalene	ug/Kg	440 UJ	30 J	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Hexachlorocyclopentadiene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2,4,6-Trichlorophenol	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2,4,5-Trichlorophenol	ug/Kg	1000 UJ	1100 UJ	1100 UJ	910 UJ	930 UJ	1600 U	1200 UJ	1200 UJ	930 U
2-Chloronaphthalene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2-Nitroaniline	ug/Kg	1000 UJ	1100 UJ	1100 UJ	910 UJ	930 UJ	1600 U	1200 UJ	1200 UJ	930 U
Dimethylphthalate	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Acenaphthylene	ug/Kg	18 J	72 J	30 J	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2,6-Dinitrotoluene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
3-Nitroaniline	ug/Kg	1000 UJ	1100 UJ	1100 UJ	910 UJ	930 UJ	1600 U	1200 UJ	1200 UJ	930 U
Acenaphthene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2,4-Dinitrophenol	ug/Kg	1000 UJ	1100 UJ	1100 UJ	910 UJ	930 UJ	1600 U	1200 UJ	1200 UJ	930 U
4-Nitrophenol	ug/Kg	1000 UJ	1100 UJ	1100 UJ	910 UJ	930 UJ	1600 U	1200 UJ	1200 UJ	930 U
Dibenzofuran	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
2,4-Dinitrotoluene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	100 J	380 U
Diethylphthalate	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
4-Chlorophenyl-phenylether	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Fluorene	ug/Kg	440 UJ	470 UJ	470 UJ	20 J	380 UJ	670 U	500 UJ	500 UJ	380 U
4-Nitroaniline	ug/Kg	1000 UJ	1100 UJ	1100 UJ	910 UJ	930 UJ	1600 U	1200 UJ	1200 UJ	930 U
4,6-Dinitro-2-methylphenol	ug/Kg	1000 UJ	1100 UJ	1100 UJ	910 UJ	930 UJ	1600 U	1200 UJ	1200 UJ	930 U
N-Nitrosodiphenylamine (1)	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	55 J	380 U
4-Bromophenyl-phenylether	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Hexachlorobenzene	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Pentachlorophenol	ug/Kg	1000 UJ	1100 UJ	1100 UJ	910 UJ	930 UJ	1600 U	1200 UJ	1200 UJ	930 U
Phenanthrene	ug/Kg	86 J	220 J	180 J	170 J	28 J	670 U	68 J	260 J	68 J
Anthracene	ug/Kg	19 J	62 J	37 J	30 J	380 UJ	670 U	500 UJ	65 J	12 J
Carbazole	ug/Kg	440 UJ	45 J	48 J	32 J	380 UJ	670 U	500 UJ	97 J	380 U
Di-n-butylphthalate	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	21 J	500 UJ	500 UJ	16 J
Fluoranthene	ug/Kg	140 J	440 J	290 J	300 J	49 J	30 J	120 J	370 J	140 J
Pyrene	ug/Kg	160 J	420 J	300 J	240 J	56 J	25 J	98 J	410 J	110 J
Butylbenzylphthalate	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
3,3'-Dichlorobenzidine	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Benzo(a)anthracene	ug/Kg	84 J	230 J	160 J	130 J	30 J	670 U	53 J	250 J	59 J
Chrysene	ug/Kg	100 J	300 J	190 J	150 J	38 J	670 U	69 J	250 J	84 J
bis(2-Ethylhexyl)phthalate	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	200 J
Di-n-octylphthalate	ug/Kg	440 UJ	470 UJ	470 UJ	380 UJ	380 UJ	670 U	500 UJ	500 UJ	380 U
Benzo(b)fluoranthene	ug/Kg	80 J	230 J	150 J	140 J	37 J	670 U	60 J	210 J	78 J
Benzo(k)fluoranthene	ug/Kg	80 J	220 J	150 J	140 J	37 J	670 U	61 J	200 J	70 J
Benzo(a)pyrene	ug/Kg	83 J	190 J	150 J	59 J	34 J	0 J	25 J	220 J	35 J
Indeno(1,2,3-cd)pyrene	ug/Kg	67 J	140 J	120 J	91 J	29 J	670 U	42 J	150 J	53 J
Dibenz(a,h)anthracene	ug/Kg	440 UJ	470 UJ	470 UJ	36 J	380 UJ	670 U	500 UJ	500 UJ	380 U
Benzo(g,h,i)perylene	ug/Kg	77 J	170 J	97 J	95 J	380 UJ	670 U	44 J	110 J	53 J

SENECA ARMY DEPOT, ASH LANDFILL
SEDIMENT ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DEPTH									
	DATE	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92	12/09/92
	MAIN ID	SD-WBRE	SD-WB1	SD-WB1RE	SD-WC	SD-WCRE	SD-WD	SD-WE	SD-WERE	SD-WF
	LAB ID	175895R1	175896	175896R1	175897	175897R1	175898	175899	175899R1	175900
COMPOUND	UNITS		DUP SD-WB							
Pesticides/PCBs										
alpha-BHC	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
beta-BHC	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
delta-BHC	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
gamma-BHC (Lindane)	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
Heptachlor	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
Aldrin	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
Heptachlor epoxide	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
Endosulfan I	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
Dieldrin	ug/Kg		4.7 U		3.8 U		6.8 U	4.9 U		3.8 U
4,4'-DDE	ug/Kg		2.4 J		4.5		6.8 U	4.5 J		20
Endrin	ug/Kg		2.3 J		3.8 U		6.8 U	4.9 U		3.8 U
Endosulfan II	ug/Kg		4.7 U		3.8 U		6.8 U	4.9 U		3.8 U
4,4'-DDD	ug/Kg		4.7 U		3.8 U		6.8 U	4.9 U		1.7 J
Endosulfan sulfate	ug/Kg		2.7 J		3.8 U		6.8 U	4.9 U		3.8 U
4,4'-DDT	ug/Kg		4.7 UJ		2.4 J		6.8 U	4.9 UJ		3.8 U
Methoxychlor	ug/Kg		24 U		20 U		35 U	25 U		20 U
Endrin ketone	ug/Kg		4.7 U		3.8 U		6.8 U	4.9 U		3.8 U
Endrin aldehyde			4.7 UJ		3.8 U		6.8 U	4.9 UJ		3.8 U
alpha-Chlordane	ug/Kg		1.8 J		3.6 J		3.5 U	1.6 J		2 U
gamma-Chlordane	ug/Kg		2.4 U		2 U		3.5 U	2.5 U		2 U
Toxaphene	ug/Kg		240 U		200 U		350 U	250 U		200 U
Arodor-1016	ug/Kg		47 U		38 U		68 U	49 U		38 U
Arodor-1221	ug/Kg		94 U		78 U		140 U	100 U		77 U
Arodor-1232	ug/Kg		47 U		38 U		68 U	49 U		38 U
Arodor-1242	ug/Kg		47 U		38 U		68 U	49 U		38 U
Arodor-1248	ug/Kg		47 U		38 U		68 U	49 U		38 U
Arodor-1254	ug/Kg		47 U		38 U		68 U	49 U		38 U
Arodor-1260	ug/Kg		47 U		38 U		68 U	49 U		54
Herbicides										
2,4-D	ug/Kg		71 U		58 U		100 U	76 U		59 U
2,4-DB	ug/Kg		71 U		58 U		100 U	76 U		59 U
2,4,5-T	ug/Kg		7.1 U		5.8 U		10 U	7.6 U		5.9 U
2,4,5-TP (Silvex)	ug/Kg		7.1 U		5.8 U		10 U	7.6 U		5.9 U
Dalapon	ug/Kg		170 U		140 U		250 U	180 U		140 U
Dicamba	ug/Kg		7.1 U		5.8 U		10 U	7.6 U		5.9 U
Dichloroprop	ug/Kg		71 U		58 U		100 U	76 U		59 U
Dinoseb	ug/Kg		36 U		29 U		52 U	38 U		30 U
MCPA	ug/Kg		7100 U		5800 U		10000 U	7600 U		5900 U
MCPP	ug/Kg		7100 U		5800 U		10000 U	7600 U		5900 U
Metals										
Aluminum	mg/Kg		11100		12100		12400	11700		14100
Antimony	mg/Kg		9.5 UJ		9.4 UJ		16.5 UJ	8.3 UJ		12.8 UJ
Arsenic	mg/Kg		7.5 J		3.5 J		2.2 J	3.5 J		5.4 J
Barium	mg/Kg		92.2		55.1		95.8	98.6		51.6
Beryllium	mg/Kg		0.55 J		0.53 J		0.54 J	0.63 J		0.61 J
Cadmium	mg/Kg		0.55 U		0.54 U		0.94 U	0.48 U		0.76 J
Calcium	mg/Kg		7640		34600		13200	8940		18500
Chromium	mg/Kg		19		20.9		17.7	22		28.5
Cobalt	mg/Kg		8.1 J		9.9		7.6 J	10.8		12.8
Copper	mg/Kg		31.4		27.4		26.9	44.1		39.1
Iron	mg/Kg		18700		23400		18900	26700		28300
Lead	mg/Kg		59.4		32.2		23.6	132		96.1
Magnesium	mg/Kg		3370		5870		4290	4390		6680
Manganese	mg/Kg		396		363		228 J	355		323
Mercury	mg/Kg		0.08		0.02 J		0.05 J	0.81		0.2
Nickel	mg/Kg		21.8		33.1		20	33.8		45.9
Potassium	mg/Kg		1390		1370		1420 J	1050		1760
Selenium	mg/Kg		0.98 J		0.89 J		1 J	0.97 J		0.83 J
Silver	mg/Kg		0.56 U		0.56 U		0.98 U	0.63 J		0.76 U
Sodium	mg/Kg		58.7 J		89.5 J		91.1 U	72 J		84.5 J
Thallium	mg/Kg		0.53 U		0.56 U		0.73 U	0.64 U		0.59 U
Vanadium	mg/Kg		18.6		19.4		19.2	18.5		21
Zinc	mg/Kg		592		155		143	200		366
Cyanide	mg/Kg		1		0.67 U		1.2 U	0.81 U		0.67 U

DUST WIPES

ASH LANDFILL
DUST WIPE SEMIVOLATILE ORGANICS ANALYSIS RESULTS

COMPOUND	MATRIX SITE DATE MAIN ID LAB ID UNITS	WIPE ASH 12/07/91 DW1206-1 150424	WIPE ASH 12/07/91 DW1206-2 150425
Phenol	ug/wp	20 U	20 U
bis(2-Chloroethyl) ether	ug/wp	20 U	20 U
2-Chlorophenol	ug/wp	20 U	20 U
1,3-Dichlorobenzene	ug/wp	20 U	20 U
1,4-Dichlorobenzene	ug/wp	20 U	20 U
Benzyl Alcohol	ug/wp	20 U	20 U
1,2-Dichlorobenzene	ug/wp	20 U	20 U
2-Methylphenol	ug/wp	20 U	20 U
bis(2-Chloroisopropyl) ether	ug/wp	20 U	20 U
4-Methylphenol	ug/wp	20 U	20 U
N-Nitroso-di-n-propylamine	ug/wp	20 U	20 U
Hexachloroethane	ug/wp	20 U	20 U
Nitrobenzene	ug/wp	20 U	20 U
Isophorone	ug/wp	20 U	20 U
2-Nitrophenol	ug/wp	20 U	20 U
2,4-Dimethylphenol	ug/wp	20 U	20 U
Benzoic acid	ug/wp	3 J	96 U
bis(2-Chloroethoxy) methane	ug/wp	20 U	20 U
2,4-Dichlorophenol	ug/wp	20 U	20 U
1,2,4-Trichlorobenzene	ug/wp	20 U	20 U
Naphthalene	ug/wp	20 U	20 U
4-Chloroaniline	ug/wp	20 U	20 U
Hexachlorobutadiene	ug/wp	20 U	20 U
4-Chloro-3-methylphenol	ug/wp	20 U	20 U
2-Methylnaphthalene	ug/wp	20 U	20 U
Hexachlorocyclopentadiene	ug/wp	20 U	20 U
2,4,6-Trichlorophenol	ug/wp	20 U	20 U
2,4,5-Trichlorophenol	ug/wp	96 U	96 U
2-Chloronaphthalene	ug/wp	20 U	20 U
2-Nitroaniline	ug/wp	96 U	96 U
Dimethylphalate	ug/wp	16 J	7 J
Acenaphthylene	ug/wp	20 U	20 U
2,6-Dinitrotoluene	ug/wp	20 U	20 U

ASH LANDFILL
DUST WIPE SEMIVOLATILE ORGANICS ANALYSIS RESULTS

COMPOUND	MATRIX SITE DATE MAIN ID LAB ID UNITS	WIPE ASH 12/07/91 DW1206-1 150424	WIPE ASH 12/07/91 DW1206-2 150425
3-Nitroaniline	ug/wp	96 U	96 U
Acenaphthene	ug/wp	20 U	20 U
2,4-Dinitrophenol	ug/wp	96 U	96 U
4-Nitrophenol	ug/wp	96 U	96 U
Dibenzofuran	ug/wp	20 U	20 U
2,4-Dinitrotoluene	ug/wp	20 U	20 U
Diethylphthalate	ug/wp	20 U	20 U
4-Chlorophenyl-phenylether	ug/wp	20 U	20 U
Fluorene	ug/wp	20 U	20 U
4-Nitroaniline	ug/wp	96 U	96 U
4,6-Dinitro-2-methylphenol	ug/wp	96 U	96 U
N-Nitrosodiphenylamine (1)	ug/wp	20 U	20 U
4-Bromophenyl-phenylether	ug/wp	20 U	20 U
Hexachlorobenzene	ug/wp	20 U	20 U
Pentachlorophenol	ug/wp	96 U	96 U
Phenanthrene	ug/wp	20 U	20 U
Anthracene	ug/wp	20 U	20 U
Di-n-butylphthalate	ug/wp	20 U	20 U
Fluoranthene	ug/wp	20 U	20 U
Pyrene	ug/wp	20 U	20 U
Butylbenzylphthalate	ug/wp	20 U	20 U
3,3'-Dichlorobenzidine	ug/wp	40 U	40 U
Benzo(a)anthracene	ug/wp	20 U	20 U
Chrysene	ug/wp	20 U	20 U
bis(2-Ethylhexyl)phthalate	ug/wp	20 U	20 U
Di-n-octylphthalate	ug/wp	20 U	20 U
Benzo(b)fluoranthene	ug/wp	20 U	20 U
benzo(k)fluoranthene	ug/wp	20 U	20 U
Benzo(a)pyrene	ug/wp	20 U	20 U
Indeno(1,2,3-cd)pyrene	ug/wp	20 U	20 U
Dibenz(a,h)anthracene	ug/wp	20 U	20 U
Benzo(g,h,i)perylene	ug/wp	20 U	20 U

ASH LANDFILL
DUST WIPE PESTICIDE AND PCB ANALYSIS RESULTS

COMPOUND	MATRIX SITE DATE MAIN ID LAB ID	WIPE ASH 12/07/91 DW1206-1 150424	WIPE ASH 12/07/91 DW1206-2 150425
alpha-BHC	ug/wp	0.5 U	0.5 U
beta-BHC	ug/wp	0.5 U	0.5 U
delta-BHC	ug/wp	0.5 U	0.5 U
gamma-BHC (Lindane)	ug/wp	0.5 U	0.5 U
Heptachlor	ug/wp	0.5 U	0.5 U
Aldrin	ug/wp	0.5 U	0.5 U
Heptachlor epoxide	ug/wp	0.5 U	0.5 U
Endosulfan I	ug/wp	0.5 U	0.5 U
Dieldrin	ug/wp	1 U	1 U
4,4'-DDE	ug/wp	1 U	1 U
Endrin	ug/wp	1 U	1 U
Endosulfan II	ug/wp	1 U	1 U
4,4'-DDD	ug/wp	1 U	1 U
Endosulfan sulfate	ug/wp	1 U	1 U
4,4'-DDT	ug/wp	1 U	1 U
Methoxychor	ug/wp	5 U	5 U
Endrin ketone	ug/wp	1 U	1 U
alpha-Chlordane	ug/wp	5 U	5 U
gamma-Chlordane	ug/wp	5 U	5 U
Toxaphene	ug/wp	10 U	10 U
Aroclor-1016	ug/wp	5 U	5 U
Aroclor-1221	ug/wp	5 U	5 U
Aroclor-1232	ug/wp	5 U	5 U
Aroclor-1242	ug/wp	5 U	5 U
Aroclor-1248	ug/wp	5 U	5 U
Aroclor-1254	ug/wp	10 U	10 U
Aroclor-1260	ug/wp	10 U	10 U

ASH LANDFILL
DUST WIPE INORGANICS ANALYSIS RESULTS

ANALYTE			
	MATRIX	SOIL	SOIL
	SITE	ASH	ASH
	DATE	12/07/91	12/07/91
	MAIN ID	DW1206-1	DW1206-2
	LAB ID	150424	150425
ANALYTE	UNITS		
Aluminum	ug/wp	10600	23400
Antimony	ug/wp	90	11.2 U
Arsenic	ug/wp	4.3	3.9
Barium	ug/wp	64.2	351
Beryllium	ug/wp	0.22 U	0.22 U
Cadmium	ug/wp	14.9	10.6
Calcium	ug/wp	17500	21700
Chromium	ug/wp	44.8	65.2
Cobalt	ug/wp	6 B	11.6
Copper	ug/wp	67	190
Iron	ug/wp	2070	11600
Lead	ug/wp	3020	454
Magnesium	ug/wp	2340	3900
Manganese	ug/wp	104	888
Mercury	ug/wp	0.75	1.8
Nickel	ug/wp	10.6	29.5
Potassium	ug/wp	1540	3960
Selenium	ug/wp	1.8	0.4 B
Silver	ug/wp	1.6 B	8.2
Sodium	ug/wp	716 B	4990
Thallium	ug/wp	0.48 U	0.48 U
Vanadium	ug/wp	7.7 B	22
Zinc	ug/wp	1340	1150

FARMHOUSE WELLS

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	01/21/93	04/16/93	07/23/93	01/21/93	04/16/93	07/23/93	04/16/93	07/23/93
	ES ID	FH-S	FH-S	FH-S	FH-D	FH-D	FH-D	BRN-S	BRN-S	BRN-S	TB 135	FB723
	LAB ID	177590	35763-043	36929-106		35763-044	36929-105	177589	35763-045	36929-107	35763-046	36929-108
COMPOUND	UNITS											
VOLATILE ORGANIC COMPOUNDS												
Chloromethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	ug/L	0.5 U	2 U	2 U	NS	2 U	2 U	0.5 U	2 U	2 U	2 U	2 U
Methylene chloride	ug/L	0.5 U	1 U	1 U	NS	1 U	1 U	0.5 U	1 U	1 U	1 U	2 U
Hexachlorobutadiene	ug/L	0.5 U	1 U	1 U	NS	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	ug/L	0.5 U	2 U	0.5 U	NS	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	TRACE J
Bromochloromethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (cis)	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (trans)	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene (total)	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	NS	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U
1,1-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	NS	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	NS	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	0.5 U	2 U	2 U	NS	2 U	2 U	0.5 U	2 U	2 U	2 U	2 U
1,2-Dibromoethane	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	ug/L	0.5 U	2 U	2 U	NS	2 U	2 U	0.5 U	2 U	2 U	2 U	2 U
Bromoform	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	ug/L	0.5 U	2 U	2 U	NS	2 U	2 U	0.5 U	2 U	2 U	2 U	2 U

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	01/21/93	04/16/93	07/23/93	01/21/93	04/16/93	07/23/93	04/16/93	07/23/93
	ES ID	FH-S	FH-S	FH-S	FH-D	FH-D	FH-D	BRN-S	BRN-S	BRN-S	TB 135	FB723
	LAB ID	177590	35763-043	36929-106		35763-044	36929-105	177589	35763-045	36929-107	35763-046	36929-108
	UNITS											
METALS												
Aluminum	ug/l	62.6 U	NS	14.6 U	NS	NS	648	170 B	NS	28.1 J		
Antimony	ug/l	54.1 U	NS	16.8 U	NS	NS	16.8 U	53.8 U	NS	16.8 U		
Arsenic	ug/l	1.2 U	NS	0.8 U	NS	NS	0.8 U	1.2 U	NS	0.8 U		
Barium	ug/l	112 B	NS	98.4 J	NS	NS	558	79.6 B	NS	81.2 J		
Beryllium	ug/l	0.3 U	NS	0.3 J	NS	NS	0.3 U	0.39 B	NS	0.3 U		
Cadmium	ug/l	3.1 U	NS	2.4 U	NS	NS	2.4 U	3.1 U	NS	2.4 U		
Calcium	ug/l	98800	NS	94000	NS	NS	14200	131000	NS	131000		
Chromium	ug/l	2 U	NS	3.3 U	NS	NS	3.3 U	2 U	NS	3.3 U		
Cobalt	ug/l	5 U	NS	2.8 J	NS	NS	2.7 U	5 U	NS	2.7 U		
Copper	ug/l	1.9 U	NS	9 R	NS	NS	3.1 R	1.9 U	NS	2.1 U		
Iron	ug/l	36.5 B	NS	11.6 U	NS	NS	723	250	NS	94.2 J		
Lead	ug/l	0.89 U	NS	1.4 J	NS	NS	1.4 J	0.89 U	NS	4 J		
Magnesium	ug/l	20500	NS	20600	NS	NS	5910	24700	NS	24800		
Manganese	ug/l	1.1 B	NS	11.2 J	NS	NS	7.8 R	3.8 B	NS	3.4 R		
Mercury	ug/l	0.06 U	NS	0.1 U	NS	NS	0.1 U	0.06 U	NS	0.1 U		
Nickel	ug/l	3.5 U	NS	8.3 U	NS	NS	8.3 U	3.5 U	NS	8.3 U		
Potassium	ug/l	12000	NS	9240	NS	NS	1800 J	5720	NS	6480		
Selenium	ug/l	1.4 B	NS	1.1 UJ	NS	NS	1.1 UJ	1.1 U	NS	1.1 UJ		
Silver	ug/l	3.2 U	NS	2.6 U	NS	NS	2.6 U	3.2 U	NS	2.6 U		
Sodium	ug/l	30600	NS	36000	NS	NS	162000	3570 B	NS	3900 J		
Thallium	ug/l	2.6 U	NS	1.2 U	NS	NS	1.2 U	2.6 U	NS	1.2 U		
Vanadium	ug/l	2.1 U	NS	3 U	NS	NS	3.9 J	2.1 U	NS	3.3 J		
Zinc	ug/l	360	NS	501	NS	NS	5 R	45.8	NS	34.8 R		
Cyanide	ug/l	10 U	NS	1.8 U	NS	NS	1.8 U	10 U	NS	2.2 J		
MISCELLANEOUS COMPOUNDS												
Chloride	mg/l	5.2	6	8	NS	18	13	16.5	3	15		
sulfate	mg/l	52	49	34	NS	62	29	64	43	74		
Nitrate/Nitrate Nitrogen	mg/l	3.3	NA	NA	NS	NA	NA	8.0	NA	NA		
Nitrite Nitrogen	mg/l	<0.002	NA	NA	NS	NA	NA	<0.002	NA	NA		
Nitrate as N -- Calculation	mg/l	3.3	2.5	1.3	NS	0.05	0.05 U	8.0	4.1	8.3		
Organic Halides, Total	mg/l	<0.02	0.02	0.02 U	NS	0.02	0.02 U	<0.02	0.02	1.6		
Conductivity	umhos/cm	748	770	760	NS	820	800	817	650	830		
pH	std. units	7.30	7.16	7.21	NS	8.16	8.67	7.38	7.18	7.25		
Organic Carbon, Total	mg/l	2.9	2	3	NS	2	2	NA	4	11		

NOTES:

NS = NOT SAMPLED
NA = NOT ANALYZED

TENTATIVELY IDENTIFIED COMPOUNDS

GROUNDWATER

SDG FILE: 1F152702 DATE: 01/18/92 MATRIX: WATER
ES: PT-12
LAB: 152704

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-12	85-60-9	PHENOL, 4,4'-BUTYLIDENEBIS[2	25	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	25	

SDG FILE: 1F152702 DATE: 01/18/92 MATRIX: WATER
ES: PT-19
LAB: 152705

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	13	
		TOTAL TICS	13	

SDG FILE: 1F152702 DATE: 01/18/92 MATRIX: WATER
ES: PT-20
LAB: 152706

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	18	
		TOTAL TICS	18	

SDG FILE: 1F152702 DATE: 01/25/92 MATRIX: WATER
ES: PT-21
LAB: 153059

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-21	120-92-3	CYCLOPENTANONE	43	J
PT-21	105-60-2	CAPROLACTAM	150	J
PT-21	143-07-7	DODECANOIC ACID	14	J
PT-21	85-60-9	PHENOL, 4,4'-BUTYLIDENEBIS[2	31	J
		TOTAL UNKNOWN TICS:	159	
		TOTAL TICS	397	

SDG FILE: 1E152151 DATE: 01/14/92 MATRIX: WATER
ES: MW-41D
LAB: 152409

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW-41D	1066-40-6	TRIMETHYLSILANOL	10	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	10	

SDG FILE: 1E152151 DATE: 01/14/92 MATRIX: WATER
ES: MW-42D

LAB: 152410

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW-42D	1066-40-6	TRIMETHYLSILANOL	10	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 10

SDG FILE: 1E152151 DATE: 01/10/92 MATRIX: WATER
ES: PT-10
LAB: 152156

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-10	75-45-6	CHLORODIFLUOROMETHANE	34	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 34

SDG FILE: 1E152151 DATE: 01/10/92 MATRIX: WATER
ES: PT-15
LAB: 152167

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-15	75-45-6	CHLORODIFLUOROMETHANE	110	J
PT-15	109-99-9	TETRAHYDROFURAN	7	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 117

SDG FILE: 1F152151 DATE: 01/11/92 MATRIX: WATER
ES: MW-34
LAB: 152257

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW-34	105-60-2	CAPROLACTAM	10	J
MW-34	85-60-9	PHENOL, 4,4'-BUTYLINDENEBIS[	12	J

TOTAL UNKNOWN TICS: 57
TOTAL TICS 79

SDG FILE: 1F152151 DATE: 01/11/92 MATRIX: WATER
ES: MW-37
LAB: 152258

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 9
TOTAL TICS 9

SDG FILE: 1F152151 DATE: 01/10/92 MATRIX: WATER
ES: MW-40
AB: 152155

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 10
TOTAL TICS 10

SDG FILE: 1F152151 DATE: 01/14/92 MATRIX: WATER
ES: MW-42D
LAB: 152410

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW-42D	105-60-2	CAPROLACTAM	20	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 20

SDG FILE: 1F152151 DATE: 01/11/92 MATRIX: WATER
ES: PT-1
LAB: 152259

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-1	105-60-2	CAPROLACTAM	9	J
PT-1	85-60-9	PHENOL, 4,4'-BUTYLINDENEBIS[	10	J

TOTAL UNKNOWN TICS: 37
TOTAL TICS 56

SDG FILE: 1F152151 DATE: 01/10/92 MATRIX: WATER
ES: PT-10
LAB: 152156

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-10	85-60-9	PHENOL, 4,4'-BUTYLINDENEBIS[	15	J

TOTAL UNKNOWN TICS: 87
TOTAL TICS 102

SDG FILE: 1F152151 DATE: 01/10/92 MATRIX: WATER
ES: PT-15
LAB: 152157

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-15	105-60-2	CAPROLACTAM	34	J
PT-15	85-60-9	PHENOL, 4,4'-BUTYLINDENEBIS[	62	J

TOTAL UNKNOWN TICS: 235
TOTAL TICS 331

SDG FILE: 1F152151 DATE: 01/10/92 MATRIX: WATER
ES: PT-16
LAB: 152158

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-16	105-60-2	CAPROLACTAM	23	J
PT-16	85-60-9	PHENOL, 4,4'-BUTYLINDENEBIS[	16	J

TOTAL UNKNOWN TICS: 231
TOTAL TICS 270

SDG FILE: 1F152151 DATE: 01/10/92 MATRIX: WATER
ES: PT-18
AB: 152159

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	12	
		TOTAL TICS	12	

SDG FILE: 1F152151 DATE: 01/10/92 MATRIX: WATER
ES: PT-22
LAB: 152160

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-22	85-60-9	PHENOL, 4,4'-BUTYLINDENEBIS[	9	J
		TOTAL UNKNOWN TICS:	150	
		TOTAL TICS	159	

SDG FILE: 1E152502 DATE: 01/15/92 MATRIX: WATER
ES: MW-35D
LAB: 152503

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW-35D	1066-40-6	TRIMETHYLSILANOL	9	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	9	

SDG FILE: 1E152502 DATE: 01/15/92 MATRIX: WATER
ES: MW-39
LAB: 152505

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW-39	1066-40-6	TRIMETHYLSILANOL	7	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	7	

SDG FILE: 1E152502 DATE: 01/16/92 MATRIX: WATER
ES: PT-11
LAB: 152574

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-11	75-45-6	CHLORODIFLUOROMETHANE	360	J
PT-11	109-99-9	TETRAHYDROFURAN	8	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	368	

SDG FILE: 1E152502 DATE: 01/15/92 MATRIX: WATER
ES: PT-23
LAB: 152506

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-23	1066-40-6	TRIMETHYLSILANOL	7	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	7	

SDG FILE: 1F152502 DATE: 01/17/92 MATRIX: WATER
ES: MW-32
LAB: 152644

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	21	
		TOTAL TICS	21	

SDG FILE: 1F152502 DATE: 01/15/92 MATRIX: WATER
ES: MW-39
LAB: 152505

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	32	
		TOTAL TICS	32	

SDG FILE: 1F152502 DATE: 01/16/92 MATRIX: WATER
ES: PT-11
AB: 152574

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-11	105-60-2	CAPROLATAM	100	J
		TOTAL UNKNOWN TICS:	139	
		TOTAL TICS	239	

SDG FILE: 1F152502 DATE: 01/17/92 MATRIX: WATER
ES: PT-17
LAB: 152647

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	31	
		TOTAL TICS	31	

SDG FILE: 1F152502 DATE: 01/15/92 MATRIX: WATER
ES: PT-24
LAB: 152507

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	29	
		TOTAL TICS	29	

SDG FILE: 1E37818 DATE: MATRIX:
ES: PT11
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT11	75-45-6	Methane, chlorodifluoro-	110	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	110	

SDG FILE: 1E37818 DATE: MATRIX:
ES: PT24
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT24	116-15-4	Propene, hexafluoro-	36	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	36	

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW28
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW28	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
MW28	629-62-9	Pentadecane	4	NJ
MW28	544-76-3	Hexadecane	10	NJ
MW28	629-78-7	Heptadecane	13	NJ
MW28	1921-70-6	Pentadecane, 2,6,10,14-tetra	4	NJ
MW28	593-45-3	Octadecane	11	NJ
MW28	638-36-8	Hexadecane, 2,6,10,14-tetram	3	NJ
MW28	629-92-5	Nonadecane	10	NJ
MW28	112-95-8	Eicosane	7	NJ
		TOTAL UNKNOWN TICS:	20	
		TOTAL TICS	88	

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW29
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW29	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
		TOTAL UNKNOWN TICS:	12	
		TOTAL TICS	18	

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW29MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW29MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	12	NJ

MW29MS	637-64-9	2-Furanmethanol, tetrahydro-	10	NJ
MW29MS	5717-37-3	(Carbethoxyethylidine)triphe	2	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 24

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW29MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW29MSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	10	NJ
MW29MSD	74381-40-1	Propanoic acid, 2-methyl-, 1	9	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 19

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW29R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW29R	123-42-2	2-Pentanone, 4-hydroxy-4-met	5	NJ

TOTAL UNKNOWN TICS: 6
TOTAL TICS 11

DG FILE: 1F37818 DATE: MATRIX:
S: MW32
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW32	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 6

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW47
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW47	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ

TOTAL UNKNOWN TICS: 17
TOTAL TICS 24

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW47RE
LAB:

SID	CAS NO	COMPOUND	RESULT	QUAL.
W47RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	8	NJ

TOTAL UNKNOWN TICS: 6

		TOTAL TICS	14	

SDG FILE: 1F37818 DATE: MATRIX:
S: MW51D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW51D	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
MW51D	629-62-9	Pentadecane	4	NJ
MW51D	544-76-3	Hexadecane	17	NJ
MW51D	629-78-7	Heptadecane	25	NJ
MW51D	1921-70-6	Pentadecane, 2,6,11,14-tetra	9	NJ
MW51D	593-45-3	Octadecane	25	NJ
MW51D	638-36-8	Hexadecane, 2,6,10,14-tetram	6	NJ
MW51D	629-92-5	Nonadecane	24	NJ
MW51D	112-95-8	Eicosane	15	NJ
MW51D	131-57-7	Oxybenzone	5	NJ
MW51D	629-94-7	Heneicosane	5	NJ
MW51D	669-81-8	Piperidine, 1,2,6-trimethyl-	5	NJ
		TOTAL UNKNOWN TICS:	35	
		TOTAL TICS	181	

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW51DRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
W51DRE	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
W51DRE	544-76-3	Hexadecane w/diethyltoluamid	7	NJ
MW51DRE	629-78-7	Heptadecane	10	NJ
MW51DRE	1921-70-6	Pentadecane, 2,6,10,14-tetra	4	NJ
MW51DRE	593-45-3	Octadecane	10	NJ
MW51DRE	638-36-8	Hexadecane, 2,6,10,14-tetram	3	NJ
MW51DRE	629-92-5	Nonadecane	10	NJ
MW51DRE	112-95-8	Eicosane	7	NJ
MW51DRE	131-57-7	Oxybenzone	6	NJ
MW51DRE	629-94-7	Heneicosane	2	NJ
		TOTAL UNKNOWN TICS:	12	
		TOTAL TICS	77	

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW58D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW58D	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
MW58D	629-62-9	Pentadecane	2	NJ
MW58D	544-76-3	Hexadecane	7	NJ
MW58D	629-78-7	Heptadecane	9	NJ
MW58D	1921-70-6	Pentadecane, 2,6,10,14-tetra	3	NJ
MW58D	593-45-3	Octadecane	8	NJ
MW58D	629-92-5	Nonadecane	7	NJ
W58D	112-95-8	Eicosane w/phthalate	5	NJ
		TOTAL UNKNOWN TICS:	79	

TOTAL TICS 126

SDG FILE: 1F37818 DATE: MATRIX:
S: MW58DR
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW58DR	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
MW58DR	96-48-0	Butyrolactone	3	NJ
MW58DR	13679-75-9	1-(2-Thienyl)-1-propanone	3	NJ

TOTAL UNKNOWN TICS: 7
TOTAL TICS 19

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW82
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW82	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
MW82	629-62-9	Pentadecane	3	NJ
MW82	544-76-3	Hexadecane	9	NJ
MW82	629-78-7	Heptadecane	11	NJ
MW82	1921-70-6	Pentadecane, 2,6,10,14-tetra	4	NJ
MW82	593-45-3	Octadecane	10	NJ
MW82	638-36-8	Hexadecane, 2,6,10,14-tetram	2	NJ
MW82	629-92-5	Nonadecane	9	NJ
MW82	112-95-8	Eicosane	6	NJ

TOTAL UNKNOWN TICS: 15
TOTAL TICS 75

SDG FILE: 1F37818 DATE: MATRIX:
ES: MW88
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW88	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
MW88	629-62-9	Pentadecane	4	NJ
MW88	544-76-3	Hexadecane	10	NJ
MW88	629-78-7	Heptadecane	13	NJ
MW88	1921-70-6	Pentadecane, 2,6,10,14-tetra	4	NJ
MW88	593-45-3	Octadecane	11	NJ
MW88	638-36-8	Hexadecane, 2,6,10,14-tetram	3	NJ
MW88	629-92-5	Nonadecane	11	NJ
MW88	112-95-8	Eicosane w/phthalate	8	NJ
MW88	629-94-7	Heneicosane	2	NJ

TOTAL UNKNOWN TICS: 87
TOTAL TICS 159

SDG FILE: 1F37818 DATE: MATRIX:
S: MW88RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

MW88RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
MW88RE	112-05-0	Nonanoic acid	2	NJ
MW88RE	629-62-9	Pentadecane	4	NJ
MW88RE	143-07-7	Dodecanoic acid	3	NJ
MW88RE	544-76-3	Hexadecane	11	NJ
MW88RE	629-78-7	Heptadecane	14	NJ
MW88RE	1921-70-6	Pentadecane, 2,6,10,14-tetra	4	NJ
MW88RE	593-45-3	Octadecane	12	NJ
MW88RE	638-36-8	Hexadecane, 2,6,10,14-tetram	3	NJ
MW88RE	629-92-5	Nonadecane	11	NJ
MW88RE	112-95-8	Eicosane w/ phthalate	8	NJ
MW88RE	629-94-7	Heneicosane	2	NJ

TOTAL UNKNOWN TICS: 70
TOTAL TICS 151

SDG FILE: 1F37818 DATE: MATRIX:
ES: PT11
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT11	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
PT11	544-76-3	Hexadecane	2	NJ
PT11	629-78-7	Heptadecane	4	NJ
PT11	593-45-3	Octadecane	4	NJ
PT11	629-92-5	Nonadecane	4	NJ
PT11	112-95-8	Eicosane w/phthalate	4	NJ

TOTAL UNKNOWN TICS: 23
TOTAL TICS 47

SDG FILE: 1F37818 DATE: MATRIX:
ES: PT24
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT24	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
PT24	544-76-3	Hexadecane	2	NJ
PT24	629-78-7	Heptadecane	3	NJ
PT24	593-49-3	Octadecane	2	NJ
PT24	629-92-5	Nonadecane	2	NJ

TOTAL UNKNOWN TICS: 25
TOTAL TICS 40

SDG FILE: 1F37818 DATE: MATRIX:
ES: PT24R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT24R	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
PT24R	96-48-0	Butyrolactone	4	NJ
PT24R	13679-75-9	1-(2-Thienyl)-1-propanone	4	NJ
PT24R	95-16-9	Benzothiazole	2	NJ

TOTAL UNKNOWN TICS: 5
TOTAL TICS 22

SDG FILE: 1F37818 DATE: MATRIX:
ES: PT24RE
\B:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT24RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
PT24RE	629-62-9	Pentadecane	18	NJ
PT24RE	544-76-3	Hexadecane	39	NJ
PT24RE	629-78-7	Heptadecane	45	NJ
PT24RE	1921-70-6	Pentadecane, 2,6,10,14-tetra	18	NJ
PT24RE	593-45-3	Octadecane	40	NJ
PT24RE	638-36-8	Hexadecane, 2.6.10,14-tetram	12	NJ
PT24RE	629-92-5	Nonadecane	38	NJ
PT24RE	112-95-8	Eicosane	26	NJ
PT24RE	629-94-7	Heneicosane	8	NJ

TOTAL UNKNOWN TICS: 114
TOTAL TICS 365

SDG FILE: 1F37818 DATE: MATRIX:
ES: PT24RRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT24RRE	123-42-2	2-Pentanone, 4-hydroxy-4-met	8	NJ
PT24RRE	96-48-0	Butyrolactone	3	NJ
PT24RRE	13679-75-9	1-(2-Thienyl)-1-propanone	3	NJ
T24RRE	112-05-0	Nonanoic acid	4	NJ

TOTAL UNKNOWN TICS: 22
TOTAL TICS 40

SDG FILE: 1F37862 DATE: MATRIX:
ES: MW46
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW46	123-42-2	2-Pentanone, 4-hydroxy-4-met	8	NJ
MW46	629-99-2	Nonadecane	2	NJ

TOTAL UNKNOWN TICS: 3
TOTAL TICS 13

SDG FILE: 1F37862 DATE: MATRIX:
ES: MW46R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW46R	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ

TOTAL UNKNOWN TICS: 6
TOTAL TICS 13

SDG FILE: 1F37862 DATE: MATRIX:

ES: MW49D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
W49D	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
MW49D	541-02-6	Cyclopentasiloxane, decameth	2	NJ
MW49D	544-76-3	Hexadecane	4	NJ
MW49D	629-78-7	Heptadecane	7	NJ
MW49D	1921-70-6	Pentadecane, 2,6,10,14-tetra	2	NJ
MW49D	593-45-3	Octadecane	8	NJ
MW49D	629-92-5	Nonadecane	8	NJ
MW49D	112-95-8	Eicosane	5	NJ
MW49D	791-28-6	Phosphine oxide, triphenyl-	2	NJ
		TOTAL UNKNOWN TICS:	10	
		TOTAL TICS	55	

SDG FILE: 1F37862 DATE: MATRIX:
ES: MW50D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW50D	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
MW50D	629-62-9	Pentadecane	12	NJ
MW50D	544-76-3	Hexadecane	30	NJ
MW50D	629-78-7	Heptadecane	37	NJ
MW50D	1921-70-6	Pentadecane, 2,6,10,14-tetra	21	NJ
MW50D	593-45-3	Octadecane	34	NJ
MW50D	638-36-8	Hexadecane, 2,6,10,14-tetram	15	NJ
W50D	629-92-5	Nonadecane	31	NJ
MW50D	112-95-8	Eicosane	23	NJ
MW50D	629-94-7	Heneicosane	7	NJ
		TOTAL UNKNOWN TICS:	129	
		TOTAL TICS	346	

SDG FILE: 1F37862 DATE: MATRIX:
ES: MW53
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW53	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
		TOTAL UNKNOWN TICS:	4	
		TOTAL TICS	10	

SDG FILE: 1F37862 DATE: MATRIX:
ES: MW54D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW54D	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
MW54D	95-16-9	Benzothiazole	6	NJ
MW54D	544-76-3	Hexadecane	4	NJ
MW54D	629-78-7	Heptadecane	6	NJ
MW54D	593-45-3	Octadecane	5	NJ
MW54D	629-92-5	Nonadecane	4	NJ

MW54D	112-95-8	Eicosane	3	NJ
MW54D	149-30-4	2-Mercaptobenzothiazole	3	NJ

TOTAL UNKNOWN TICS: 14
TOTAL TICS 52

SDG FILE: 1F37862 DATE: MATRIX:
ES: MW80
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW80	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
MW80	629-62-9	Pentadecane	2	NJ
MW80	544-76-3	Hexadecane	6	NJ
MW80	629-78-7	Heptadecane	9	NJ
MW80	1921-70-6	Pentadecane, 2,6,10,14-tetra	3	NJ
MW80	593-45-3	Octadecane	7	NJ
MW80	629-92-5	Nonadecane	7	NJ
MW80	112-95-8	Eicosane	4	NJ

TOTAL UNKNOWN TICS: 10
TOTAL TICS 55

SDG FILE: 1F37862 DATE: MATRIX:
ES: MW86
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
W86	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ

TOTAL UNKNOWN TICS: 28
TOTAL TICS 35

SDG FILE: 1F37862 DATE: MATRIX:
ES: PT17
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT17	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
PT17	85-44-9	Phthalic anhydride	2	NJ
PT17	791-28-6	Phosphine oxide, triphenyl-	2	NJ

TOTAL UNKNOWN TICS: 19
TOTAL TICS 29

SDG FILE: 1F37862 DATE: MATRIX:
ES: PT17R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT17R	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ

TOTAL UNKNOWN TICS: 3
TOTAL TICS 9

SDG FILE: 1F37862 DATE: MATRIX:
ES: PT20
LAB:

SID	CAS NO	COMPOUND	RESULT	QUAL.
?T20	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ

TOTAL UNKNOWN TICS: 23
TOTAL TICS 30

SDG FILE: 1F37862 DATE: MATRIX:
ES: PT20MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT20MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	13	NJ
PT20MS	142-62-1	Hexanoic acid	2	NJ
PT20MS	7492-70-8	Butanoic acid, 2-butoxy-1-me	14	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 29

SDG FILE: 1F37862 DATE: MATRIX:
ES: PT20MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT20MSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	12	NJ
'T20MSD	74381-40-1	Propanoic acid, 2-methyl-, 1	16	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 28

SDG FILE: 1F37862 DATE: MATRIX:
ES: PT22
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT22	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ

TOTAL UNKNOWN TICS: 26
TOTAL TICS 32

SDG FILE: 1E37914 DATE: MATRIX:
ES: MW44
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW44	95-63-6	Benzene, 1,2,4-trimethyl-	470	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 470

SDG FILE: 1E37914 DATE: MATRIX:
ES: MW84

LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW84	75-18-3	Dimethyl sulfide	21	NJ
?W84	98-82-8	Benzene, (1-methylethyl)-	21	NJ
?W84	103-65-1	Benzene, propyl-	38	NJ
MW84	108-67-8	Benzene, 1,3,5-trimethyl-	120	NJ
MW84	611-14-3	Benzene, 1-ethyl-2-methyl-	89	NJ
MW84	95-63-6	Benzene, 1,2,4-trimethyl-	400	NJ
		TOTAL UNKNOWN TICS:	208	
		TOTAL TICS	897	

SDG FILE: 1E37914 DATE: MATRIX:
ES: PT12
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT12	75-45-6	Methane, chlorodifluoro-	8	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8	

SDG FILE: 1E37914 DATE: MATRIX:
ES: PT18
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	6	
		TOTAL TICS	6	

SDG FILE: 1F37914 DATE: MATRIX:
ES: MW44
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW44	123-42-2	2-Pentanone, 4-hydroxy-4-met	13	NJ
MW44	98-82-8	Benzene, (1-methylethyl)-	16	NJ
MW44	103-65-1	Benzene, propyl-	27	NJ
MW44	108-67-8	1,3,5-Trimethylbenzene	100	NJ
MW44	611-14-3	Benzene, 1-ethyl-2-methyl-	76	NJ
MW44	95-36-3	1,2,4-Trimethylbenzene	220	NJ
MW44	526-73-8	Benzene, 1,2,3-trimethyl-	170	NJ
MW44	527-53-7	Benzene, 1,2,3,5-tetramethyl	7	NJ
MW44	629-62-9	Pentadecane w/unknown	8	NJ
		TOTAL UNKNOWN TICS:	302	
		TOTAL TICS	939	

SDG FILE: 1F37914 DATE: MATRIX:
ES: MW44R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW44R	123-42-2	2-Pentanone, 4-hydroxy-4-met	9	NJ

TOTAL UNKNOWN TICS:	29
TOTAL TICS	38

SDG FILE: 1F37914 DATE: MATRIX:
ES: MW45
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW45	123-42-2	2-Pentanone, 4-hydroxy-4-met	9	NJ
MW45	85-44-9	Phthalic anhydride	2	NJ
MW45	57-10-3	Hexadecanoic acid	2	NJ

TOTAL UNKNOWN TICS:	79
TOTAL TICS	92

SDG FILE: 1F37914 DATE: MATRIX:
ES: MW48
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW48	123-42-2	2-Pentanone, 4-hydroxy-4-met	10	NJ

TOTAL UNKNOWN TICS:	30
TOTAL TICS	40

SDG FILE: 1F37914 DATE: MATRIX:
S: MW55D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW55D	123-42-2	2-Pentanone, 4-hydroxy-4-met	12	NJ
MW55D	629-62-9	Pentadecane	4	NJ
MW55D	544-76-3	Hexadecane	14	NJ
MW55D	629-78-7	Heptadecane	22	NJ
MW55D	1921-70-6	Pentadecane, 2,6,10,14-tetra	7	NJ
MW55D	593-45-3	Octadecane	22	NJ
MW55D	638-36-8	Hexadecane, 2,6,10,14-tetram	5	NJ
MW55D	629-92-5	Nonadecane	20	NJ
MW55D	112-95-8	Eicosane w/phthalate	14	NJ
MW55D	629-94-7	Heneicosane	5	NJ

TOTAL UNKNOWN TICS:	140
TOTAL TICS	265

SDG FILE: 1F37914 DATE: MATRIX:
ES: MW84
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW84	123-42-2	2-Pentanone, 4-hydroxy-4-met	14	NJ
MW84	98-82-8	Benzene, (1-methylethyl)-	17	NJ
W84	103-65-1	Benzene, propyl-	29	NJ
MW84	108-67-8	1,3,5-Trimethylbenzene	110	NJ
MW84	611-14-3	Benzene, 1-ethyl-2-methyl-	78	NJ
MW84	526-73-8	Benzene, 1,2,3-trimethyl-	180	NJ

MW84	527-53-7	Benzene, 1,2,3,5-tetramethyl	8	NJ
MW84	112-40-3	Dodecane w/alkylbenzene	6	NJ

TOTAL UNKNOWN TICS: 334
TOTAL TICS 776

SDG FILE: 1F37914 DATE: MATRIX:
ES: PT12
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT12	123-42-2	2-Pentanone, 4-hydroxy-4-met	9	NJ
PT12	85-44-9	Phthalic anhydride	3	NJ

TOTAL UNKNOWN TICS: 87
TOTAL TICS 99

SDG FILE: 1F37914 DATE: MATRIX:
ES: PT18
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT18	123-42-2	2-Pentanone, 4-hydroxy-4-met	11	NJ

TOTAL UNKNOWN TICS: 42
TOTAL TICS 53

SDG FILE: 1F37914 DATE: MATRIX:
ES: PT18MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT18MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	12	NJ
PT18MS	554-84-7	Phenol, 3-nitro-	18	NJ
PT18MS	18456-81-0	1,3-Cyclohexanedione, 4-prop	2	NJ
PT18MS	20324-34-9	2,5,8,11-Tetraoxatetradecan-	4	NJ
PT18MS	20324-33-8	2-Propanol, 1-[2-(2-methoxy-	2	NJ
PT18MS	54789-40-1	Heptanamide, 4-ethyl-5-methy	2	NJ
PT18MS	6006-01-5	3,7,11-Tridecatrienenitrile,	4	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 44

SDG FILE: 1F37914 DATE: MATRIX:
ES: PT18MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT18MSD	108-88-3	Toluene	2	NJ
PT18MSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	14	NJ
PT18MSD	100-02-7	Phenol, 4-nitro-	22	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 38

SDG FILE: 1E37456 DATE: MATRIX:
ES: MW34R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW34R	75-28-	PROPANE, 2-METHYL-	1	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	1	

SDG FILE: 1E37456 DATE: MATRIX:
ES: PT10
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT10	75-45-	METHANE, CHLORODIFLUORO-	52	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	52	

SDG FILE: 1E37456 DATE: MATRIX:
ES: PT15
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT15	75-45-	METHANE, CHLORODIFLUORO-	130	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	130	

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW-43
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW-43	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
MW-43	629-78-7	Heptadecane	3	NJ
MW-43	593-45-3	Octadecane	7	NJ
MW-43	629-92-5	Nonadecane	14	NJ
MW-43	112-95-8	Eicosane	11	NJ
MW-43	629-94-7	Heneicosane	4	NJ
		TOTAL UNKNOWN TICS:	66	
		TOTAL TICS	112	

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW-43-R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW-43-R	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
		TOTAL UNKNOWN TICS:	3	
		TOTAL TICS	10	

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW34
LAB:

SID	CAS NO	COMPOUND	RESULT	QUAL.
MW34	123-42-2	2-Pentanone, 4-hydroxy-4-met	11	NJ
MW34	791-28-6	Phosphine oxide, triphenyl-	2	NJ
		TOTAL UNKNOWN TICS:	73	
		TOTAL TICS	86	

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW34R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW34R	123-42-2	2-Pentanone, 4-hydroxy-4-met	5	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5	

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW37
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW37	123-42-2	2-Pentanone, 4-hydroxy-4-met	5	NJ
		TOTAL UNKNOWN TICS:	37	
		TOTAL TICS	42	

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW39
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW39	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ
MW39	541-02-6	Cyclopentasiloxane, decameth	2	NJ
MW39	629-62-9	Pentadecane	2	NJ
MW39	544-76-3	Hexadecane	9	NJ
MW39	629-78-7	Heptadecane	12	NJ
MW39	1921-70-6	Pentadecane, 2,6,10,14-tetra	4	NJ
MW39	593-45-3	Octadecane	12	NJ
MW39	638-36-8	Hexadecane, 2,6,10,14-tetram	3	NJ
MW39	629-92-5	Nonadecane	11	NJ
MW39	112-95-8	Eicosane w/unknown	8	NJ
MW39	629-94-7	Heneicosane	2	NJ
		TOTAL UNKNOWN TICS:	53	
		TOTAL TICS	122	

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW41D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

MW41D	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ
MW41D	541-02-6	Cyclopentasiloxane, decameth	6	NJ
MW41D	124-07-2	Octanoic acid	4	NJ
MW41D	112-05-0	Nonanoic acid	4	NJ
MW41D	540-97-6	Cyclohexasiloxane, dodecamet	3	NJ
MW41D	334-48-5	Decanoic acid	4	NJ
MW41D	629-62-9	Pentadecane	3	NJ
MW41D	143-07-7	Dodecanoic acid	16	NJ
MW41D	544-76-3	Hexadecane	11	NJ
MW41D	629-78-7	Heptadecane	17	NJ
MW41D	1921-70-6	Pentadecane, 2,6,10,14-tetra	5	NJ
MW41D	593-45-3	Octadecane	16	NJ
MW41D	638-36-8	Hexadecane, 2,6,10,14-tetram	4	NJ
MW41D	629-92-5	Nonadecane	15	NJ
MW41D	112-95-8	Eicosane w/unknown	10	NJ
MW41D	629-94-7	Heneicosane	3	NJ

TOTAL UNKNOWN TICS: 31
TOTAL TICS 156

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW41DR
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW41DR	123-42-2	2-Pentanone, 4-hydroxy-4-met	5	NJ

TOTAL UNKNOWN TICS: 15
TOTAL TICS 20

SDG FILE: 1F37456 DATE: MATRIX:
ES: MW42D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW42D	124-07-2	Octanoic Acid	18	NJ
MW42D	334-48-5	Decanoic acid	18	NJ
MW42D	629-62-9	Pentadecane	25	NJ
MW42D	143-07-7	Dodecanoic acid	57	NJ
MW42D	544-76-3	Hexadecane	70	NJ
MW42D	629-78-7	Heptadecane	97	NJ
MW42D	1921-70-6	Pentadecane, 2,6,10,14-tetra	37	NJ
MW42D	544-63-8	Tetradecanoic acid	13	NJ
MW42D	593-45-3	Octadecane	92	NJ
MW42D	638-36-8	Hexadecane 2,6,10,14-tetrame	26	NJ
MW42D	629-92-5	Nonadecane	82	NJ
MW42D	112-95-8	Eicosane	52	NJ
MW42D	629-94-7	Heneicosane	17	NJ

TOTAL UNKNOWN TICS: 146
TOTAL TICS 750

SDG FILE: 1F37456 DATE: MATRIX:
ES: PT-19
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

PT-19	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
PT-19	485-43-8	Iridomyrmecin	4	NJ

TOTAL UNKNOWN TICS: 78
TOTAL TICS 89

SDG FILE: 1F37456 DATE: MATRIX:
ES: PT-25
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT-25	123-42-2	2-Pentanone, 4-hydroxy-4-met	8	NJ
PT-25	629-62-9	Pentadecane	6	NJ
PT-25	544-76-3	Hexadecane	17	NJ
PT-25	629-78-7	Heptadecane	24	NJ
PT-25	1921-70-6	Pentadecane, 2,6,10,14-tetra	8	NJ
PT-25	593-45-3	Octadecane	21	NJ
PT-25	638-36-8	Heptadecane, 2,6,10,14-tetra	6	NJ
PT-25	629-92-5	Nonadecane	20	NJ
PT-25	112-95-8	Eicosane w/unknown	13	NJ
PT-25	629-94-7	Heneicosane	4	NJ

TOTAL UNKNOWN TICS: 32
TOTAL TICS 159

SDG FILE: 1F37456 DATE: MATRIX:
ES: PT10
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT10	629-62-9	Pentadecane	43	NJ
PT10	544-76-3	Hexadecane	110	NJ
PT10	629-78-7	Heptadecane	150	NJ
PT10	1921-70-6	Pentadecane, 2,6,10,14-tetra	67	NJ
PT10	593-45-3	Octadecane	150	NJ
PT10	638-36-8	Hexadecane, 2,6,10,14-tetram	44	NJ
PT10	629-92-5	Nonadecane	120	NJ
PT10	112-95-8	Eicosane	90	NJ
PT10	629-94-7	Heneicosane	32	NJ

TOTAL UNKNOWN TICS: 267
TOTAL TICS 1073

SDG FILE: 1F37456 DATE: MATRIX:
ES: PT15
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT15	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ

TOTAL UNKNOWN TICS: 2
TOTAL TICS 8

SDG FILE: 1F37456 DATE: MATRIX:
ES: PT23
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT23	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ

TOTAL UNKNOWN TICS: 3
TOTAL TICS 9

SDG FILE: 1E37727 DATE: MATRIX:
ES: MW31R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW31R	75-28-	PROPANE, 2-METHYL-	1	JX

TOTAL UNKNOWN TICS: 0
TOTAL TICS 1

SDG FILE: 1E37727 DATE: MATRIX:
ES: PT16R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT16R	75-28-	PROPANE, 2-METHYL-	1	JX

TOTAL UNKNOWN TICS: 0
TOTAL TICS 1

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW27
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW27	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ

TOTAL UNKNOWN TICS: 54
TOTAL TICS 58

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW30
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW30	123-42-2	2-Pentanone, 4-hydroxy-4-met	9	NJ

TOTAL UNKNOWN TICS: 138
TOTAL TICS 147

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW31
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW31	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ
MW31	111-76-2	Ethanol, 2-butoxy-	3	NJ
MW31	142-62-1	Hexanoic acid	2	NJ

TOTAL UNKNOWN TICS:	42
TOTAL TICS	51

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW31R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW31R	123-42-2	2-Pentanone, 4-hydroxy-4-met	5	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5	

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW35D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW35D	123-42-2	2-Pentanone, 4-hydroxy-4-met	10	NJ
MW35D	629-62-9	Pentadecane	24	NJ
MW35D	544-76-3	Hexadecane	42	NJ
MW35D	629-78-7	Heptadecane	47	NJ
MW35D	1921-70-6	Pentadecane, 2,6,10,14-tetra	25	NJ
MW35D	593-45-3	Octadecane	43	NJ
MW35D	638-36-8	Hexadecane, 2,6,10,14-tetram	17	NJ
MW35D	629-92-5	Nonadecane	40	NJ
MW35D	112-95-8	Eicosane	31	NJ
W35D	629-94-7	Heneicosane	13	NJ
		TOTAL UNKNOWN TICS:	107	
		TOTAL TICS	399	

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW36
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW36	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
MW36	629-78-7	Heptadecane	2	NJ
MW36	593-45-3	Octadecane	2	NJ
		TOTAL UNKNOWN TICS:	37	
		TOTAL TICS	48	

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW38D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW38D	123-42-2	2-Pentanone, 4-hydroxy-4-met	11	NJ
MW38D	111-76-2	Ethanol, 2-butoxy-	3	NJ
MW38D	142-62-1	Hexanoic acid	2	NJ
MW38D	629-78-7	Heptadecane	2	NJ
MW38D	593-45-3	Octadecane	2	NJ
MW38D	629-92-5	Nonadecane	2	NJ

TOTAL UNKNOWN TICS:	20
TOTAL TICS	42

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW40
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW40	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ
MW40	544-76-3	Hexadecane	5	NJ
MW40	629-78-7	Heptadecane	8	NJ
MW40	1921-70-6	Pentadecane, 2,6,10,14-tetra	5	NJ
MW40	593-45-3	Octadecane	8	NJ
MW40	638-36-8	Hexadecane, 2,6,10,14-tetram	3	NJ
MW40	629-92-5	Nonadecane	7	NJ
MW40	112-95-8	Eicosane w/phthalate	5	NJ

TOTAL UNKNOWN TICS:	44
TOTAL TICS	89

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW52D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW52D	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
MW52D	629-62-9	Pentadecane	17	NJ
W52D	143-07-7	Dodecanoic acid	7	NJ
W52D	544-76-3	Hexadecane	45	NJ
MW52D	629-78-7	Heptadecane	52	NJ
MW52D	1921-70-6	Pentadecane, 2,6,10,14-tetra	18	NJ
MW52D	544-63-8	Tetradecanoic acid	6	NJ
MW52D	593-45-3	Octadecane	46	NJ
MW52D	638-36-8	Hexadecane, 2,6,10,14-tetram	12	NJ
MW52D	629-92-5	Nonadecane	42	NJ
MW52D	112-95-8	Eicosane w/phthalate	28	NJ
MW52D	629-94-7	Heneicosane	10	NJ

TOTAL UNKNOWN TICS:	206
TOTAL TICS	495

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW56
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW56	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ

TOTAL UNKNOWN TICS:	86
TOTAL TICS	90

SDG FILE: 1F37727 DATE: MATRIX:
ES: MW57D
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW57D	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ
MW57D	629-78-7	Heptadecane	3	NJ
MW57D	593-45-3	Octadecane	2	NJ
W57D	629-92-5	Nonadecane	2	NJ
.W57D	131-57-7	Oxybenzone	4	NJ

TOTAL UNKNOWN TICS: 116
TOTAL TICS 131

SDG FILE: 1F37727 DATE: MATRIX:
ES: PT16
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT16	123-42-2	2-Pentanone, 4-hydroxy-4-met	9	NJ

TOTAL UNKNOWN TICS: 10
TOTAL TICS 19

SDG FILE: 1F37727 DATE: MATRIX:
ES: PT16R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT16R	123-42-2	2-Pentanone, 4-hydroxy-4-met	8	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 8

SDG FILE: 1F37727 DATE: MATRIX:
ES: PT26
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
PT26	123-42-2	2-Pentanone, 4-hydroxy-4-met	11	NJ

TOTAL UNKNOWN TICS: 2
TOTAL TICS 13

SOIL/SEDIMENT

SDG FILE: FILE1E DATE: 11/01/91 MATRIX: SOIL
ES: S1031-4
LAB: 147827

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-4	1678-92-8	CYCLOHEXANE, PROPYL-	36000	J
S1031-4	493-02-7	NAPHTHALENE, DECAHYDRO-, TRA	10000	J

TOTAL UNKNOWN TICS: 144700
TOTAL TICS 190700

SDG FILE: FILE1E DATE: 11/01/91 MATRIX: SOIL
ES: S1031-4DL
LAB: 147827

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-4DL	1678-92-8	CYCLOHEXANE, PROPYL-	16000	JD
S1031-4DL	493-02-7	NAPHTHALENE, DECAHYDRO-, TRA	5500	JD

TOTAL UNKNOWN TICS: 90200
TOTAL TICS 111700

SDG FILE: FILE1E DATE: 11/01/91 MATRIX: SOIL
ES: S1031-5RE
LAB: 147828

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-5RE	1678-92-8	CYCLOHEXANE, PROPYL-	21000	J
S1031-5RE	493-02-7	NAPHTHALENE, DECAHYDRO-, TRA	11000	J

TOTAL UNKNOWN TICS: 131500
TOTAL TICS 163500

SDG FILE: FILE1E DATE: 11/01/91 MATRIX: SOIL
ES: S1031-6
LAB: 147829

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-6	1678-92-8	CYCLOHEXANE, PROPYL-	1800	J

TOTAL UNKNOWN TICS: 1700
TOTAL TICS 3500

SDG FILE: FILE1E DATE: 11/02/91 MATRIX: SOIL
ES: S1101-12
LAB: 147885

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 34
TOTAL TICS 34

SDG FILE: FILE1E DATE: 11/02/91 MATRIX: SOIL

ES: S1101-14
LAB: 147887

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	16	
		TOTAL TICS	16	

SDG FILE: FILE1E DATE: 11/02/91 MATRIX: SOIL
ES: S1101-18
LAB: 147891

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-18	109-66-0	PENTANE	7	J
S1101-18	110-54-3	HEXANE	9	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	16	

SDG FILE: FILE1E DATE: 11/02/91 MATRIX: SOIL
ES: S1101-18RE
LAB: 147891

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-18RE	109-66-0	PENTANE	9	J
S1101-18RE	110-54-3	HEXANE	13	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	22	

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1030-1
LAB: 147824

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1030-1	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	610	JB
S1030-1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	15610	

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1030-2
LAB: 147825

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1030-2	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	950	JB
S1030-2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	18000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	18950	

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1030-3
LAB: 147826

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1030-3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	890	JB
S1030-3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	18000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 18890

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-10
LAB: 147833

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-10	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1400	JB
S1031-10	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	30000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 31400

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-4
LAB: 147827

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-4	124-18-5	DECANE	56000	J
S1031-4	1678-93-9	CYCLOHEXANE, BUTYL-	5800	J
S1031-4	1120-21-4	UNDECANE	42000	J
S1031-4	112-40-3	DODECANE	7200	J
S1031-4	629-99-2	PENTACOSANE	3800	J

TOTAL UNKNOWN TICS: 105100
TOTAL TICS 219900

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-5
LAB: 147828

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-5	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	4800	J
S1031-5	124-18-5	DECANE	64000	JS
S1031-5	1678-93-9	CYCLOHEXANE, BUTYL-	4700	J
S1031-5	1120-21-4	UNDECANE	67000	JS
S1031-5	112-40-3	DODECANE	10000	J

TOTAL UNKNOWN TICS: 144000
TOTAL TICS 294500

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-6
LAB: 147829

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-6	108-67-8	BENZENE, 1,3,5-TRIMETHYL-	1900	J
S1031-6	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	2900	J
S1031-6	124-18-5	DECANE	19000	J
S1031-6	108-67-8	BENZENE, 1,2,3-TRIMETHYL-	1900	J

S1031-6	1678-93-9	CYCLOHEXANE, BUTYL-	1700	J
S1031-6	1120-40-3	UNDECANE	15000	J
S1031-6	527-53-7	BENZENE, 1,2,3,5-TETRAMETHYL	1100	J
S1031-6	112-40-3	DODECANE	2700	J

TOTAL UNKNOWN TICS: 25500
TOTAL TICS 71700

SDG FILE: FILE1F DATE: 11/01/91 MATRIX: SOIL
ES: S1031-8
LAB: 147831

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1031-8	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	810	JB
S1031-8	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	29000	JB
S1031-8	629-62-9	PENTADECANE	410	J
S1031-8	629-78-7	HEPTADECANE	760	J
S1031-8	638-67-5	TRICOSANE	380	J
S1031-8	646-31-1	TETRACOSANE	470	J
S1031-8	629-99-2	PENTACOSANE	540	J
S1031-8	630-01-3	HEXACOSANE	480	J
S1031-8	593-49-7	HEPTACOSANE	470	J
S1031-8	630-02-4	OCTACOSANE	440	J
S1031-8	630-03-5	NONACOSANE	690	J
S1031-8	638-68-6	TRIACONTANE	400	J

TOTAL UNKNOWN TICS: 2970
TOTAL TICS 37820

SDG FILE: FILE1F DATE: 11/02/91 MATRIX: SOIL
ES: S1101-12
LAB: 147885

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-12	86-74-8	9H-CARBAZOLE	2600	J
S1101-12	832-71-3	PHENANTHRENE, 3-METHYL-	1600	J
S1101-12	2531-84-2	PHENANTHRENE, 2-METHYL-	2000	J
S1101-12	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	2700	J
S1101-12	612-94-2	NAPHTHALENE, 2-PHENYL-	1200	J
S1101-12	243-42-5	BENZO[B]NAPHTHO[2,3-D]FURAN	1400	J
S1101-12	238-84-6	11H-BENZO[A]FLUORENE	4100	J
S1101-12	239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	1100	J
S1101-12	195-19-7	BENZO[C]PHENANTHRENE	1300	J
S1101-12	192-97-2	BENZO[E]PYRENE	6700	J
S1101-12	198-55-0	PERYLENE	2800	J

TOTAL UNKNOWN TICS: 19600
TOTAL TICS 47100

SDG FILE: FILE1F DATE: 11/02/91 MATRIX: SOIL
ES: S1101-13
LAB: 147886

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-13	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	600	JB
S1101-13	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 6600

DG FILE: FILE1F   DATE: 11/02/91   MATRIX: SOIL
S: S1101-14
LAB: 147887

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-14	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	750	JB
S1101-14	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7300	JB

TOTAL UNKNOWN TICS: 1500
TOTAL TICS 9550

SDG FILE: FILE1F   DATE: 11/02/91   MATRIX: SOIL
ES: S1101-15
LAB: 147888

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-15	832-71-3	PHENANTHRENE, 3-METHYL-	1200	J
S1101-15	2531-84-2	PHENANTHRENE, 2-METHYL-	1400	J
S1101-15	57-10-3	HEXADECANOIC ACID	5400	J
S1101-15	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	1300	J
S1101-15	610-48-0	ANTHRACENE, 1-METHYL-	1000	J
S1101-15	57-11-4	OCTADECANOIC ACID	3600	J
S1101-15	195-19-7	BENZO[C]PHENANTHRENE	890	J
S1101-15	192-97-2	BENZO[E]PYRENE	2500	J

TOTAL UNKNOWN TICS: 20670
TOTAL TICS 37960

SDG FILE: FILE1F   DATE: 11/02/91   MATRIX: SOIL
ES: S1101-16
LAB: 147889

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-16	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	840	JB
S1101-16	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9000	JB

TOTAL UNKNOWN TICS: 1110
TOTAL TICS 10950

SDG FILE: FILE1F   DATE: 11/02/91   MATRIX: SOIL
ES: S1101-17
LAB: 147890

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1101-17	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	820	JB
S1101-17	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6900	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 7720

SDG FILE: FILE1F   DATE: 11/06/91   MATRIX: SOIL
ES: S1104-19

LAB: 148021

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-19	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1000	JB
1104-19	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 13000

SDG FILE: FILE1F DATE: 11/06/91 MATRIX: SOIL
ES: S1104-20
LAB: 148022

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-20	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	800	JB
S1104-20	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 11800

SDG FILE: FILE1F DATE: 00/00/00 MATRIX: SOIL
ES: SBLKI1
LAB: SBLKI1

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKI1	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	820	JA
SBLKI1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	24000	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 24820

SDG FILE: FILE1F DATE: 00/00/00 MATRIX: SOIL
ES: SBLKI3
LAB: SBLKI3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKI3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	830	JA
SBLKI3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6800	JA

TOTAL UNKNOWN TICS: 390
TOTAL TICS 8020

SDG FILE: FILE1F DATE: 00/00/00 MATRIX: SOIL
ES: SBLKJ1
LAB: SBLKJ1

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKJ1	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	690	JA
SBLKJ1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7000	JA

TOTAL UNKNOWN TICS: 350
TOTAL TICS 8040

SDG FILE: FILE1E1 DATE: 11/06/91 MATRIX: SOIL
ES: S1104-22

LAB: 148024

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	16	
		TOTAL TICS	16	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1104-21
LAB: 148023

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-21	86-74-8	9H-CARBAZOLE	1700	J
S1104-21	832-71-3	PHENANTHRENE, 3-METHYL-	1300	J
S1104-21	2531-84-2	PHENANTHRENE, 2-METHYL-	1900	J
S1104-21	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	2900	J
S1104-21	84-65-1	9,10-ANTHRACENEDIONE	1700	J
S1104-21	238-84-6	11H-BENZO[A]FLUORENE	2800	J
S1104-21	243-17-4	11H-BENZO[B]FLUORENE	1600	J
S1104-21	239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	1800	J
S1104-21	195-19-7	BENZO[C]PHENANTHRENE	1300	J
S1104-21	203-12-3	BENZO[GHI]FLUORANTHENE	1100	J
S1104-21	192-97-2	BENZO[E]PYRENE	6100	J
S1104-21	198-55-0	PERYLENE	2800	J
		TOTAL UNKNOWN TICS:	11670	
		TOTAL TICS	38670	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1104-22
LAB: 148024

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-22	86-74-8	9H-CARBAZOLE	730	J
S1104-22	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	1100	J
S1104-22	238-84-6	11H-BENZO[A]FLUORENE	1300	J
S1104-22	638-67-5	TRICOSANE	1000	J
S1104-22	243-17-4	11H-BENZO[B]FLUORENE	740	J
S1104-22	646-31-1	TETRACOSANE	1500	J
S1104-22	239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	930	J
S1104-22	629-99-2	PENTACOSANE	1700	J
S1104-22	630-01-3	HEXACOSANE	1900	J
S1104-22	593-49-7	HEPTACOSANE	2100	J
S1104-22	630-02-4	OCTACOSANE	3000	J
S1104-22	630-03-5	NONACOSANE	3200	J
S1104-22	192-97-2	BENZO[E]PYRENE	2300	J
S1104-22	638-68-6	TRIACONTANE	2100	J
S1104-22	198-55-0	PERYLENE	950	J
S1104-22	544-85-4	DOTRIACONTANE	1500	J
		TOTAL UNKNOWN TICS:	8000	
		TOTAL TICS	34050	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1104-23
LAB: 148025

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1104-23	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	920	JB
S1104-23	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JB
S1104-23	630-03-5	NONACOSANE	470	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	17390	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-24
LAB: 148026

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-24	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	930	JB
S1105-24	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	17000	JB
S1105-24	630-03-5	NONACOSANE	320	J
		TOTAL UNKNOWN TICS:	320	
		TOTAL TICS	18570	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-25
LAB: 148027

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-25	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	960	JB
S1105-25	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	19000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	19960	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-26
LAB: 148028

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-26	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	860	JB
S1105-26	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	15860	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-27
LAB: 148029

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-27	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	810	JB
S1105-27	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	22000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	22810	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-28

LAB: 148030

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-28	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	740	JB
1105-28	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	23000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	23740	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-29
LAB: 148031

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-29	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4300	JB
S1105-29	100-52-7	BENZALDEHYDE	400	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	4700	

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: SOIL
ES: S1105-30
LAB: 148032

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1105-30	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	560	JB
S1105-30	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	17000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	17560	

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-31
LAB: 148457

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-31	629-78-7	HEPTADECANE	700	J
S1106-31	1921-70-6	PENTADECANE, 2,6,10,14-TETRA	990	J
S1106-31	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	1300	J
S1106-31	57-10-3	HEXADECANOIC ACID	770	J
S1106-31	238-84-6	11H-BENZO[A]FLUORENE	1500	J
S1106-31	243-17-4	11H-BENZO[B]FLUORENE	890	J
S1106-31	593-49-7	HEPTACOSANE	720	J
S1106-31	630-03-5	NONACOSANE	2600	J
S1106-31	192-97-2	BENZO[E]PYRENE	2100	J
S1106-31	198-55-0	PERYLENE	820	J
		TOTAL UNKNOWN TICS:	10960	
		TOTAL TICS	23350	

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-32
LAB: 148458

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-32	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	900	JB

S1106-32	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JB
S1106-32	629-99-2	PENTACOSANE	380	J
S1106-32	630-01-3	HEXACOSANE	360	J
S1106-32	593-49-7	HEPTACOSANE	470	J
1106-32	630-02-4	OCTACOSANE	480	J
1106-32	630-03-5	NONACOSANE	580	J
S1106-32	638-68-6	TRIACONTANE	350	J

TOTAL UNKNOWN TICS: 560
TOTAL TICS 18080

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-33
LAB: 148459

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-33	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	970	JB
S1106-33	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	10000	JB
S1106-33	629-99-2	PENTACOSANE	450	J
S1106-33	630-01-3	HEXACOSANE	510	J
S1106-33	593-49-7	HEPTACOSANE	500	J
S1106-33	630-02-4	OCTACOSANE	500	J
S1106-33	630-03-5	NONACOSANE	640	J

TOTAL UNKNOWN TICS: 1350
TOTAL TICS 14920

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
S: S1106-34
AB: 148460

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-34	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	890	JB
S1106-34	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 15890

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-36
LAB: 148462

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-36	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	800	JB
S1106-36	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1106-36	57-10-3	HEXADECANOIC ACID	580	J

TOTAL UNKNOWN TICS: 4030
TOTAL TICS 17410

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-37
AB: 148463

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-37	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	650	JB

S1106-37	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB

TOTAL UNKNOWN TICS: 520
TOTAL TICS 13170

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: SOIL
ES: S1106-38
LAB: 148464

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-38	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	680	JB
S1106-38	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9800	JB

TOTAL UNKNOWN TICS: 1230
TOTAL TICS 11710

SDG FILE: FILE1F1 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-39
LAB: 148704

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-39	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	680	JB
S1107-39	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB

TOTAL UNKNOWN TICS: 990
TOTAL TICS 13670

'DG FILE: FILE1F1 DATE: 00/00/00 MATRIX: SOIL
.S: SBLK9K
LAB: SBLKK9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK9K	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	830	JA
SBLK9K	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JA

TOTAL UNKNOWN TICS: 550
TOTAL TICS 17380

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKJ2
LAB: SBLKJ2

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKJ2	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	730	JA
SBLKJ2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 11730

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKK9
'AB: SBLKK9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKK9	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	950	JA

SBLKK9	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	8800	JA
		TOTAL UNKNOWN TICS:	390	
		TOTAL TICS	10140	

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKT3
LAB: SBLKT3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKT3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	2300	JA
SBLKT3	100-52-7	BENZALDEHYDE	240	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	2540	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-41
LAB: 148706

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-41	96-37-7	METHYLCYCLOPENTANE	14	J
S1107-41	110-54-3	HEXANE	130	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	144	

'DG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
S: S1108-48
LAB: 148713

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-48	110-54-3	HEXANE	7	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	7	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-49
LAB: 148714

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	24	
		TOTAL TICS	24	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-49DL
LAB: 148714

ESID	CAS NO	COMPOUND	RESULT	QUAL.
'1108-49DL	110-54-3	HEXANE	3900	JD
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	3900	

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-50
AB: 148715

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-50	110-54-3	HEXANE	1300	J
S1108-50	493-02-7	DECAHYDRONAPHTHALENE, TRANS	6900	J

TOTAL UNKNOWN TICS: 65900
TOTAL TICS 74100

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-50DL
LAB: 148715

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-50DL	110-54-3	HEXANE	28000	JD

TOTAL UNKNOWN TICS: 36000
TOTAL TICS 64000

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-51
LAB: 148716

ESID	CAS NO	COMPOUND	RESULT	QUAL.
1108-51	110-54-3	HEXANE	26000	J

TOTAL UNKNOWN TICS: 40000
TOTAL TICS 66000

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-51DL
LAB: 148716

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-51DL	110-54-3	HEXANE	34000	JD

TOTAL UNKNOWN TICS: 0
TOTAL TICS 34000

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-52
LAB: 148717

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-52	493-02-7	DECAHYDRONAPHTHALENE, TRANS	3400	J

TOTAL UNKNOWN TICS: 28350
TOTAL TICS 31750

SDG FILE: FILE1E2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-52DL

LAB: 148717

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-52DL	110-54-3	HEXANE	1900	JD
l108-52DL	493-02-7	DECAHYDRONAPHTHALENE, TRANS	2000	JD
		TOTAL UNKNOWN TICS:	28400	
		TOTAL TICS	32300	

SDG FILE: FILE1E2 DATE: 11/14/91 MATRIX: SOIL
ES: S1112-55
LAB: 148927

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1112-55	281-23-2	TRICYCLO[3.3.1.13,7]DECANE,	46	J
S1112-55	1678-92-8	PROPYLCYCLOHEXANE	50	J
S1112-55	493-02-7	NAPHTHALENE, DECAHYDRO-, TRA	13	J
		TOTAL UNKNOWN TICS:	217	
		TOTAL TICS	326	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-40
LAB: 148705

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-40	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	410	JB
S1107-40	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	18000	JB
		TOTAL UNKNOWN TICS:	1040	
		TOTAL TICS	19450	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-42
LAB: 148707

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-42	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	450	JB
S1107-42	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JB
		TOTAL UNKNOWN TICS:	1250	
		TOTAL TICS	15700	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1107-43
LAB: 148708

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1107-43	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	450	JB
S1107-43	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JB
		TOTAL UNKNOWN TICS:	2900	
		TOTAL TICS	19350	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL

ES: S1107-44
LAB: 148709

ESID	CAS NO	COMPOUND	RESULT	QUAL.
1107-44	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	390	JB
͜1107-44	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
		TOTAL UNKNOWN TICS:	2670	
		TOTAL TICS	15060	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-45
LAB: 148710

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-45	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	380	JB
S1108-45	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	20000	JB
S1108-45	630-03-5	NONACOSANE	830	J
		TOTAL UNKNOWN TICS:	2400	
		TOTAL TICS	23610	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-46
LAB: 148711

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-46	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	420	JB
1108-46	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	19000	JB
		TOTAL UNKNOWN TICS:	790	
		TOTAL TICS	20210	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-47
LAB: 148712

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-47	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	450	JB
S1108-47	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JB
		TOTAL UNKNOWN TICS:	870	
		TOTAL TICS	15320	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-48
LAB: 148713

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-48	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	520	JB
S1108-48	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	21000	JB
		TOTAL UNKNOWN TICS:	1330	
		TOTAL TICS	22850	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-49
LAB: 148714

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-49	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3900	JB
S1108-49	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1108-49	630-03-5	NONACOSANE	410	J
		TOTAL UNKNOWN TICS:	3870	
		TOTAL TICS	20180	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-50
LAB: 148715

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-50	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	16000	J
S1108-50	124-18-5	DECANE	52000	J
S1108-50	526-73-8	BENZENE, 1,2,3-TRIMETHYL-	11000	J
S1108-50	1678-93-9	CYCLOHEXANE, BUTYL-	7300	J
S1108-50	1120-21-4	UNDECANE	34000	J
S1108-50	112-40-3	DODECANE	11000	J
S1108-50	629-99-2	PENTACOSANE	11000	J
S1108-50	593-49-7	HEPTACOSANE	7500	J
		TOTAL UNKNOWN TICS:	110700	
		TOTAL TICS	260500	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-50RE
LAB: 148715

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-50RE	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	16000	J
S1108-50RE	124-18-5	DECANE	59000	J
S1108-50RE	526-73-8	BENZENE, 1,2,3-TRIMETHYL-	10000	J
S1108-50RE	1678-93-9	CYCLOHEXANE, BUTYL-	8000	J
S1108-50RE	1120-21-4	UNDECANE	40000	J
S1108-50RE	112-40-3	DODECANE	12000	J
S1108-50RE	629-50-5	TRIDECANE	8400	J
S1108-50RE	629-59-4	TETRADECANE	6300	J
S1108-50RE	629-99-2	PENTACOSANE	9400	J
		TOTAL UNKNOWN TICS:	103400	
		TOTAL TICS	272500	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-51
LAB: 148716

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-51	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	22000	J
S1108-51	124-18-5	DECANE	60000	J
S1108-51	526-73-8	BENZENE, 1,2,3-TRIMETHYL-	14000	J
S1108-51	1678-93-9	CYCLOHEXANE, BUTYL-	10000	J
S1108-51	1120-21-4	UNDECANE	44000	J

S1108-51	112-40-3	DODECANE	14000	J
S1108-51	629-50-5	TRIDECANE	9900	J
S1108-51	629-99-2	PENTACOSANE	15000	J
S1108-51	593-49-7	HEPTACOSANE	9600	J
		TOTAL UNKNOWN TICS:	132600	
		TOTAL TICS	331100	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-51RE
LAB: 148716

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-51RE	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	18000	J
S1108-51RE	124-18-5	DECANE	71000	J
S1108-51RE	526-73-8	BENZENE, 1,2,3-TRIMETHYL-	11000	J
S1108-51RE	1678-93-9	CYCLOHEXANE, BUTYL-	8600	J
S1108-51RE	1120-21-4	UNDECANE	49000	J
S1108-51RE	112-40-3	DODECANE	15000	J
S1108-51RE	629-50-5	TRIDECANE	9100	J
S1108-51RE	112-95-8	EICOSANE	8900	J
S1108-51RE	629-94-7	HENEICOSANE	9300	J
S1108-51RE	629-99-2	PENTACOSANE	13000	J
S1108-51RE	593-49-7	HEPTACOSANE	8600	J
		TOTAL UNKNOWN TICS:	106100	
		TOTAL TICS	327600	

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: SOIL
ES: S1108-52
LAB: 148717

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1108-52	95-63-6	BENZENE, 1,2,4-TRIMETHYL-	8100	J
S1108-52	124-18-5	DECANE	29000	J
S1108-52	526-73-8	BENZENE, 1,2,3-TRIMETYHYL-	5300	J
S1108-52	1678-93-9	CYCLOHEXANE, BUTYL-	3900	J
S1108-52	91-17-8	NAPHTHALENE, DECAHYDRO-	2600	J
S1108-52	1120-21-4	UNDECANE	21000	J
S1108-52	112-40-3	DODECANE	5300	J
S1108-52	112-95-8	EICOSANE	2700	J
S1108-52	629-99-2	PENTACOSANE	3700	J
		TOTAL UNKNOWN TICS:	47100	
		TOTAL TICS	128700	

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1112-53
LAB: 148925

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1112-53	238-84-6	11H-BENZO[A]FLUORENE	1100	J
S1112-53	2381-21-7	PYRENE, 1-METHYL-	1700	J
S1112-53	192-97-2	BENZO[E]PYRENE	1600	J
S1112-53	198-55-0	PERYLENE	410	J
		TOTAL UNKNOWN TICS:	12680	

TOTAL TICS 17490

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1112-54
LAB: 148926

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1112-54	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	840	JB
S1112-54	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	22000	JB

TOTAL UNKNOWN TICS: 1440
TOTAL TICS 24280

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1112-55
LAB: 148927

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1112-55	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	900	JB
S1112-55	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB

TOTAL UNKNOWN TICS: 1280
TOTAL TICS 17180

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-56
LAB: 148928

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-56	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1700	JB
S1113-56	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	23000	JB

TOTAL UNKNOWN TICS: 1140
TOTAL TICS 25840

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-57
LAB: 148929

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-57	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	500	JB
S1113-57	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JB

TOTAL UNKNOWN TICS: 690
TOTAL TICS 12190

SDG FILE: FILE1F2 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-58
LAB: 148930

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-58	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	800	JB
S1113-58	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	20000	JB

TOTAL UNKNOWN TICS: 1180

TOTAL TICS 21980

SDG FILE: FILE1F2 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKL3
LAB: SBLKL3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKL3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	350	JA
SBLKL3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JA
SBLKL3	100-52-7	BENZALDEHYDE	420	J

TOTAL UNKNOWN TICS: 2610
TOTAL TICS 17380

SDG FILE: FILE1F2 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKN7
LAB: SBLKN7

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKN7	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3300	JA

TOTAL UNKNOWN TICS: 310
TOTAL TICS 3610

SDG FILE: FILE1F2 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKQ6
LAB: SBLKQ6

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKQ6	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	580	JA
SBLKQ6	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	10000	JA

TOTAL UNKNOWN TICS: 310
TOTAL TICS 10890

SDG FILE: 1E148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-72
LAB: 149182

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-72	78-78-4	BUTANE, 2-METHYL-	8	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 8

SDG FILE: 1E148931 DATE: 00/00/00 MATRIX: SOIL
ES: VBLKG9
LAB: VBLKG9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKG9	1066-40-6	SILANOL, TRIMETHYL-	8	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 8

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-59
LAB: 148931

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-59	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	650	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	650	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-60
LAB: 148932

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-60	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	800	JA
S1113-60	544-76-3	HEXADECANE	580	J
S1113-60	629-78-7	HEPTADECANE	660	J
S1113-60	1921-70-6	PENTADECANE, 2,6,10,14-TETRA	370	J
S1113-60	593-45-3	OCTADECANE	510	J
S1113-60	629-92-5	NONADECANE	470	J
S1113-60	112-95-8	EICOSANE	350	J
S1113-60	630-03-5	NONACOSANE	500	J
		TOTAL UNKNOWN TICS:	680	
		TOTAL TICS	4920	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-61
LAB: 148933

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-61	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	740	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	740	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-62
LAB: 148934

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-62	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	620	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	620	

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-63
LAB: 148935

ESID	CAS NO	COMPOUND	RESULT	QUAL.
1113-63	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	720	JA
		TOTAL UNKNOWN TICS:	0	

TOTAL TICS 720

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-64
LAB: 148936

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-64	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	640	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 640

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: SOIL
ES: S1113-65
LAB: 148937

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1113-65	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	600	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 600

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-66
LAB: 149176

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-66	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	410	JA
S1114-66	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6100	JA
S1114-66	630-03-5	NONACOSANE	510	J

TOTAL UNKNOWN TICS: 850
TOTAL TICS 7870

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-67
LAB: 149177

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-67	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	430	JA
S1114-67	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7100	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 7530

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-68
LAB: 149178

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-68	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	390	JA
S1114-68	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5600	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5990

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-69
AB: 149179

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-69	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	380	JA
S1114-69	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6900	JA
S1114-69	238-84-6	11H-BENZO(A)FLUORENE	390	J
S1114-69	192-97-2	BENZO(E)PYRENE	660	J
		TOTAL UNKNOWN TICS:	1390	
		TOTAL TICS	9720	

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-70
LAB: 149180

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-70	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6500	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6500	

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: SOIL
ES: S1114-71
LAB: 149181

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1114-71	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6100	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6100	

SDG FILE: 1F148931 DATE: 11/18/91 MATRIX: SOIL
ES: S1511-78
LAB: 149231

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-78	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6400	JA
S1511-78	57-10-3	HEXADECANOIC ACID	840	J
S1511-78	593-49-7	HEPTACOSANE	420	J
S1511-78	630-03-7	NONACOSANE	2300	J
		TOTAL UNKNOWN TICS:	7370	
		TOTAL TICS	17330	

SDG FILE: 1F148931 DATE: 11/18/91 MATRIX: SOIL
ES: S1611-83
LAB: 149232

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1611-83	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	400	JA
S1611-83	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5900	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 6300

SDG FILE: 1F148931 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKN4
LAB: SBLKN4

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKN4	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	910	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 910

SDG FILE: 1F148931 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKO6
LAB: SBLKO6

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKO6	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	360	JA
SBLKO6	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5500	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5860

SDG FILE: 1F148931 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKP3
LAB: SBLKP3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKP3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	330	JA
SBLKP3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5600	JA

TOTAL UNKNOWN TICS: 330
TOTAL TICS 6260

SDG FILE: 1E149114 DATE: 11/18/91 MATRIX: SOIL
ES: S1511-85
LAB: 149233

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 8
TOTAL TICS 8

SDG FILE: 1E149114 DATE: 11/18/91 MATRIX: SOIL
ES: S1611-86
LAB: 149234

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 7
TOTAL TICS 7

SDG FILE: 1E149114 DATE: 11/21/91 MATRIX: SOIL

ES: S2011-87
LAB: 149451

ESID	CAS NO	COMPOUND	RESULT	QUAL.
2011-87	110-54-3	HEXANE	21	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	21	

SDG FILE: 1E149114 DATE: 00/00/00 MATRIX: SOIL
ES: VBLKG9
LAB: VBLKG9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKG9	1066-40-6	SILANOL, TRIMETHYL-	8	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: SOIL
ES: S1511-76
LAB: 149114

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-76	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1000	JB
S1511-76	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	15000	JB
S1511-76	57-10-3	HEXADECANOIC ACID	500	J
S1511-76	593-49-7	HEPTACOSANE	570	J
S1511-76	630-03-5	NONACOSANE	1100	J
S1511-76	83-48-7	STIGMASTEROL	560	J
S1511-76	1058-61-3	STIGMAST-4-EN-3-ONE	690	J
		TOTAL UNKNOWN TICS:	6160	
		TOTAL TICS	25580	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: SOIL
ES: S1511-77
LAB: 149115

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-77	57-10-3	HEXADECANOIC ACID	1100	J
S1511-77	629-99-2	PENTACOSANE	680	J
S1511-77	593-49-7	HEPTACOSANE	2400	J
S1511-77	630-02-4	OCTACOSANE	780	J
S1511-77	630-03-5	NONACOSANE	7000	J
S1511-77	638-68-6	TRIACONTANE	650	J
S1511-77	83-48-7	STIGMASTEROL	1000	J
S1511-77	1058-61-3	STIGMAST-4-EN-3-ONE	1000	J
		TOTAL UNKNOWN TICS:	27640	
		TOTAL TICS	42250	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: SOIL
ES: S1511-79
LAB: 149116

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-79	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	830	JB
S1511-79	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JB
S1511-79	57-10-3	HEXADECANOIC ACID	760	J
1511-79	150-86-7	PHYTOL	490	J
1511-79	629-99-2	PENTACOSANE	520	J
S1511-79	593-49-7	HEPTACOSANE	1000	J
S1511-79	630-03-5	NONACOSANE	2200	J
S1511-79	83-48-7	STIGMASTEROL	490	J
S1511-79	1058-61-3	STIGMAST-4-EN-3-ONE	840	J
		TOTAL UNKNOWN TICS:	10090	
		TOTAL TICS	33220	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: SOIL
ES: S1511-80
LAB: 149117

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-80	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	790	JB
S1511-80	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	13000	JB
S1511-80	2091-29-4	9-HEXADECENOIC ACID	520	J
S1511-80	57-10-3	HEXADECANOIC ACID	2000	J
S1511-80	593-49-7	HEPTACOSANE	940	J
S1511-80	630-03-5	NONACOSANE	2200	J
S1511-80	192-97-2	BENZO[E]PYRENE	500	J
S1511-80	57-88-5	CHOLESTEROL	1200	J
S1511-80	1058-61-3	STIGMAST-4-EN-3-ONE	730	J
		TOTAL UNKNOWN TICS:	15750	
		TOTAL TICS	37630	

SDG FILE: 1F149114 DATE: 11/18/91 MATRIX: SOIL
ES: S1511-85
LAB: 149233

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-85	84-65-1	9,10-ANTHRACENEDIONE	500	J
S1511-85	238-84-6	11H-BENZO[A]FLUORENE	620	J
S1511-85	195-19-7	BENZO[C]PHENANTHRENE	710	J
S1511-85	203-12-3	BENZO[GHI]FLUORANTHENE	480	J
S1511-85	192-97-2	BENZO[E]PYRENE	2800	J
S1511-85	198-55-0	PERYLENE	930	J
		TOTAL UNKNOWN TICS:	10420	
		TOTAL TICS	16460	

SDG FILE: 1F149114 DATE: 11/18/91 MATRIX: SOIL
ES: S1611-86
LAB: 149234

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1611-86	84-65-1	9,10-ANTHRACENEDIONE	750	J
1611-86	238-84-6	11H-BENZO[A]FLUORENE	970	J
1611-86	2381-21-7	PYRENE, 1-METHYL-	720	J
S1611-86	195-19-7	BENZO[C]PHENANTHRENE	1100	J
S1611-86	203-12-3	BENZO[GHI]FLUORANTHENE	760	J

S1611-86	192-97-2	BENZO[E]PYRENE	4400	J
S1611-86	198-55-0	PERYLENE	1500	J

TOTAL UNKNOWN TICS: 15540
TOTAL TICS 25740

SDG FILE: 1F149114 DATE: 11/21/91 MATRIX: SOIL
ES: S2011-87
LAB: 149451

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-87	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	3600	JB

TOTAL UNKNOWN TICS: 1100
TOTAL TICS 4700

SDG FILE: 1F149114 DATE: 11/21/91 MATRIX: SOIL
ES: S2011-87RE
LAB: 149451

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-87RE	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1900	JB
S2011-87RE	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9000	JB
S2011-87RE	2091-29-4	9-HEXADECENOIC ACID	930	J
S2011-87RE	57-10-3	HEXADECANOIC ACID	2500	J
S2011-87RE	593-49-7	HEPTACOSANE	600	J
S2011-87RE	630-03-5	NONACOSANE	3100	J

TOTAL UNKNOWN TICS: 16250
TOTAL TICS 34280

SDG FILE: 1F149114 DATE: 11/21/91 MATRIX: SOIL
ES: S2011-88
LAB: 149452

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-88	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	2400	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 2400

SDG FILE: 1F149114 DATE: 11/21/91 MATRIX: SOIL
ES: S2011-88RE
LAB: 149452

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S2011-88RE	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	840	JB
S2011-88RE	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7300	JB
S2011-88RE	57-10-3	HEXADECANOIC ACID	460	J
S2011-88RE	630-03-5	NONACOSANE	510	J

TOTAL UNKNOWN TICS: 2030
TOTAL TICS 11140

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: SOIL

ES: SBLKF9
LAB: SBLKF9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
'BLKF9	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	730	JA
ЗBLKF9	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	2900	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	3630	

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKO5
LAB: SBLKO5

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKO5	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	750	JA
SBLKO5	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JA
		TOTAL UNKNOWN TICS:	330	
		TOTAL TICS	12080	

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKP4
LAB: SBLKP4

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKP4	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	270	JA
SBLKP4	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5500	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5770	

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKR6
LAB: SBLKR6

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKR6	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	2400	JA
		TOTAL UNKNOWN TICS:	410	
		TOTAL TICS	2810	

SDG FILE: 1E150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-79
LAB: 150022

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	38	
		TOTAL TICS	38	

SDG FILE: 1E150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-87
LAB: 150236

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	24	
		TOTAL TICS	24	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-73
LAB: 150016

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-73	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5300	JA
S1202-73	630-03-5	NONACOSANE	420	J
		TOTAL UNKNOWN TICS:	630	
		TOTAL TICS	6350	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-74
LAB: 150017

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-74	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5900	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5900	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
'S: S1202-76
LAB: 150019

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-76	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5400	JA
		TOTAL UNKNOWN TICS:	400	
		TOTAL TICS	5800	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-77
LAB: 150020

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-77	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6000	JA
S1202-77	630-03-5	NONACOSANE	320	J
		TOTAL UNKNOWN TICS:	300	
		TOTAL TICS	6620	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1202-78
LAB: 150021

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1202-78	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6000	JA
		TOTAL UNKNOWN TICS:	330	

TOTAL TICS 6330

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
:: S1203-79
LAB: 150022

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-79	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7800	JA
S1203-79	630-03-5	NONACOSANE	460	J

TOTAL UNKNOWN TICS: 1430
TOTAL TICS 9690

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-80
LAB: 150023

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-80	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5700	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5700

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-81
LAB: 150024

SID	CAS NO	COMPOUND	RESULT	QUAL.
1203-81	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5800	JA

TOTAL UNKNOWN TICS: 310
TOTAL TICS 6110

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-82
LAB: 150025

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-82	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	6600	JA
S1203-82	630-03-5	NONACOSANE	1100	J

TOTAL UNKNOWN TICS: 1600
TOTAL TICS 9300

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-83
LAB: 150026

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-83	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5600	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5600

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: SOIL
ES: S1203-84
LAB: 150027

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1203-84	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4800	JA
S1203-84	630-03-5	NONACOSANE	680	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5480	

SDG FILE: 1F150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-86
LAB: 150235

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-86	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	730	JA
S1204-86	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7500	JA
		TOTAL UNKNOWN TICS:	350	
		TOTAL TICS	8580	

SDG FILE: 1F150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-87
LAB: 150236

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-87	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	850	JA
S1204-87	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	8100	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8950	

SDG FILE: 1F150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-88
LAB: 150237

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-88	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	680	JA
S1204-88	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	11680	

SDG FILE: 1F150016 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-89
LAB: 150238

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-89	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	950	JA
S1204-89	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7400	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8350	

SDG FILE: 1F150016 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKT1
LAB: SBLKT1

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKT1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7400	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	7400	

SDG FILE: 1F150016 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKU3
LAB: SBLKU3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKU3	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	770	JA
SBLKU3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11000	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	11770	

SDG FILE: 1F150726 DATE: 12/12/91 MATRIX: SOIL
ES: S1012119
LAB: 150727

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1012119	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1500	JA
S1012119	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	18000	JA
S1012119	57-10-3	HEXADECANOIC ACID	530	J
S1012119	630-03-5	NONACOSANE	1200	J
		TOTAL UNKNOWN TICS:	3890	
		TOTAL TICS	25120	

SDG FILE: 1F150726 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKX1
LAB: SBLKX1

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKX1	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	810	JA
SBLKX1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	5700	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6510	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1024-95RE
LAB: 150249

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1024-95RE	91-17-8	NAPHTHALENE, DECAHYDRO-	400	J
		TOTAL UNKNOWN TICS:	3100	
		TOTAL TICS	3500	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1025-99
LAB: 150255

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1025-99	91-17-8	NAPHTHALENE, DECAHYDRO-	190	J
		TOTAL UNKNOWN TICS:	1908	
		TOTAL TICS	2098	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-90
LAB: 150241

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	1000	
		TOTAL TICS	1000	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-94
LAB: 150247

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-94	110-54-3	HEXANE	8	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	8	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-95
LAB: 150249

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-95	91-17-8	NAPHTHALENE, DECAHYDRO-	180	J
		TOTAL UNKNOWN TICS:	1577	
		TOTAL TICS	1757	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96
LAB: 150250

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-96	91-17-8	NAPHTHALENE, DECAHYDRO-	2000	J
S1204-96	111-84-2	NONANE	5000	J
		TOTAL UNKNOWN TICS:	28600	
		TOTAL TICS	35600	

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96A
LAB: 150251

ESID	CAS NO	COMPOUND	RESULT	QUAL.

S1204-96A	91-17-8	NAPHTHALENE, DECAHYDRO-	4900	J
S1204-96A	111-84-2	NONANE	11000	J

TOTAL UNKNOWN TICS: 68000
TOTAL TICS 83900

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96AD
LAB: 150251

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-96AD	91-17-8	NAPHTHALENE, DECAHYDRO-	3000	JD
S1204-96AD	111-84-2	NONANE	6300	JD

TOTAL UNKNOWN TICS: 42000
TOTAL TICS 51300

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-100
LAB: 150256

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 59
TOTAL TICS 59

SDG FILE: 1E150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-100R
LAB: 150256

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 50
TOTAL TICS 50

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-89A
LAB: 150240

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-89A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	17000	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 17000

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-90
LAB: 150241

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-90	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1200	JB
S1204-90	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1204-90	1120-21-4	UNDECANE	1700	J

TOTAL UNKNOWN TICS: 8100

TOTAL TICS 23000

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
S: S1204-91
LAB: 150242

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-91	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1000	JB
S1204-91	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	19000	JB

TOTAL UNKNOWN TICS: 320
TOTAL TICS 20320

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-91A
LAB: 150243

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-91A	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1300	JB
S1204-91A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	22000	JB

TOTAL UNKNOWN TICS: 320
TOTAL TICS 23620

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-92
LAB: 150244

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-92	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1400	JB
S1204-92	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	19000	JB
S1204-92	124-18-5	DECANE	460	J
S1204-92	1120-21-4	UNDECANE	480	J

TOTAL UNKNOWN TICS: 830
TOTAL TICS 22170

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-93
LAB: 150245

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-93	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1200	JB
S1204-93	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	13000	JB
S1204-93	124-18-5	DECANE	1000	J
S1204-93	91-17-8	NAPHTHALENE, DECAHYDRO-	400	J
S1204-93	1120-21-4	UNDECANE	1300	J
S1204-93	112-40-3	DODECANE	430	J

TOTAL UNKNOWN TICS: 5270
TOTAL TICS 22600

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-93A
LAB: 150246

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-93A	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1300	JB
S1204-93A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	13000	JB
		TOTAL UNKNOWN TICS:	330	
		TOTAL TICS	14630	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-94
LAB: 150247

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-94	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	690	JB
S1204-94	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14000	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	14690	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-94A
LAB: 150248

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-94A	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1500	JB
S1204-94A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	10000	JB
		TOTAL UNKNOWN TICS:	850	
		TOTAL TICS	12350	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-94RE
LAB: 150247

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-94RE	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7400	JB
		TOTAL UNKNOWN TICS:	400	
		TOTAL TICS	7800	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-95
LAB: 150249

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-95	91-17-8	NAPHTHALENE, DECAHYDRO-	2300	J
S1204-95	629-99-2	PENTACOSANE	1300	J
S1204-95	630-01-3	HEXACOSANE	830	J
S1204-95	601-58-1	STIGMASTANE	1200	J
		TOTAL UNKNOWN TICS:	20120	
		TOTAL TICS	25750	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-95RE

LAB: 150249

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-95RE	91-17-8	NAPHTHALENE, DECAHYDRO-	1900	J
1204-95RE	629-99-2	PENTACOSANE	1100	J
S1204-95RE	630-01-3	HEXACOSANE	670	J
S1204-95RE	601-58-1	STIGMASTANE	1100	J
		TOTAL UNKNOWN TICS:	18060	
		TOTAL TICS	22830	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96
LAB: 150250

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-96	124-18-5	DECANE	27000	J
S1204-96	1678-93-9	CYCLOHEXANE, BUTYL-	5300	J
S1204-96	1120-21-4	UNDECANE	26000	J
S1204-96	112-40-3	DODECANE	7000	J
S1204-96	629-50-5	TRIDECANE	3300	J
S1204-96	629-92-5	NONADECANE	3000	J
S1204-96	112-95-8	EICOSANE	3200	J
S1204-96	629-97-0	DOCOSANE	3300	J
S1204-96	593-49-7	HEPTACOSANE	3100	J
S1204-96	630-02-4	OCTACOSANE	3200	J
		TOTAL UNKNOWN TICS:	47700	
		TOTAL TICS	132100	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1204-96A
LAB: 150251

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1204-96A	124-18-5	DECANE	24000	J
S1204-96A	1678-93-9	CYCLOHEXANE, BUTYL-	2900	J
S1204-96A	1120-21-4	UNDECANE	21000	J
S1204-96A	112-40-3	DODECANE	4500	J
S1204-96A	629-92-5	NONADECANE	2400	J
S1204-96A	112-95-8	EICOSANE	2600	J
S1204-96A	629-97-0	DOCOSANE	3100	J
S1204-96A	593-49-7	HEPTACOSANE	3100	J
S1204-96A	630-02-4	OCTACOSANE	2600	J
		TOTAL UNKNOWN TICS:	41200	
		TOTAL TICS	107400	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-100
LAB: 150256

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-100	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	0	JB
S1205-100	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	32000	JB
S1205-100	100-52-7	BENZALDEHYDE	1700	J
S1205-100	98-86-2	ETHANONE, 1-PHENYL-	4500	J

S1205-100	143-07-7	DODECANOIC ACID	46000	J
		TOTAL UNKNOWN TICS:	6700	
		TOTAL TICS	90900	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-97
LAB: 150252

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-97	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	800	JB
S1205-97	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1205-97	593-49-7	HEPTACOSANE	330	J
S1205-97	630-03-5	NONACOSANE	420	J
		TOTAL UNKNOWN TICS:	5480	
		TOTAL TICS	19030	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-97A
LAB: 150253

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-97A	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1500	JB
S1205-97A	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	12000	JB
S1205-97A	2091-29-4	9-HEXADECENOIC ACID	360	J
S1205-97A	57-10-3	HEXADECANOIC ACID	630	J
S1205-97A	57-11-4	OCTADECANOIC ACID	430	J
S1205-97A	629-99-2	PENTACOSANE	400	J
S1205-97A	630-01-3	HEXACOSANE	390	J
S1205-97A	593-49-7	HEPTACOSANE	610	J
S1205-97A	630-02-4	OCTACOSANE	410	J
S1205-97A	630-03-5	NONACOSANE	700	J
S1205-97A	638-68-6	TRIACONTANE	320	J
		TOTAL UNKNOWN TICS:	3640	
		TOTAL TICS	21390	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-98
LAB: 150254

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-98	141-79-7	3-PENTEN-2-0NE, 4-METHYL-	1400	JB
S1205-98	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	8400	JB
S1205-98	593-49-7	HEPTACOSANE	320	J
S1205-98	630-03-5	NONACOSANE	330	J
		TOTAL UNKNOWN TICS:	360	
		TOTAL TICS	10810	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-99
LAB: 150255

ESID	CAS NO	COMPOUND	RESULT	QUAL.

S1205-99	91-17-8	NAPHTHALENE, DECAHYDRO-	3400	J
		TOTAL UNKNOWN TICS:	84600	
		TOTAL TICS	88000	

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: SOIL
ES: S1205-99RE
LAB: 150255

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1205-99RE	91-17-8	NAPHTHALENE, DECAHYDRO-	3400	J
		TOTAL UNKNOWN TICS:	82800	
		TOTAL TICS	86200	

SDG FILE: 1F150240 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKL2
LAB: SBLKL2

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKL2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4400	JA
		TOTAL UNKNOWN TICS:	230	
		TOTAL TICS	4630	

SDG FILE: 1F150240 DATE: 00/00/00 MATRIX: SOIL
ES: SBLKU2
AB: SBLKU2

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKU2	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	1900	JA
SBLKU2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16000	JA
		TOTAL UNKNOWN TICS:	390	
		TOTAL TICS	18290	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B40-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-1	76-13-1	Ethane, 1,1,2-trichloro-1,2,	7	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	7	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B40-2MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	47	
		TOTAL TICS	47	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B40-2MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	35	
		TOTAL TICS	35	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B40-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-4	141-78-6	Acetic acid, ethyl ester	6	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B41-4MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	27	
		TOTAL TICS	27	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B41-4MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 24
TOTAL TICS 24

SDG FILE: 1E34765 DATE: MATRIX:
ES: B42-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 36
TOTAL TICS 36

SDG FILE: 1E34765 DATE: MATRIX:
ES: B42-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 28
TOTAL TICS 28

SDG FILE: 1E34765 DATE: MATRIX:
ES: B43-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 185
TOTAL TICS 185

SDG FILE: 1E34765 DATE: MATRIX:
ES: B43-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 421
TOTAL TICS 421

SDG FILE: 1E34765 DATE: MATRIX:
ES: B44A-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44A-3	111-84-2	Nonane	390	NJ
B44A-3	124-18-5	Decane	1100	NJ
B44A-3	1120-21-4	Undecane	160	NJ

TOTAL UNKNOWN TICS: 1690
TOTAL TICS 3340

SDG FILE: 1E34765 DATE: MATRIX:
ES: B44A-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44A-3RE	111-84-2	Nonane	300	NJ
B44A-3RE	124-18-5	Decane	840	NJ
14A-3RE	1120-21-4	Undecane	200	NJ
		TOTAL UNKNOWN TICS:	1300	
		TOTAL TICS	2640	

SDG FILE: 1E34765 DATE: MATRIX:
ES: B44B-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	6	
		TOTAL TICS	6	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	270	NJ
B40-1	593-49-7	Heptacosane	140	NJ
B40-1	630-02-4	Octacosane	150	NJ
B40-1	630-03-5	Nonacosane	23	NJ
B40-1	630-04-6	Hentriacontane	600	NJ
		TOTAL UNKNOWN TICS:	3492	
		TOTAL TICS	4675	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	6000	JB
		TOTAL UNKNOWN TICS:	3720	
		TOTAL TICS	9720	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-2MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-2MS	141-79-7	3-Penten-2-one, 4-methyl-	140	NJ
B40-2MS	3031-75-2	Hydroperoxide, 1-methylethyl	540	NJ
B40-2MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	6800	NJ
B40-2MS	692-72-8	2-Propen-1-ol, 2-chloro-, ac	96	NJ
B40-2MS	79-34-5	Ethane, 1,1,2,2-tetrachloro-	110	NJ
B40-2MS	627-08-7	Propane, 1-(1-methylethoxy)-	550	NJ
B40-2MS	1441-02-7	CPA	120	NJ
B40-2MS	103-23-1	Hexanedioic acid, bis(2-ethy	1800	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 10156

DG FILE: 1F34765 DATE: MATRIX:
ES: B40-2MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-2MSD	107-86-8	2-Butenal, 3-methyl-	120	NJ
B40-2MSD	141-79-7	3-Penten-2-one, 4-methyl-	140	NJ
B40-2MSD	3031-75-2	Hydroperoxide, 1-methylethyl	640	NJ
B40-2MSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	7600	NJ
B40-2MSD	625-60-5	S-Ethyl ethanethioate	86	NJ
B40-2MSD	79-34-5	Ethane, 1,1,2,2-tetrachloro-	95	NJ
B40-2MSD	627-08-7	Propane, 1-(1-methylethoxy)-	590	NJ
B40-2MSD	53291-95-5	Benzene, 2-(2-methoxy-1-prop	140	NJ
B40-2MSD	3964-56-5	Phenol, 4-bromo-2-chloro-	210	NJ
B40-2MSD	60-01-5	Tributyrin	110	NJ
B40-2MSD	294-62-2	Cyclododecane	150	NJ
B40-2MSD	1441-02-7	CPA	120	NJ
B40-2MSD	103-23-1	Hexanedioic acid, bis(2-ethy	3600	NJ
B40-2MSD	7225-64-1	Heptadecane, 9-octyl-	95	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 13696

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	5300	NJ

TOTAL UNKNOWN TICS: 1479
TOTAL TICS 6779

SDG FILE: 1F34765 DATE: MATRIX:
ES: B40-5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B40-5	123-42-2	2-Pentanone, 4-hydroxy-4-met	5700	NJ

TOTAL UNKNOWN TICS: 1325
TOTAL TICS 7025

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	8100	NJ
B41-1	110-13-4	2,5-Hexanedione	280	NJ
B41-1	57-10-3	Hexadecanoic acid	200	NJ
B41-1	630-03-5	Nonacosane	150	NJ
B41-1	630-04-6	Hentriacontane	180	NJ

TOTAL UNKNOWN TICS: 6220
TOTAL TICS 15130

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2000	NJ
B41-1RE	110-13-4	2,5-Hexanedione	660	NJ
B41-1RE	203-64-5	4H-Cyclopenta[def]phenanthre	270	NJ
B41-1RE	57-10-3	Hexadecanoic acid	420	NJ
B41-1RE	57-11-4	Octadecanoic acid	410	NJ
B41-1RE	243-17-4	11H-Benzo[b]fluorene	290	NJ
B41-1RE	593-49-7	Heptacosane	300	NJ
B41-1RE	630-03-5	Nonacosane	700	NJ
B41-1RE	192-97-2	Benzo[e]pyrene	780	NJ
B41-1RE	630-04-6	Hentriacontane	680	NJ

TOTAL UNKNOWN TICS: 4790
TOTAL TICS 11300

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
41-2	123-42-2	2-Pentanone, 4-hydroxy-4meth	7800	NJ
B41-2	110-13-4	2,5-Hexanedione	240	NJ
B41-2	72-54-8	1,1-Dichloro-2,2-bis(p-chlor	120	NJ

TOTAL UNKNOWN TICS: 5760
TOTAL TICS 13920

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3400	NJ
B41-2RE	110-13-4	2,5-Hexanedione	290	NJ
B41-2RE	100-52-7	Benzaldehyde	170	NJ
B41-2RE	1002-84-2	Pentadecanoic acid	110	NJ
B41-2RE	57-10-3	Hexadecanoic acid	420	NJ
B41-2RE	57-11-4	Octadecanoic acid	140	NJ
B41-2RE	630-03-5	Nonacosane	250	NJ

TOTAL UNKNOWN TICS: 2440
TOTAL TICS 7220

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B41-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	8300	NJ
B41-3	057-10-3	Hexadecanoic acid	130	NJ

TOTAL UNKNOWN TICS: 4293
TOTAL TICS 12723

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3200	NJ
B41-3RE	110-13-4	2,5-Hexanedione	87	NJ
B41-3RE	143-07-7	Dodecanoic acid	150	NJ
B41-3RE	57-10-3	Hexadecanoic acid	210	NJ

TOTAL UNKNOWN TICS: 1716
TOTAL TICS 5363

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4	123-42-3	2-Pentanone, 4-hydroxy-4-met	7200	JB
B41-4	57-10-3	Hexadecanoic acid	100	NJ

TOTAL UNKNOWN TICS: 1208
TOTAL TICS 8508

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4MS	79-00-5	Ethane, 1,1,2-trichloro-	75	NJ
B41-4MS	25414-22-6	Furan, 2-methoxy-	96	NJ
B41-4MS	19549-77-0	4-Heptanol, 2,4-dimethyl-	82	NJ
B41-4MS	3031-75-2	Hydroperoxide, 1-methylethyl	340	NJ
B41-4MS	113-00-8	Guanidine	7500	NJ
B41-4MS	79-34-5	Ethane, 1,1,2,2-tetrachloro-	150	NJ
B41-4MS	871-71-6	Formamide, N-butyl-	270	NJ
B41-4MS	74381-40-1	Propanoic acid, 2-methyl-, 1	250	NJ
B41-4MS	120-40-1	Dodecanamide, N,N-bis(2-hydr	87	NJ
B41-4MS	103-23-1	Hexanedioic acid, bis(2-ethy	93	NJ
B41-4MS	122-62-3	Decanedioic acid, bis(2-ethy	110	NJ

TOTAL UNKNOWN TICS: 210
TOTAL TICS 9263

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4MSD
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4MSD	5076-19-7	Oxirane, trimethyl-	110	NJ

B41-4MSD	113-00-8	Guanidine	2300	NJ
B41-4MSD	1441-02-7	CPA	83	NJ
B41-4MSD	57-10-3	Hexadecanoic acid	83	NJ
B41-4MSD	301-02-0	9-Octadecenamide, (Z)-	74	NJ
41-4MSD	4337-65-9	Hexanedioic acid, mono(2-eth	120	NJ
B41-4MSD	122-62-3	Decanedioic acid, bis(2-ethy	520	NJ

TOTAL UNKNOWN TICS: 95
TOTAL TICS 3385

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4MSDRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4MSDRE	141-79-7	3-Penten-2-one, 4-methyl-	150	NJ
B41-4MSDRE	72218-58-7	3-Methylheptyl acetate	92	NJ
B41-4MSDRE	4016-14-2	Oxirane, [(1-methylethoxy)me	3500	NJ
B41-4MSDRE	1573-17-7	2-Butyne-1,4-diol, diacetate	79	NJ
B41-4MSDRE	79-34-5	Ethane, 1,1,2,2-tetrachloro-	91	NJ
B41-4MSDRE	120-40-1	Dodecanamide, N,N-bis(2-hydr	390	NJ
B41-4MSDRE	60-01-5	Tributyrin	380	NJ
B41-4MSDRE	1441-02-7	CPA	74	NJ
B41-4MSDRE	17851-53-5	1,2-Benzenedicarboxylic acid	84	NJ
B41-4MSDRE	57-10-3	Hexadecanoic acid	200	NJ
B41-4MSDRE	1120-16-7	Dodecanamide	90	NJ
B41-4MSDRE	103-23-1	Hexanedioic acid, bis(2-ethy	140	NJ
B41-4MSDRE	61142-74-3	Cyclohexane, 3,4-bis(1-methy	83	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5353

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4MSRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B41-4MSRE	141-79-7	3-Penten-2-one, 4-methyl-	140	NJ
B41-4MSRE	624-41-9	1-Butanol, 2-methyl-, acetat	89	NJ
B41-4MSRE	4016-14-2	Oxirane, [(1-methylethoxy)me	2600	NJ
B41-4MSRE	79-34-5	Ethane, 1,1,2,2-tetrachloro-	77	NJ
B41-4MSRE	120-40-1	Dodecanamide, N,N-bis(2-hydr	450	NJ
B41-4MSRE	60-01-5	Tributyrin	260	NJ
B41-4MSRE	1441-02-7	CPA	80	NJ
B41-4MSRE	57-10-3	Hexadecanoic acid	170	NJ
B41-4MSRE	57-11-4	Octadecanoic acid	190	NJ
B41-4MSRE	103-23-1	Hexanedioic acid, bis(2-ethy	78	NJ
B41-4MSRE	122-62-3	Decanedioic acid, bis(2-ethy	130	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 4264

SDG FILE: 1F34765 DATE: MATRIX:
ES: B41-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B41-4RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2800	NJ
B41-4RE	143-07-7	Dodecanoic acid	880	NJ
B41-4RE	57-10-3	Hexadecanoic acid	230	NJ
B41-4RE	57-11-4	Octadecanoic acid	200	NJ

TOTAL UNKNOWN TICS: 1223
TOTAL TICS 5333

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	6700	JB
B42-1	110-13-4	2,5-Hexanedione	460	NJ
B42-1	2531-84-2	Phenanthrene, 2-methyl-	250	NJ
B42-1	57-11-4	Octadecanoic acid	190	NJ
B42-1	593-39-7	Heptacosane	230	NJ
B42-1	630-02-4	Octacosane	380	NJ
B42-1	630-03-5	Nonacosane	700	NJ
B42-1	192-97-2	Benzo[e]pyrene	690	NJ
B42-1	630-04-6	Hentriacontane	520	NJ

TOTAL UNKNOWN TICS: 7480
TOTAL TICS 17600

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-1RE
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2800	NJ
B42-1RE	110-13-4	2,5-Hexanedione	200	NJ
B42-1RE	91-64-5	2H-1-Benzopyran-2-one	380	NJ
B42-1RE	629-78-7	Heptadecane	130	NJ
B42-1RE	57-10-3	Hexadecanoic acid	550	NJ
B42-1RE	57-11-4	Octadecanoic acid	720	NJ
B42-1RE	243-42-5	Benzo[b]naphtho[2,3-d]furan	150	NJ
B42-1RE	238-84-6	11H-Benzo[a]fluorene	230	NJ
B42-1RE	629-99-2	Pentacosane	190	NJ
B42-1RE	593-4-7	Heptacosane	220	NJ
B42-1RE	630-02-4	Octacosane	360	NJ
B42-1RE	630-03-4	Nonacosane	500	NJ
B42-1RE	192-97-2	Benzo[e]pyrene	680	NJ

TOTAL UNKNOWN TICS: 2610
TOTAL TICS 9720

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
342-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	8000	NJ
342-2	100-52-7	Benzaldehyde	2400	NJ
B42-2	143-07-7	Dodecanoic acid	1200	NJ
B42-2	2531-84-2	Phenanthrene, 2-methyl-	340	NJ

B42-2	203-64-5	4H-Cyclopenta[def]phenathren	460	NJ
B42-2	238-84-6	11H-Benzo[a]fluorene	390	NJ
B42-2	593-49-7	Heptacosane	400	NJ
B42-2	630-02-4	Octacosane	610	NJ
42-2	630-03-5	Nonacosane	780	NJ
B42-2	192-97-2	Benzo[e]pyrene	1000	NJ
B42-2	630-04-6	Hentriacontane	750	NJ

TOTAL UNKNOWN TICS: 8580
TOTAL TICS 24910

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3700	NJ
B42-2RE	91-64-5	2H-1-Benzopyran-2-one	890	NJ
B42-2RE	2531-84-2	2-Methlyphenanthrene	310	NJ
B42-2RE	203-64-5	4H-Cyclopenta[def]phenanthre	560	NJ
B42-2RE	57-10-3	Hexadecanoic acid	700	NJ
B42-2RE	35465-71-5	2-Phenylnaphthalene	13	NJ
B42-2RE	238-84-6	11H-Benzo[a]fluorene	420	NJ
B42-2RE	629-99-2	Pentacosane	280	NJ
B42-2RE	630-01-3	Hexacosane	280	NJ
B42-2RE	593-49-7	Heptacosane	330	NJ
B42-2RE	630-02-4	Octacosane	570	NJ
B42-2RE	630-03-5	Nonacosane	670	NJ
B42-2RE	192-97-2	Benzo[e]pyrene	1100	NJ
42-2RE	198-55-0	Perylene	520	NJ
B42-2RE	638-68-6	Triacontane	480	NJ
B42-2RE	630-04-6	Hentriacontane	580	NJ

TOTAL UNKNOWN TICS: 1403
TOTAL TICS 12806

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	15000	NJ
B42-3	110-13-4	2,5-Hexanedione	200	NJ
B42-3	100-52-7	Benzaldehyde	580	NJ
B42-3	143-07-7	Dodecanoic acid	810	NJ
B42-3	57-10-3	Hexadecanoic acid	120	NJ

TOTAL UNKNOWN TICS: 3262
TOTAL TICS 19972

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3000	NJ
B42-3RE	100-52-7	Benzaldehyde	87	NJ

B42-3RE	57-10-3	Hexadecanoic acid	350	NJ
B42-3RE	57-11-4	Octadecanoic acid	160	NJ
B42-3RE	630-03-5	Nonacosane	140	NJ

TOTAL UNKNOWN TICS: 791
TOTAL TICS 4528

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	16000	NJ
B42-4	100-52-7	Benzaldehyde	510	NJ
B42-4	143-07-7	Dodecanoic acid	570	NJ

TOTAL UNKNOWN TICS: 3036
TOTAL TICS 20116

SDG FILE: 1F34765 DATE: MATRIX:
ES: B42-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B42-4RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3300	JB
B42-4RE	143-07-7	Dodecanoic acid	1400	NJ

TOTAL UNKNOWN TICS: 265
TOTAL TICS 4965

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	42000	NJ

TOTAL UNKNOWN TICS: 630
TOTAL TICS 42630

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	22000	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 22000

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B43-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	41000	NJ
B43-2	617-94-7	Benzenemethanol, .alpha.,.al	3400	NJ
B43-2	118-55-8	Benzoic acid, 2-hydroxy-, ph	1800	NJ
B43-2	835-11-0	Methanone, bis(2-hydroxyphen	980	NJ
43-2	832-71-3	3-methylphenanthrene	1100	NJ
B43-2	2531-84-2	2-methylphenanthrene	1500	NJ
B43-2	57-10-3	Hexadecanoic acid	980	NJ
B43-2	203-64-5	4H-Cyclopenta[def]phenanthre	2600	NJ
B43-2	35465-71-5	2-Phenylnaphthalene	920	NJ
B43-2	238-84-6	11H-Benzo[a]fluorene	2500	NJ
B43-2	243-17-4	11H-Benzo[b]fluorene	1400	NJ
B43-2	239-35-0	Benzo[b]naphtho[2,1-d]thioph	950	NJ
B43-2	195-19-7	Benzo[c]phenanthrene	940	NJ
B43-2	630-03-5	Nonacosane	1600	NJ
B43-2	192-97-2	Benzo[e]pyrene	5600	NJ
B43-2	198-55-0	Perylene	2000	NJ
		TOTAL UNKNOWN TICS:	19200	
		TOTAL TICS	88470	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	13000	NJ
B43-2RE	57-10-3	Hexadecanoic acid	1400	NJ
B43-2RE	57-11-4	Octadecanoic acid	1300	NJ
B43-2RE	238-84-6	11H-Benzo[a]fluorene	1200	NJ
43-2RE	646-31-1	Tetracosane	660	NJ
43-2RE	629-99-2	Pentacosane	940	NJ
B43-2RE	630-01-3	Hexacosane	1300	NJ
B43-2RE	593-49-7	Heptacosane	1600	NJ
B43-2RE	630-02-4	Octacosane	2100	NJ
B43-2RE	630-03-5	Nonacosane	2000	NJ
B43-2RE	192-97-2	Benzo[e]pyrene	1600	NJ
B43-2RE	638-68-6	Triacontane	1700	NJ
B43-2RE	630-04-6	Hentriacontane	1700	NJ
		TOTAL UNKNOWN TICS:	6320	
		TOTAL TICS	36820	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	36000	NJ
B43-3	719-22-2	2,5-Cyclohexadiene-1,4-dione	340	NJ
B43-3	57-10-3	Hexadecanoic acid	700	NJ
B43-3	57-11-4	Octadecanoic acid	760	NJ
B43-3	629-99-2	Pentacosane	510	NJ
B43-3	593-49-7	Heptacosane	720	NJ
B43-3	630-02-4	Octacosane	1200	NJ
B43-3	630-03-5	Nonacosane	1200	NJ
B43-3	638-68-6	Triacontane	750	NJ
B43-3	630-04-6	Hentriacontane	800	NJ

TOTAL UNKNOWN TICS:	22950
TOTAL TICS	65930

)G FILE: 1F34765 DATE: MATRIX:
ES: B43-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	6000	NJ
B43-3RE	57-10-3	Hexadecanoic acid	470	NJ
B43-3RE	629-99-2	Pentacosane	310	NJ
B43-3RE	593-49-7	Heptacosane	440	NJ
B43-3RE	630-02-4	Octacosane	380	NJ
B43-3RE	630-03-5	Nonacosane	800	NJ
B43-3RE	638-68-6	Triacontane	340	NJ
B43-3RE	630-04-6	Hentriacontane	850	NJ

TOTAL UNKNOWN TICS:	8900
TOTAL TICS	18490

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	42000	NJ
B43-4	90-12-0	Naphthalene, 1-methyl-	1700	NJ
B43-4	132-65-0	Dibenzothiophene	2700	NJ
13-4	33675-75-1	Phenol, 3-(2-phenylethyl)-	1700	NJ
43-4	832-71-3	3-Methylphenanthrene	4300	NJ
B43-4	2531-84-2	2-Methylphenanthrene	5700	NJ
B43-4	613-12-7	Anthracene, 2-methyl-	1600	NJ
B43-4	203-64-5	4H-Cyclopenta[def]phenanthre	8900	NJ
B43-4	610-48-0	1-Methylanthracene	2800	NJ
B43-4	35465-71-5	2-Phenylnaphthalene	3100	NJ
B43-4	84-65-1	9,10-Anthracenedione	2500	NJ
B43-4	243-42-5	Benzo[b]naphtho[2,3-d]furan	2000	NJ
B43-4	238-84-6	11H-Benzo[a]fluorene	5400	NJ
B43-4	243-17-4	11H-Benzo[b]fluorene	3400	NJ

TOTAL UNKNOWN TICS:	16500
TOTAL TICS	104300

SDG FILE: 1F34765 DATE: MATRIX:
ES: B43-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B43-4RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	15000	JB
B43-4RE	132-65-0	Dibenzothiophene	2500	NJ
B43-4RE	832-71-3	Phenanthrene, 3-methyl-	3600	NJ
B43-4RE	2531-84-2	Phenanthrene, 2-methyl-	4600	NJ
B43-4RE	613-12-7	Anthracene, 2-methyl-	2100	NJ
43-4RE	203-64-5	4H-Cyclopenta[def]phenanthre	7500	NJ
43-4RE	610-48-0	Anthracene, 1-methyl-	2500	NJ
B43-4RE	35465-71-5	2-Phenylnaphthalene	2500	NJ
B43-4RE	243-42-5	Benzo[b]naphtho[2,3-d]furan	2000	NJ

B43-4RE	238-84-6	11H-Benzo[a]fluorene	4100	NJ
B43-4RE	243-17-4	11H-Benzo[b]fluorene	2300	NJ

TOTAL UNKNOWN TICS: 56900
TOTAL TICS 105600

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44A-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44A-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	40000	NJ
B44A-3	124-18-5	Decane	13000	NJ
B44A-3	1120-21-4	Undecane	28000	NJ
B44A-3	112-40-3	Dodecane	2600	NJ
B44A-3	57-10-3	Hexadecanoic acid	1100	NJ
B44A-3	57-11-4	Octadecanoic acid	760	NJ

TOTAL UNKNOWN TICS: 27390
TOTAL TICS 112850

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44A-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44A-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	11000	NJ

TOTAL UNKNOWN TICS: 264700
TOTAL TICS 275700

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	11000	NJ
B44B-1	110-13-4	2,5-Hexanedione	520	NJ
B44B-1	143-07-7	Dodecanoic acid	100	NJ
B44B-1	57-10-3	Hexadecanoic acid	160	NJ
B44B-1	630-03-5	Nonacosane	210	NJ
B44B-1	192-97-2	Benzo(e)pyrene	100	NJ
B44B-1	630-04-6	Hentriacontane	190	NJ

TOTAL UNKNOWN TICS: 3680
TOTAL TICS 15960

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3500	NJ
B44B-1RE	110-13-4	2,5-Hexanedione	140	NJ
B44B-1RE	143-07-7	Dodecanoic acid	170	NJ
B44B-1RE	100-28-42	Pentadecanoic acid	110	NJ

B44B-1RE	57-10-3	Hexadecanoic acid	630	NJ
B44B-1RE	57-11-4	Octadecanoic acid	170	NJ
B44B-1RE	593-49-7	Heptacosane	210	NJ
B44B-1RE	630-03-5	Nonacosane	600	NJ
44B-1RE	630-04-6	Hentriacontane	640	NJ
B44B-1RE	1058-61-3	Stigmast-4-en-3-one	190	NJ
		TOTAL UNKNOWN TICS:	2820	
		TOTAL TICS	9180	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	18000	NJ
B44B-2	110-13-4	2,5-Hexanedione	95	NJ
B44B-2	57-10-3	Hexadecanoic acid	85	NJ
B44B-2	630-03-5	Nonacosane	160	NJ
B44B-2	630-04-6	Hentriacontane	130	NJ
		TOTAL UNKNOWN TICS:	3308	
		TOTAL TICS	21778	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
44B-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	3500	JB
B44B-2RE	110-13-4	2,5-Hexanedione	400	NJ
B44B-2RE	832-71-3	Phenanthrene, 3-methyl-	220	NJ
B44B-2RE	2531-84-2	Phenanthrene, 2-methyl-	290	NJ
B44B-2RE	203-64-5	4H-Cyclopenta[def]phenanthre	490	NJ
B44B-2RE	57-10-3	Hexadecanoic acid	390	NJ
B44B-2RE	35465-71-5	2-Phenylnaphthalene	220	NJ
B44B-2RE	84-65-1	9,10-Anthracenedione	190	NJ
B44B-2RE	238-84-6	11H-Benzo[a]fluorene	440	NJ
B44B-2RE	243-17-4	11H-Benzo[b]fluorene	210	NJ
B44B-2RE	3353-12-6	Pyrene, 4-methyl-	190	NJ
B44B-2RE	192-97-2	Benzo[e]Pyrene	1100	NJ
B44B-2RE	198-55-0	Perylene	490	NJ
		TOTAL UNKNOWN TICS:	2897	
		TOTAL TICS	11027	

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	8100	NJ
B44B-3	57-10-3	Hexadecanoic acid	170	NJ
B44B-3	630-01-3	Hexacosane	240	NJ
B44B-3	593-49-7	Heptacosane	320	NJ
B44B-3	630-02-4	Octacosane	520	NJ
B44B-3	630-03-5	Nonacosane	570	NJ

B44B-3	192-97-2	Benzo[e]pyrene	270	NJ
B44B-3	638-68-6	Triacontane	410	NJ
B44B-3	630-04-6	Hentriacontane	380	NJ

TOTAL UNKNOWN TICS: 5870
TOTAL TICS 16850

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2600	NJ
B44B-3RE	110-13-4	2,5-Hexanedione	490	NJ
B44B-3RE	629-62-9	Pentadecane	140	NJ
B44B-3RE	629-78-7	Heptadecane	150	NJ
B44B-3RE	1921-70-6	Pentadecane, 2,6,10,14-tetra	210	NJ
B44B-3RE	57-10-3	Hexadecanoic acid	420	NJ
B44B-3RE	57-11-4	Octadecanoic acid	440	NJ
B44B-3RE	629-97-0	Docosane	170	NJ
B44B-3RE	243-17-4	11H-Benzo[b]fluorene	290	NJ
B44B-3RE	629-99-2	Pentacosane	290	NJ
B44B-3RE	630-01-3	Hexacosane	290	NJ
B44B-3RE	593-49-7	Heptacosane	500	NJ
B44B-3RE	630-02-4	Octacosane	500	NJ
B44B-3RE	630-03-5	Nonacosane	1000	NJ
B44B-3RE	192-97-2	Benzo[e]pyrene	440	NJ
B44B-3RE	638-68-6	Triacontane	550	NJ
B44B-3RE	630-04-6	Hentriacontane	680	NJ

TOTAL UNKNOWN TICS: 1420
TOTAL TICS 10580

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	11000	NJ
B44B-4	57-10-3	Hexadecanoic acid	93	NJ

TOTAL UNKNOWN TICS: 2781
TOTAL TICS 13874

SDG FILE: 1F34765 DATE: MATRIX:
ES: B44B-4RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B44B-4RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	2700	JB
B44B-4RE	143-07-7	Dodecanoic acid	88	NJ
B44B-4RE	57-10-3	Hexadecanoic acid	220	NJ
B44B-4RE	57-11-4	Octadecanoic acid	140	NJ
344B-4RE	7683-64-9	Squalene	190	NJ

TOTAL UNKNOWN TICS: 1055
TOTAL TICS 4393

SDG FILE: 1F34765 DATE: MATRIX:
ES: BRB
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	10	
		TOTAL TICS	10	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B33-2MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	28	
		TOTAL TICS	28	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B33-2MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	28	
		TOTAL TICS	28	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B35-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	16	
		TOTAL TICS	16	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B39-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-2	124-18-5	Decane	1800	NJ
B39-2	1120-21-4	Undecane	420	NJ
		TOTAL UNKNOWN TICS:	3110	
		TOTAL TICS	5330	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B39-2DL
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-2DL	124-18-5	Decane	20000	NJ

B39-2DL	1120-21-4	Undecane	5600	NJ
		TOTAL UNKNOWN TICS:	32900	
		TOTAL TICS	58500	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B39-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-4	1678-92-8	Cyclohexane, propyl-	12	NJ
B39-4	124-18-5	Decane	70	NJ
		TOTAL UNKNOWN TICS:	185	
		TOTAL TICS	267	

SDG FILE: 1E34848 DATE: MATRIX:
ES: B39-4DL
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-4DL	128-18-5	Decane	90	NJ
		TOTAL UNKNOWN TICS:	512	
		TOTAL TICS	602	

SDG FILE: 1E34848 DATE: MATRIX:
ES: BK-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	12	
		TOTAL TICS	12	

SDG FILE: 1F34848 DATE: MATRIX:
ES: B33-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B33-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	5300	NJ
B33-1	1002-84-2	Pentadecanoic acid	110	NJ
B33-1	57-10-3	Hexadecanoic acid	580	NJ
B33-1	593-49-7	Heptacosane	99	NJ
B33-1	630-03-5	Nonacosane	300	NJ
B33-1	630-04-6	Hentriacontane	260	NJ
		TOTAL UNKNOWN TICS:	2665	
		TOTAL TICS	9314	

SDG FILE: 1F34848 DATE: MATRIX:
ES: B33-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

B33-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	4500	NJ

TOTAL UNKNOWN TICS: 862
TOTAL TICS 5362

SDG FILE: 1F34848 DATE: MATRIX:
ES: B33-2MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B33-2MS	1003-17-4	Tetrahydrofuran, 2,2-dimethy	80	NJ
B33-2MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	2000	NJ
B33-2MS	627-08-7	Propane, 1-(1-methylethoxy)-	83	NJ
B33-2MS	1002-69-3	Decane, 1-chloro-	260	NJ
B33-2MS	100-02-7	Phenol, 4-nitro-	680	NJ
B33-2MS	693-67-4	Undecane, 1-bromo-	160	NJ
B33-2MS	5441-52-1	Cyclohexanol, 3,5-dimethyl-	85	NJ
B33-2MS	112-52-7	Dodecane, 1-chloro-	140	NJ
B33-2MS	593-45-3	Octadecane	87	NJ
B33-2MS	1441-02-7	CPA	100	NJ
B33-2MS	112-95-8	Eicosane	120	NJ
B33-2MS	57-10-3	Hexadecanoic acid	110	NJ
B33-2MS	112-95-8	Eicosane	140	NJ
B33-2MS	629-94-7	Heneicosane	120	NJ
B33-2MS	630-06-8	Hexatriacontane	120	NJ
B33-2MS	629-99-2	Pentacosane	91	NJ
B33-2MS	593-45-3	Octadecane	84	NJ
B33-2MS	7683-64-9	Squalene	330	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 4790

SDG FILE: 1F34848 DATE: MATRIX:
ES: B33-2MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B33-2MSD	3031-75-2	Hydroperoxide, 1-methylethyl	78	NJ
B33-2MSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	2100	NJ
B33-2MSD	627-08-7	Propane, 1-(1-methylethoxy)-	100	NJ
B33-2MSD	1611-83-2	2-Propenamide, 2-methyl-N-ph	140	NJ
B33-2MSD	100-02-7	Phenol, 4-nitro-	560	NJ
B33-2MSD	693-67-4	Undecane, 1-bromo-	77	NJ
B33-2MSD	5441-52-1	Cyclohexanol, 3,5-dimethyl-	77	NJ
B33-2MSD	2425-54-9	Tetradecane, 1-chloro-	83	NJ
B33-2MSD	103-23-1	Hexanedioic acid, bis(2-ethy	87	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 3302

SDG FILE: 1F34848 DATE: MATRIX:
ES: B34-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B34-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	3900	NJ
B34-1	57-10-3	Hexadecanoic acid	220	NJ

B34-1	630-03-5	Nonacosane	150	NJ
B34-1	192-97-2	Benzo[e]pyrene	110	NJ
B34-1	630-04-6	Hentriacontane	120	NJ

TOTAL UNKNOWN TICS: 1444
TOTAL TICS 5944

SDG FILE: 1F34848 DATE: MATRIX:
ES: B34-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B34-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3400	NJ
B34-2	57-10-3	Hexadecanoic acid	79	NJ

TOTAL UNKNOWN TICS: 1238
TOTAL TICS 4717

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	5200	NJ
B35-1	629-78-7	Heptadecane	140	NJ
B35-1	593-45-3	Octadecane	100	NJ
B35-1	629-92-5	Nonadecane	110	NJ
B35-1	57-10-3	Hexadecanoic acid	370	NJ
B35-1	638-67-5	Tricosane	100	NJ
B35-1	646-31-1	Tetracosane	99	NJ
B35-1	57-11-4	Octadecanoic acid	270	NJ
B35-1	629-99-2	Pentacosane	170	NJ
B35-1	630-01-3	Hexacosane	180	NJ
B35-1	593-49-7	Heptacosane	240	NJ
B35-1	630-02-4	Octacosane	170	NJ
B35-1	630-03-5	Nonacosane	360	NJ
B35-1	638-68-6	Triacontane	280	NJ

TOTAL UNKNOWN TICS: 1980
TOTAL TICS 9769

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
B35-1RE	629-78-7	Heptadecane	120	NJ
B35-1RE	593-45-3	Octadecane	90	NJ
B35-1RE	629-92-5	Nonadecane	120	NJ
B35-1RE	57-10-3	Hexadecanoic acid	380	NJ
B35-1RE	112-95-8	Eicosane	110	NJ
B35-1RE	629-97-0	Docosane	100	NJ
B35-1RE	638-67-5	Tricosane	140	NJ
B35-1RE	646-31-1	Tetracosane	120	NJ
B35-1RE	630-01-3	Hexacosane	140	NJ
B35-1RE	593-49-7	Heptacosane	370	NJ

B35-1RE	630-03-5	Nonacosane	580	NJ
B35-1RE	638-68-6	Triacontane	200	NJ
B35-1RE	630-04-6	Hentriacontane	460	NJ

TOTAL UNKNOWN TICS: 1394
TOTAL TICS 9824

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	34000	NJ
B35-2	57-10-3	Hexadecanoic acid	2200	NJ
B35-2	629-94-7	Heneicosane	4100	NJ
B35-2	629-97-0	Docosane	28000	NJ
B35-2	638-67-5	Tricosane	44000	NJ
B35-2	646-31-1	Tetracosane	50000	NJ
B35-2	629-99-2	Pentacosane	53000	NJ
B35-2	630-01-3	Hexacosane	53000	NJ
B35-2	593-49-7	Heptacosane	45000	NJ
B35-2	630-06-8	Octacosane	39000	NJ
B35-2	630-06-8	Nonacosane	29000	NJ
B35-2	638-68-6	Triacontane	13000	NJ
B35-2	630-03-5	Hentriacontane	6800	NJ
B35-2	630-06-8	Dotriacontane	3100	NJ

TOTAL UNKNOWN TICS: 27200
TOTAL TICS 431400

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	7958	NJ
B35-2RE	629-94-7	Heneicosane	1381	NJ
B35-2RE	57-11-4	Octadecanoic acid	963	NJ
B35-2RE	629-97-0	Docosane	5788	NJ
B35-2RE	638-67-5	Tricosane	8489	NJ
B35-2RE	646-31-1	Tetracosane	12860	NJ
B35-2RE	629-99-2	Pentacosane	14120	NJ
B35-2RE	630-01-3	Hexacosane	14360	NJ
B35-2RE	593-03-5	Heptacosane	13840	NJ
B35-2RE	630-02-4	Octacosane	3646	NJ
B35-2RE	630-03-5	Nonacosane	2912	NJ
B35-2RE	638-68-6	Triacontane	1778	NJ
B35-2RE	630-04-6	Hentriacontane	1535	NJ
B35-2RE	544-85-4	Dotriacontane	1063	NJ
B35-2RE	630-05-7	Tritriacontane	614	NJ

TOTAL UNKNOWN TICS: 7115
TOTAL TICS 98422

SDG FILE: 1F34848 DATE: MATRIX:
ES: B35-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B35-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
B35-3	544-63-8	Tetradecanoic acid	140	NJ
B35-3	57-10-3	Hexadecanoic acid	230	NJ
B35-3	57-11-4	Octadecanoic acid	260	NJ
B35-3	629-97-0	Docosane	290	NJ
B35-3	638-67-5	Tricosane	660	NJ
B35-3	646-31-1	Tetracosane	1000	NJ
B35-3	629-99-2	Pentacosane	1200	NJ
B35-3	630-01-3	Hexacosane	1300	NJ
B35-3	593-49-7	Heptacosane	1300	NJ
B35-3	630-02-4	Octacosane	1400	NJ
B35-3	630-03-5	Nonacosane	1200	NJ
B35-3	638-68-6	Triacontane	820	NJ
B35-3	630-04-6	Hentriacontane	620	NJ
B35-3	544-85-4	Dotriacontane	400	NJ
B35-3	630-05-7	Tritriacontane	290	NJ

TOTAL UNKNOWN TICS: 1610
TOTAL TICS 18220

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	4400	NJ
B39-1	100-52-7	Benzaldehyde	85	NJ
B39-1	629-59-4	Tetradecane	84	NJ
B39-1	544-76-3	Hexadecane	110	NJ
B39-1	629-78-7	Heptadecane	270	NJ
B39-1	544-63-8	Tetradecanoic acid	120	NJ
B39-1	593-45-3	Octadecane	120	NJ
B39-1	57-10-3	Hexadecanoic acid	540	NJ
B39-1	544-85-4	Pentacosane	300	NJ
B39-1	55045-10-8	Hexacosane	260	NJ
B39-1	122-62-3	Unknown organic acid ester	1300	NJ
B39-1	630-03-5	Nonacosane	440	NJ

TOTAL UNKNOWN TICS: 3244
TOTAL TICS 11273

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	5332	NJ
B39-1RE	629-78-7	Heptadecane	262	NJ
B39-1RE	629-92-5	Nonadecane	123	NJ
B39-1RE	57-10-3	Hexadecanoic acid	508	NJ
B39-1RE	57-11-4	Octadecanoic acid	825	NJ
B39-1RE	629-97-0	Docosane	212	NJ
B39-1RE	638-67-5	Tricosane	215	NJ
B39-1RE	646-31-1	Tetracosane	201	NJ
B39-1RE	629-99-2	Pentacosane	240	NJ
B39-1RE	630-01-3	Hexacosane	218	NJ

B39-1RE	593-49-7	Heptacosane	245	NJ
B39-1RE	630-02-4	Octacosane	249	NJ
B39-1RE	630-03-5	Nonacosane	298	NJ
B39-1RE	638-68-6	Triacontane	182	NJ
39-1RE	630-04-6	Henetriacontane	226	NJ
39-1RE	544-85-4	Dotriacontane	158	NJ

TOTAL UNKNOWN TICS: 1767
TOTAL TICS 11261

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	4900	NJ
B39-2	14676-29-0	Unknown alkane	800	J
B39-2	124-18-5	Decane	3100	NJ
B39-2	1678-93-9	Cyclohexane, butyl-	620	NJ
B39-2	1120-21-4	Undecane	6100	NJ
B39-2	2958-76-1	Naphthalene, decahydro-2-met	1100	NJ
B39-2	4292-92-6	Cyclohexane, pentyl-	1000	NJ
B39-2	112-40-3	Dodecane	1500	NJ
B39-2	629-50-5	Tridecane	950	NJ

TOTAL UNKNOWN TICS: 11340
TOTAL TICS 31410

DG FILE: 1F34848 DATE: MATRIX:
S: B39-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4900	NJ
B39-2RE	95-63-6	Benzene, 1,2,4-trimethyl-	680	NJ
B39-2RE	124-18-5	Decane	3200	NJ
B39-2RE	1678-93-9	Cyclohexane, butyl-	810	NJ
B39-2RE	91-17-8	Naphthalene, Decahydro-	780	NJ
B39-2RE	2958-76-1	Naphthalene, decahydro-2-met	690	NJ
B39-2RE	112-40-3	Dodecane	1000	NJ
B39-2RE	629-50-5	Tridecane	460	NJ

TOTAL UNKNOWN TICS: 9340
TOTAL TICS 21860

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
B39-3	95-36-3	1,2,4-Trimethylbenzene	220	NJ
B39-3	124-18-5	Decane	1000	NJ
39-3	1678-93-9	Cyclohexane, butyl-	170	NJ
39-3	1120-21-4	Undecane	1000	NJ
B39-3	112-40-3	Dodecane	310	NJ

TOTAL UNKNOWN TICS:	3250
TOTAL TICS	11450

DG FILE: 1F34848 DATE: MATRIX:
ES: B39-3RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-3RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
B39-3RE	95-63-6	Benzene, 1,2,4-trimethyl-	160	NJ
B39-3RE	124-18-5	Decane	770	NJ
B39-3RE	1678-93-9	Cyclohexane, butyl-	200	NJ
B39-3RE	1120-21-4	Undecane	770	NJ
B39-3RE	2958-76-1	Naphthalene, decahydro-2-met	100	NJ
B39-3RE	112-40-3	Dodecane	280	NJ
B39-3RE	629-50-6	Tridecane	99	NJ

TOTAL UNKNOWN TICS:	2520
TOTAL TICS	10399

SDG FILE: 1F34848 DATE: MATRIX:
ES: B39-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B39-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	4800	NJ
B39-4	95-63-6	Benzene, 1,2,4-trimethyl-	120	NJ
B39-4	124-18-5	Decane	890	NJ
B39-4	1678-93-9	Cyclohexane, butyl-	200	NJ
B39-4	1120-21-4	Undecane	940	NJ
B39-4	112-40-3	Dodecane	310	NJ
B39-4	629-50-5	Tridecane	110	NJ

TOTAL UNKNOWN TICS:	2530
TOTAL TICS	9900

SDG FILE: 1F34848 DATE: MATRIX:
ES: BK-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BK-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	5100	NJ
BK-1	57-10-3	Hexadecanoic acid	350	NJ
BK-1	593-49-7	Heptacosane	160	NJ
BK-1	630-03-5	Nonacosane	450	NJ
BK-1	630-04-6	Hentriacontane	280	NJ

TOTAL UNKNOWN TICS:	2648
TOTAL TICS	8988

SDG FILE: 1F34848 DATE: MATRIX:
ES: BK-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BK-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	2800	NJ

BK-2	2733-88-2	Unknown hexadecenoic acid	120	J
BK-2	57-10-3	Hexadecanoic acid	260	NJ
BK-2	593-49-7	Heptacosane	120	NJ
BK-2	630-03-5	Nonacosane	480	NJ
K-2	630-68-6	Triacontane	270	NJ

TOTAL UNKNOWN TICS: 1547
TOTAL TICS 5597

SDG FILE: 1F34848 DATE: MATRIX:
ES: BK-2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BK-2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	6363	NJ
BK-2RE	544-63-8	Tetradecanoic acid	99	NJ
BK-2RE	57-10-3	Hexadecanoic acid	472	NJ
BK-2RE	57-11-4	Octadecanoic acid	176	NJ
BK-2RE	593-49-7	Heptacosane	256	NJ
BK-2RE	630-03-5	Nonacosane	765	NJ
BK-2RE	630-04-6	Henetriacontane	254	NJ
BK-2RE	57-88-5	Cholesterol	127	NJ

TOTAL UNKNOWN TICS: 2719
TOTAL TICS 11231

SDG FILE: 1E36521 DATE: MATRIX:
ES: B32-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 7
TOTAL TICS 7

SDG FILE: 1E36521 DATE: MATRIX:
ES: B32-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-3	91-17-	NAPHTHALENE, DECAHYDRO-	5100	JX

TOTAL UNKNOWN TICS: 57900
TOTAL TICS 63000

SDG FILE: 1E36521 DATE: MATRIX:
ES: B32-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-4	91-17-	NAPHTHALENE, DECAHYDRO-	4000	JX

TOTAL UNKNOWN TICS: 53700
TOTAL TICS 57700

SDG FILE: 1E36521 DATE: MATRIX:
ES: B36-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-3	91-17-	NAPHTHALENE, DECAHYDRO-	70	JX
		TOTAL UNKNOWN TICS:	722	
		TOTAL TICS	792	

SDG FILE: 1E36521 DATE: MATRIX:
ES: B36-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-4	91-17-	NAPHTHALENE, DECAHYDRO-	1200	JX
		TOTAL UNKNOWN TICS:	12260	
		TOTAL TICS	13460	

SDG FILE: 1E36521 DATE: MATRIX:
ES: B36-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-6	91-17-	NAPHTHALENE, DECAHYDRO-	100	JX
		TOTAL UNKNOWN TICS:	1139	
		TOTAL TICS	1239	

SDG FILE: 1E36521 DATE: MATRIX:
ES: B38-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	11	
		TOTAL TICS	11	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B32-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3100	BJ
B32-1	57-10-	HEXADECANOIC ACID	83	JX
B32-1	646-31-	TETRACOSANE	90	JX
B32-1	629-99-	PENTACOSANE	100	JX
B32-1	630-01-	HEXACOSANE	100	JX
B32-1	593-49-	HEPTACOSANE	110	JX
B32-1	630-02-	OCTACOSANE	150	JX
B32-1	630-03-	NONACOSANE	180	JX
		TOTAL UNKNOWN TICS:	1242	
		TOTAL TICS	5155	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B32-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-2	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3400	BJ
B32-2	57-10-	HEXADECANOIC ACID	140	JX
B32-2	57-11-	OCTADECANOIC ACID	81	JX
B32-2	661-19-	1-DOCOSANOL	320	JX
B32-2	506-51-	1-TETRACOSANOL	670	JX
B32-2	630-02-	OCTACOSANE	120	JX
B32-2	630-03-	NONACOSANE	480	JX
B32-2	506-52-	1-HEXACOSANOL	880	JN
		TOTAL UNKNOWN TICS:	1351	
		TOTAL TICS	7442	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B32-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4100	BJ
B32-3	1235-74-	1-PHENANTHRENECARBOXYLIC ACI	570	JX
		TOTAL UNKNOWN TICS:	25170	
		TOTAL TICS	29840	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B32-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B32-4	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	5400	BJ
B32-4	124-18-	DECANE	11000	JX
B32-4	1678-93-	CYCLOHEXANE, BUTYL-	5700	JX
B32-4	1120-21-	UNDECANE	11000	JX
B32-4	112-40-	DODECANE	6300	JX
B32-4	1921-70-	PENTADECANE, 2,6,10,14-TETRA	3200	JX
B32-4	629-99-	PENTACOSANE	5900	JX
		TOTAL UNKNOWN TICS:	69200	
		TOTAL TICS	117700	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2700	BJ
B36-1	1921-70-	PENTADECANE, 2,6,10,14-TETRA	740	JX
B36-1	638-36-	HEXADECANE, 2,6,10,14-TETRAM	720	JX
B36-1	629-92-	NONADECANE	540	JX
B36-1	57-10-	HEXADECANOIC ACID	400	JX
B36-1	112-95-	EICOSANE	370	JX
B36-1	646-31-	TETRACOSANE	980	JX

B36-1	629-99-	PENTACOSANE	2200	JX
B36-1	630-01-	HEXACOSANE	3000	JX
B36-1	593-49-	HEPTACOSANE	3200	JX
B36-1	630-02-	OCTACOSANE	4300	JX
36-1	630-03-	NONACOSANE	3400	JX
36-1	192-97-	BENZO[E]PYRENE	550	JX
B36-1	638-68-	TRIACONTANE	2000	JX
B36-1	544-85-	DOTRIACONTANE	400	JX
		TOTAL UNKNOWN TICS:	5500	
		TOTAL TICS	31000	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-2	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3400	BJ
B36-2	638-67-	TRICOSANE	1700	JX
B36-2	646-31-	TETRACOSANE	6500	JX
B36-2	629-99-	PENTACOSANE	9600	JX
B36-2	630-01-	HEXACOSANE	14000	JX
B36-2	593-49-	HEPTACOSANE	11000	JX
B36-2	630-02-	OCTACOSANE	19000	JX
B36-2	630-03-	NONACOSANE	15000	JX
B36-2	638-68-	TRIACONTANE	10000	JX
B36-2	544-85-	DOTRIACONTANE	2900	JX
		TOTAL UNKNOWN TICS:	19320	
		TOTAL TICS	112420	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B36-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4800	BJ
B36-3	1120-21-	UNDECANE	9900	JX
B36-3	112-40-	DODECANE	12000	JX
B36-3	629-50-	TRIDECANE	13000	JX
B36-3	629-59-	TETRADECANE	9800	JX
B36-3	581-42-	NAPHTHALENE, 2,6-DIMETHYL-	5600	JX
B36-3	575-41-	NAPHTHALENE, 1,3-DIMETHYL-	8800	JX
B36-3	629-62-	PENTADECANE	9500	JX
B36-3	544-76-	HEXADECANE	8300	JX
B36-3	629-78-	HEPTADECANE	5600	JX
B36-3	1921-70-	PENTADECANE, 2,6,10,14-TETRA	9700	JX
B36-3	593-45-	OCTADECANE	6700	JX
B36-3	638-36-	HEXADECANE, 2,6,10,14-TETRAM	6700	JX
B36-3	629-92-	NONADECANE	7300	JX
B36-3	112-95-	EICOSANE	6500	JX
B36-3	629-97-	DOCOSANE	5500	JX
B36-3	629-99-	PENTACOSANE	5800	JX
		TOTAL UNKNOWN TICS:	25500	
		TOTAL TICS	161000	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-4
LAB:

SID	CAS NO	COMPOUND	RESULT	QUAL.
B36-4	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4700	BJ
B36-4	124-18-	DECANE	9100	JX
B36-4	1120-21-	UNDECANE	13000	JX
B36-4	112-40-	DODECANE	15000	JX
B36-4	629-50-	TRIDECANE	13000	JX
B36-4	629-59-	TETRADECANE	14000	JX
B36-4	575-41-	NAPHTHALENE, 1,3-DIMETHYL-	8500	JX
B36-4	629-62-	PENTADECANE	13000	JX
B36-4	544-76-	HEXADECANE	11000	JX
B36-4	629-78-	HEPTADECANE	10000	JX
B36-4	1921-70-	PENTADECANE, 2,6,10,14-TETRA	10000	JX
B36-4	593-45-	OCTADECANE	8100	JX
B36-4	638-36-	HEXADECANE, 2,6,10,14-TETRAM	8500	JX
B36-4	629-92-	NONADECANE	7300	JX
B36-4	112-95-	EICOSANE	8200	JX
B36-4	629-99-	PENTACOSANE	9100	JN
		TOTAL UNKNOWN TICS:	42500	
		TOTAL TICS	205000	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B36-6
LAB:

SID	CAS NO	COMPOUND	RESULT	QUAL.
B36-6	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3600	BJ
B36-6	124-18-	DECANE	4100	JX
B36-6	1120-21-	UNDECANE	6800	JX
B36-6	112-40-	DODECANE	6200	JX
B36-6	629-50-	TRIDECANE	7100	JX
B36-6	629-59-	TETRADECANE	6300	JX
B36-6	575-41-	NAPHTHALENE, 1,3-DIMETHYL-	5000	JX
B36-6	629-62-	PENTADECANE	6200	JX
B36-6	544-76-	HEXADECANE	5700	JX
B36-6	629-78-	HEPTADECANE	5500	JX
B36-6	1921-70-	PENTADECANE, 2,6,10,14-TETRA	5600	JX
B36-6	593-45-	OCTADECANE	4400	JX
B36-6	638-36-	HEXADECANE, 2,6,10,14-TETRAM	4500	JX
B36-6	629-92-	NONADECANE	5400	JX
B36-6	112-95-	EICOSANE	4400	JX
B36-6	629-97-	DOCOSANE	3700	JX
B36-6	629-99-	PENTACOSANE	3700	JX
		TOTAL UNKNOWN TICS:	17000	
		TOTAL TICS	105200	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B37-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B37-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3100	BJ

TOTAL UNKNOWN TICS: 500
TOTAL TICS 3600

DG FILE: 1F36521 DATE: MATRIX:
ES: B37-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B37-2	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	1900	BJ
B37-2	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	100	JX

TOTAL UNKNOWN TICS: 360
TOTAL TICS 2360

SDG FILE: 1F36521 DATE: MATRIX:
ES: B37-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B37-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2300	BJ
B37-3	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	350	JX

TOTAL UNKNOWN TICS: 700
TOTAL TICS 3350

SDG FILE: 1F36521 DATE: MATRIX:
ES: B37-6
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B37-6	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2800	BJ
B37-6	74367-34-	PROPANOIC ACID, 2-METHYL- 2,	81	JX
B37-6	74381-40-	PROPANOIC ACID, 2-METHYL- 1-	340	JX

TOTAL UNKNOWN TICS: 680
TOTAL TICS 3901

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3000	BJ
B38-1	74381-40-	PROPANOIC ACID, 2-METHYL-1-(	590	JX
B38-1	57-10-	HEXADECANOIC ACID	1100	JX
B38-1	57-11-	OCTADECANOIC ACID	1500	JX
B38-1	629-99-	PENTACOSANE	580	JX
B38-1	593-49-	HEPTACOSANE	600	JX
B38-1	630-02-	OCTACOSANE	1200	JX
B38-1	630-03-	NONACOSANE	1400	JX
B38-1	638-68-	TRIACONTANE	1100	JX
B38-1	544-85-	DOTRIACONTANE	900	JX

TOTAL UNKNOWN TICS: 12500
TOTAL TICS 24470

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-1RE	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2700	BJ
B38-1RE	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	510	JX
B38-1RE	629-78-	HEPTADECANE	510	JX
B38-1RE	57-10-	HEXADECANOIC ACID	1500	JX
B38-1RE	57-11-	OCTADECANOIC ACID	1700	JX
B38-1RE	629-99-	PENTACOSANE	550	JX
B38-1RE	629-78-	HEPTACOSANE	520	JX
B38-1RE	630-02-	OCTACOSANE	1200	JX
B38-1RE	630-03-	NONACOSANE	1500	JX
B38-1RE	638-68-	TRIACONTANE	1100	JX
B38-1RE	544-85-	DOTRIACONTANE	890	JX
		TOTAL UNKNOWN TICS:	12130	
		TOTAL TICS	24810	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-2	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2500	BJ
B38-2	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	480	JX
B38-2	57-10-	HEXADECANOIC ACID	120	JX
38-2	238-84-	11H-BENZO[A]FLUORENE	100	JX
38-2	593-49-	HEPTACOSANE	140	JX
B38-2	630-02-	OCTACOSANE	100	JX
B38-2	630-03-	NONACOSANE	240	JX
B38-2	192-97-	BENZO[E]PYRENE	200	JX
B38-2	638-68-	TRIACONTANE	88	JX
B38-2	544-85-	DOTRIACONTANE	100	JX
		TOTAL UNKNOWN TICS:	2094	
		TOTAL TICS	6162	

SDG FILE: 1F36521 DATE: MATRIX:
ES: B38-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2300	BJ
B38-3	74367-33-	PROPANOIC ACID, 2-METHYL-, 2	87	JX
B38-3	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	480	JX
		TOTAL UNKNOWN TICS:	1064	
		TOTAL TICS	3931	

SDG FILE: 1F36521 DATE: MATRIX:
S: B38-4
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-4	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2000	BJ
B38-4	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	200	JX

TOTAL UNKNOWN TICS: 810
TOTAL TICS 3010

SDG FILE: 1E36549 DATE: MATRIX:
ES: B38-6MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6MS	75-07-0	Acetaldehyde	26	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 26

SDG FILE: 1E36549 DATE: MATRIX:
ES: B38-6MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6MSD	75-07-0	Acetaldehyde	13	NJ
B38-6MSD	75-07-0	Acetaldehyde	28	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 41

SDG FILE: 1E36549 DATE: MATRIX:
ES: B46-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 96
TOTAL TICS 96

SDG FILE: 1E36549 DATE: MATRIX:
ES: B46-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 9
TOTAL TICS 9

SDG FILE: 1E36549 DATE: MATRIX:
ES: B47-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 17
TOTAL TICS 17

SDG FILE: 1E36549 DATE: MATRIX:
ES: B47-2
LAB:

SID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	34	
		TOTAL TICS	34	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B38-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6	123-42-2	2-Pentanone, 4-hydroxy-4-met	3800	NJ
		TOTAL UNKNOWN TICS:	1420	
		TOTAL TICS	5220	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B38-6MS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6MS	123-42-2	2-Pentanone, 4-hydroxy-4-met	3200	NJ
B38-6MS	67753-47-3	Boronic acid, ethyl-, bis(2,	380	NJ
B38-6MS	294-62-2	Cyclododecane	93	NJ
B38-6MS	117-82-8	Bis(2-methoxyethyl) phthalat	130	NJ
`38-6MS	103-23-1	Hexanedioic acid, bis(2-ethy	540	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	4343	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B38-6MSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B38-6MSD	540-88-5	Acetic acid, 1,1-dimethyleth	3200	NJ
B38-6MSD	74381-40-1	Propanoic acid, 2-methyl-, 1	570	NJ
B38-6MSD	294-62-2	Cyclododecane	120	NJ
B38-6MSD	17851-53-5	1,2-Benzenedicarboxylic acid	150	NJ
B38-6MSD	103-23-1	Hexanedioic acid, bis(2-ethy	540	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	4580	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B45-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
345-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	4000	NJ
B45-1	57-10-3	Hexadecanoic acid	110	NJ
		TOTAL UNKNOWN TICS:	1489	

TOTAL TICS 5599

SDG FILE: 1F36549 DATE: MATRIX:
S: B45-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B45-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	4000	NJ

TOTAL UNKNOWN TICS: 1738
TOTAL TICS 5738

SDG FILE: 1F36549 DATE: MATRIX:
ES: B45-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B45-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	3800	NJ

TOTAL UNKNOWN TICS: 1521
TOTAL TICS 5321

SDG FILE: 1F36549 DATE: MATRIX:
ES: B45-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
45-6	123-42-2	2-Pentanone, 4-hydroxy-4-met	4100	NJ
345-6	57-10-3	Hexadecanoic acid	100	NJ

TOTAL UNKNOWN TICS: 1070
TOTAL TICS 5270

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	3900	NJ
B46-1	629-78-7	Heptadecane	170	NJ
B46-1	832-71-3	Phenanthrene, 3-methyl-	170	NJ
B46-1	2531-84-2	Phenanthrene, 2-methyl-	190	NJ
B46-1	238-84-6	11H-Benzo[a]fluorene	240	NJ
B46-1	2381-21-7	Pyrene, 1-methyl-	100	NJ
B46-1	195-19-7	Benzo[c]phenanthrene	140	NJ
B46-1	192-97-2	Benzo[e]pyrene	560	NJ
B46-1	198-55-0	Perylene	510	NJ

TOTAL UNKNOWN TICS: 4660
TOTAL TICS 10640

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4700	NJ
B46-1RE	629-78-7	Heptadecane	170	NJ
B46-1RE	1921-70-6	Pentadecane, 2,6,10,14-tetra	110	NJ
B46-1RE	832-71-3	Phenanthrene, 3-methyl-	170	NJ
B46-1RE	2531-84-2	Phenanthrene, 2-methyl-	190	NJ
B46-1RE	238-84-6	11H-Benzo[a]fluorene	250	NJ
B46-1RE	2381-21-7	Pyrene, 1-methyl-	100	NJ
B46-1RE	195-19-7	Benzo[c]phenanthrene	130	NJ
B46-1RE	192-97-2	Benzo[e]pyrene	470	NJ
		TOTAL UNKNOWN TICS:	5640	
		TOTAL TICS	11930	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3600	NJ
B46-2	132-65-0	Dibenzothiophene	80	NJ
B46-2	832-71-3	Phenanthrene, 3-methyl-	140	NJ
B46-2	2531-84-2	Phenanthrene, 2-methyl-	210	NJ
B46-2	203-64-5	4H-Cyclopenta[def]phenanthre	200	NJ
B46-2	610-48-0	Anthracene, 1-methyl-	85	NJ
B46-2	35465-71-5	2-Phenylnaphthalene	87	NJ
B46-2	238-84-6	11H-Benzo[a]fluorene	150	NJ
B46-2	192-97-2	Benzo[e]pyrene	210	NJ
		TOTAL UNKNOWN TICS:	1825	
		TOTAL TICS	6587	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	2900	NJ
		TOTAL UNKNOWN TICS:	2300	
		TOTAL TICS	5200	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B46-4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B46-4	123-42-2	2-Pentanone, 4-hydroxy-4-met	3700	NJ
		TOTAL UNKNOWN TICS:	3177	
		TOTAL TICS	6877	

SDG FILE: 1F36549 DATE: MATRIX:
ES: B47-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B47-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	3100	NJ
B47-1	629-62-9	Pentadecane	97	NJ
B47-1	544-76-3	Hexadecane	95	NJ
47-1	629-78-7	Heptadecane	160	NJ
B47-1	593-45-3	Octadecane	89	NJ
B47-1	629-92-5	Nonadecane	93	NJ
B47-1	57-10-3	Hexadecanoic acid	180	NJ
B47-1	112-95-8	Eicosane	73	NJ
B47-1	72-55-9	p,p'-DDE	180	NJ
B47-1	638-67-5	Tricosane	84	NJ
B47-1	629-99-2	Pentacosane	120	NJ
B47-1	630-01-3	Hexacosane	90	NJ
B47-1	593-49-7	Heptacosane	110	NJ
B47-1	630-02-4	Octacosane	86	NJ

TOTAL UNKNOWN TICS: 4416
TOTAL TICS 8973

SDG FILE: 1F36549 DATE: MATRIX:
ES: B47-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B47-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3200	NJ
B47-2	544-76-3	Hexadecane	99	NJ
B47-2	629-78-7	Heptadecane	170	NJ
B47-2	1921-70-6	Pentadecane, 2,6,10,14-tetra	190	NJ
B47-2	593-45-3	Octadecane	100	NJ
47-2	57-10-3	Hexadecanoic acid	93	NJ

TOTAL UNKNOWN TICS: 4213
TOTAL TICS 8065

SDG FILE: 1F36549 DATE: MATRIX:
ES: B47-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B47-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	3000	NJ
B47-3	544-76-3	Hexadecane	77	NJ
B47-3	629-78-7	Heptadecane	100	NJ
B47-3	1921-70-6	Pentadecane, 2,6,10,14-tetra	110	NJ

TOTAL UNKNOWN TICS: 4772
TOTAL TICS 8059

SDG FILE: 1F36549 DATE: MATRIX:
ES: B48-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B48-1	123-42-2	2-Pentanone, 4-hydroxy-4-met	3700	NJ
B48-1	629-62-9	Pentadecane	90	NJ
B48-1	544-76-3	Hexadecane	120	NJ
B48-1	629-78-7	Heptadecane	200	NJ
B48-1	1921-70-6	Pentadecane, 2,6,10,14-tetra	110	NJ

B48-1	593-45-3	Octadecane	140	NJ
B48-1	629-92-5	Nonadecane	130	NJ
B48-1	57-10-3	Hexadecanoic acid	180	NJ
B48-1	112-95-8	Eicosane	90	NJ

TOTAL UNKNOWN TICS: 3363
TOTAL TICS 8123

SDG FILE: 1F36549 DATE: MATRIX:
ES: B48-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B48-2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3600	NJ
B48-2	57-10-3	Hexadecanoic acid	93	NJ

TOTAL UNKNOWN TICS: 2193
TOTAL TICS 5886

SDG FILE: 1F36549 DATE: MATRIX:
ES: B48-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B48-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	3500	NJ

TOTAL UNKNOWN TICS: 3180
TOTAL TICS 6680

SDG FILE: 1F36549 DATE: MATRIX:
ES: B48-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B48-6	123-42-2	2-Pentanone, 4-hydroxy-4-met	3600	NJ

TOTAL UNKNOWN TICS: 1210
TOTAL TICS 4810

SDG FILE: 1E34782 DATE: MATRIX:
ES: SD-WA
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	9	
		TOTAL TICS	9	

SDG FILE: 1E34782 DATE: MATRIX:
ES: SD-WFMSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	134	
		TOTAL TICS	134	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WA
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WA	123-42-2	2-Pentanone, 4-hydroxy-4-met	4100	NJ
SD-WA	1002-84-2	Pentadecanoic acid	230	NJ
SD-WA	2091-29-4	9-Hexadecenoic acid	270	NJ
D-WA	57-10-3	Hexadecanoic acid	520	NJ
SD-WA	593-49-7	Heptacosane	200	NJ
SD-WA	630-03-5	Nonacosane	390	NJ
SD-WA	630-04-6	Hentriacontane	380	NJ
		TOTAL UNKNOWN TICS:	3030	
		TOTAL TICS	9120	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WB
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WB	123-42-2	2-Pentanone, 4-hydroxy-4-met	3100	NJ
SD-WB	57-10-3	Hexadecanoic acid	240	NJ
SD-WB	630-03-5	Nonacosane	130	NJ
SD-WB	630-04-6	Hentriacontane	140	NJ
		TOTAL UNKNOWN TICS:	778	
		TOTAL TICS	4388	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WB1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WB1	123-42-2	2-Pentanone, 4-hydroxy-4-met	4600	NJ
SD-WB1	2531-84-2	Phenanthrene, 2-methyl-	110	NJ

SD-WB1	57-10-3	Hexadecanoic acid	690	NJ
SD-WB1	57-11-4	Octadecanoic acid	310	NJ
SD-WB1	638-67-5	Tricosane	140	NJ
SD-WB1	629-99-2	Pentacosane	210	NJ
D-WB1	593-49-7	Heptacosane	250	NJ
3D-WB1	630-03-5	Nonacosane	260	NJ
SD-WB1	192-97-2	Benzo[e]pyrene	330	NJ
SD-WB1	630-04-6	Hentriacontane	340	NJ

TOTAL UNKNOWN TICS: 2810
TOTAL TICS 10050

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WB1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WB1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	9500	NJ
SD-WB1RE	110-13-4	2,5-Hexanedione	190	NJ
SD-WB1RE	57-10-3	Hexadecanoic acid	330	NJ
SD-WB1RE	57-11-4	Octadecanoic acid	150	NJ
SD-WB1RE	638-67-5	Tricosane	100	NJ
SD-WB1RE	629-99-2	Pentacosane	100	NJ
SD-WB1RE	630-03-5	Nonacosane	170	NJ
SD-WB1RE	192-97-2	Benzo[e]pyrene	210	NJ
SD-WB1RE	630-04-6	Hentriacontane	180	NJ

TOTAL UNKNOWN TICS: 1650
TOTAL TICS 12580

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WBRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WBRE	123-42-2	2-Pentanone, 4-hydroxy-4-met	9700	NJ
SD-WBRE	110-13-4	2,5-Hexanedione	320	NJ
SD-WBRE	57-10-3	Hexadecanoic acid	510	NJ
SD-WBRE	57-11-4	Octadecanoic acid	250	NJ
SD-WBRE	638-67-5	Tricosane	140	NJ
SD-WBRE	646-31-1	Tetracosane	110	NJ
SD-WBRE	629-99-2	Pentacosane	160	NJ
SD-WBRE	593-49-7	Heptacosane	92	NJ
SD-WBRE	630-03-5	Nonacosane	120	NJ
SD-WBRE	192-97-2	Benzo[e]pyrene	130	NJ
SD-WBRE	630-04-6	Hentriacontane	240	NJ

TOTAL UNKNOWN TICS: 2580
TOTAL TICS 14352

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WC
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WC	123-42-2	2-Pentanone, 4-hydroxy-4-met	3400	NJ
SD-WC	110-13-4	2,5-Hexanedione	300	NJ

SD-WC	57-10-3	Hexadecanoic acid	250	NJ
SD-WC	593-49-7	Heptacosane	140	NJ
SD-WC	630-03-5	Nonacosane	250	NJ
SD-WC	192-97-2	Benzo[e]pyrene	160	NJ
D-WC	630-04-6	Hentriacontane	300	NJ
		TOTAL UNKNOWN TICS:	3245	
		TOTAL TICS	8045	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WCRE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WCRE	123-42-2	2-Pentanone, 4-hydroxy-4-met	8700	NJ
SD-WCRE	110-13-4	2,5-Hexanedione	430	NJ
SD-WCRE	57-10-3	Hexadecanoic acid	230	NJ
SD-WCRE	630-03-5	Nonacosane	150	NJ
SD-WCRE	630-04-6	Hentriacontane	220	NJ
		TOTAL UNKNOWN TICS:	2638	
		TOTAL TICS	12368	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
D-WD	123-42-2	2-Pentanone, 4-hydroxy-4-met	5700	NJ
SD-WD	110-13-4	2,5-Hexanedione	450	NJ
SD-WD	2091-29-4	9-Hexadecenoic acid	1600	NJ
SD-WD	57-10-3	Hexadecanoic acid	1500	NJ
SD-WD	57-11-4	Octadecanoic acid	340	NJ
SD-WD	593-49-7	Heptacosane	890	NJ
SD-WD	630-03-5	Nonacosane	1200	NJ
SD-WD	630-04-6	Hentriacontane	1000	NJ
		TOTAL UNKNOWN TICS:	8550	
		TOTAL TICS	21230	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4600	NJ
SD-WE	2091-29-4	9-Hexadecenoic acid	240	NJ
SD-WE	57-10-3	Hexadecanoic acid	1000	NJ
SD-WE	57-11-4	Octadecanoic acid	180	NJ
SD-WE	593-49-7	Heptacosane	340	NJ
SD-WE	630-03-5	Nonacosane	1000	NJ
SD-WE	630-04-6	Hentriacontane	720	NJ
		TOTAL UNKNOWN TICS:	6420	
		TOTAL TICS	14500	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WERE
LAB:

SID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WERE	123-42-2	2-Pentanone, 4-hydroxy-4-met	11000	NJ
SD-WERE	110-13-4	2,5-Hexanedione	410	NJ
SD-WERE	1002-84-2	Pentadecanoic acid	150	NJ
SD-WERE	2091-29-4	9-Hexadecenoic acid	200	NJ
SD-WERE	57-10-3	Hexadecanoic acid	790	NJ
SD-WERE	57-11-4	Octadecanoic acid	220	NJ
SD-WERE	84-62-8	1,2-Benzenedicarboxylic acid	170	NJ
SD-WERE	593-49-7	Heptacosane	200	NJ
SD-WERE	630-03-5	Nonacosane	970	NJ
SD-WERE	192-97-2	Benzo[e]pyrene	220	NJ
SD-WERE	630-04-6	Hentriacontane	590	NJ
		TOTAL UNKNOWN TICS:	4070	
		TOTAL TICS	18990	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WF
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WF	123-42-2	2-Pentanone, 4-hydroxy-4-met	3800	NJ
SD-WF	1002-84-2	Pentadecanoic acid	130	NJ
SD-WF	2091-29-4	9-Hexadecenoic acid	120	NJ
SD-WF	57-10-3	Hexadecanoic acid	490	NJ
SD-WF	629-99-2	Pentacosane	190	NJ
SD-WF	593-49-7	Heptacosane	320	NJ
SD-WF	630-03-5	Nonacosane	650	NJ
SD-WF	63-04-6	Hentriacontane	510	NJ
		TOTAL UNKNOWN TICS:	4150	
		TOTAL TICS	10360	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WFMS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WFMS	288-47-1	Thiazole	160	NJ
SD-WFMS	4283-80-1	Pentane, 2-bromo-2-methyl-	580	NJ
SD-WFMS	17257-81-7	Ethanone, 1-(3-ethyloxiranyl	170	NJ
SD-WFMS	107-86-8	2-Butenal, 3-methyl-	190	NJ
SD-WFMS	141-79-7	3-Penten-2-one, 4-methyl-	96	NJ
SD-WFMS	624-41-9	1-Butanol, 2-methyl-, acetat	130	NJ
SD-WFMS	3031-75-2	Hydroperoxide, 1-methylethyl	250	NJ
SD-WFMS	123-42-2	2-Pentanone, 4-hydroxy-4-met	2200	NJ
SD-WFMS	547-63-7	Propanoic acid, 2-methyl-, m	290	NJ
SD-WFMS	3964-56-5	Phenol, 4-bromo-2-chloro-	140	NJ
SD-WFMS	354-21-2	Ethane, 1,2,2-trichloro-1,1-	89	NJ
SD-WFMS	1534-08-3	Ethanethioic acid, S-methyl	130	NJ
SD-WFMS	100-02-7	Phenol, 4-nitro-	560	NJ
SD-WFMS	2437-56-1	1-Tridecene	150	NJ
SD-WFMS	1002-84-2	Pentadecanoic acid	100	NJ
SD-WFMS	1441-02-7	CPA	130	NJ

SD-WFMS	2091-29-4	9-Hexadecenoic acid	100	NJ
SD-WFMS	109-29-5	Oxacycloheptadecan-2-one	350	NJ
SD-WFMS	57-10-3	Hexadecanoic acid	440	NJ
SD-WFMS	17351-34-7	14-Pentadecenoic acid	140	NJ
D-WFMS	112-80-1	Oleic Acid	160	NJ
SD-WFMS	629-78-7	Heptadecane	160	NJ
SD-WFMS	630-06-8	Hexatriacontane	290	NJ
SD-WFMS	629-92-5	Nonadecane	530	NJ
SD-WFMS	36653-82-4	1-Hexadecanol	520	NJ
SD-WFMS	55045-08-4	Dodecane, 2-methyl-6-propyl-	450	NJ
SD-WFMS	83-47-6	.gamma.-Sitosterol	360	NJ
		TOTAL UNKNOWN TICS:	170	
		TOTAL TICS	9035	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SD-WFMSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD-WFMSD	16747-28-7	Hexane, 2,3,3-trimethyl-	320	NJ
SD-WFMSD	34723-82-5	2H-Pyran, 2-(bromomethyl)tet	1200	NJ
SD-WFMSD	589-43-5	Hexane, 2,4-dimethyl-	300	NJ
SD-WFMSD	107-86-8	2-Butenal, 3-methyl-	380	NJ
SD-WFMSD	141-79-7	3-Penten-2-one, 4-methyl-	190	NJ
SD-WFMSD	105-54-4	Butanoic acid, ethyl ester	260	NJ
SD-WFMSD	3031-75-2	Hydroperoxide, 1-methylethyl	490	NJ
SD-WFMSD	123-42-2	2-Pentanone, 4-hydroxy-4-met	4400	NJ
SD-WFMSD	5076-20-0	Oxirane, tetramethyl-	220	NJ
D-WFMSD	17773-66-9	Butane, 2,2-dichloro-3-methy	170	NJ
SD-WFMSD	79-34-5	Ethane, 1,1,2,2-tetrachloro-	160	NJ
SD-WFMSD	627-08-7	Propane, 1-(1-methylethoxy)-	590	NJ
SD-WFMSD	3964-56-5	Phenol, 4-bromo-2-chloro-	140	NJ
SD-WFMSD	79-34-5	Ethane, 1,1,2,2-tetrachloro-	96	NJ
SD-WFMSD	1534-08-3	Ethanethioic acid, S-methyl	140	NJ
SD-WFMSD	100-02-7	Phenol, 4-nitro-	580	NJ
SD-WFMSD	294-62-2	Cyclododecane	180	NJ
SD-WFMSD	1002-84-2	Pentadecanoic acid	120	NJ
SD-WFMSD	1441-02-7	CPA	120	NJ
SD-WFMSD	2091-29-4	9-Hexadecenoic acid	120	NJ
SD-WFMSD	109-29-5	Oxacycloheptadecan-2-one	400	NJ
SD-WFMSD	57-10-3	Hexadecanoic acid	490	NJ
SD-WFMSD	2091-29-4	9-Hexadecenoic acid	150	NJ
SD-WFMSD	57-11-4	Octadecanoic acid	120	NJ
SD-WFMSD	629-78-7	Heptadecane	180	NJ
SD-WFMSD	7098-21-7	Tritetracontane	340	NJ
SD-WFMSD	593-45-3	Octadecane	150	NJ
SD-WFMSD	19218-94-1	Tetradecane, 1-iodo-	630	NJ
SD-WFMSD	629-92-5	Nonadecane	500	NJ
SD-WFMSD	83-47-6	.gamma.-Sitosterol	380	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	13516	

SURFACE WATER

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: WATER
ES: W1511-79
AB: 149120

ESID	CAS NO	COMPOUND	RESULT	QUAL.
W1511-79	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	43	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	43	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: WATER
ES: W1511-80
LAB: 149121

ESID	CAS NO	COMPOUND	RESULT	QUAL.
W1511-80	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	45	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	45	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: WATER
ES: W1511-81
LAB: 149122

ESID	CAS NO	COMPOUND	RESULT	QUAL.
W1511-81	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	48	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	48	

SDG FILE: 1F149114 DATE: 11/18/91 MATRIX: WATER
ES: W1611-84
LAB: 149237

ESID	CAS NO	COMPOUND	RESULT	QUAL.
W1611-84	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	17	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	17	

SDG FILE: 1F150726 DATE: 12/12/91 MATRIX: WATER
ES: W1012119
LAB: 150730

ESID	CAS NO	COMPOUND	RESULT	QUAL.
W1012119	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	13	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	13	

SDG FILE: 1E34784 DATE: MATRIX:
ES: SW-WDMS
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	46	
		TOTAL TICS	46	

SDG FILE: 1E34784 DATE: MATRIX:
ES: SW-WDMSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	51	
		TOTAL TICS	51	

SDG FILE: 1F34784 DATE: MATRIX:
ES: SW-WD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SW-WD	544-63-8	Tetradecanoic acid	2	NJ
SW-WD	57-10-3	Hexadecanoic acid	9	BN
SW-WD	57-11-4	Octadecanoic acid	5	NJ
W-WD	791-28-6	Phosphine oxide, triphenyl-	11	XN
SW-WD	638-67-5	Tricosane	3	NJ
SW-WD	646-31-1	Tetracosane	9	NJ
SW-WD	629-99-2	Pentacosane	4	NJ
		TOTAL UNKNOWN TICS:	55	
		TOTAL TICS	98	

SDG FILE: 1F34784 DATE: MATRIX:
ES: SW-WDMS
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SW-WDMS	40575-42-6	1-Octen-4-ol	34	NJ
SW-WDMS	20240-62-4	Hydrazine, 1-butyl-1-methyl-	7	NJ
SW-WDMS	4245-37-8	2-Propenoic acid, 2-methyl-,	29	NJ
SW-WDMS	498-60-2	3-Furaldehyde	6	NJ
SW-WDMS	2635-84-9	Butanoic acid, 4-nitrophenyl	3	NJ
SW-WDMS	354-21-2	Ethane, 1,2,2-trichloro-1,1-	4	NJ
SW-WDMS	123-08-0	Benzaldehyde, 4-hydroxy-	2	NJ
SW-WDMS	121-33-5	Vanillin	2	NJ
SW-WDMS	50-45-3	Benzoic acid, 2,3-dichloro-	5	NJ
SW-WDMS	50-11-3	Metharbital	3	NJ
SW-WDMS	0-00-0	Benzaldehyde, 2-fluoro-3-hyd	2	NJ
SW-WDMS	544-63-8	Tetradecanoic acid	3	NJ
SW-WDMS	2384-70-5	2-Decyne	4	NJ
SW-WDMS	61886-66-6	3-Eicosyne	2	NJ
SW-WDMS	2091-29-4	9-Hexadecenoic acid	4	NJ
SW-WDMS	57-10-3	Hexadecanoic acid	11	NJ

SW-WDMS	0-00-0	(4R,5R,9S)-5,9-DIMETHYLSP	2	NJ
SW-WDMS	17351-34-7	14-Pentadecenoic acid	3	NJ
SW-WDMS	74685-36-2	Oxacyclotetradecane-2,11-dio	2	NJ
SW-WDMS	57-11-4	Octadecanoic acid	6	NJ
SW-WDMS	629-97-0	Docosane	3	NJ
SW-WDMS	629-78-7	Heptadecane	6	NJ
SW-WDMS	56554-90-6	13-Octadecenal	3	NJ
SW-WDMS	629-97-0	Docosane	17	NJ
SW-WDMS	629-96-9	1-Eicosanol	6	NJ
SW-WDMS	0-00-0	2-Methyloctadecane	9	NJ
SW-WDMS	295-65-8	Cyclohexadecane	4	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 182

SDG FILE: 1F34784 DATE: MATRIX:
ES: SW-WDMSD
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SW-WDMSD	40575-42-6	1-Octen-4-ol	41	NJ
SW-WDMSD	19550-03-9	2-Hexanol, 2,3-dimethyl-	8	NJ
SW-WDMSD	4245-37-8	2-Propenoic acid, 2-methyl-,	36	NJ
SW-WDMSD	98-01-1	2-Furancarboxaldehyde	4	NJ
SW-WDMSD	79-34-5	Ethane, 1,1,2,2-tetrachloro-	5	NJ
SW-WDMSD	106-31-0	Butanoic acid, anhydride	6	NJ
SW-WDMSD	541-02-6	Cyclopentasiloxane, decameth	2	NJ
SW-WDMSD	112-05-0	Nonanoic acid	3	NJ
SW-WDMSD	306-83-2	Ethane, 2,2-dichloro-1,1,1-t	12	NJ
SW-WDMSD	50-84-0	Benzoic acid, 2,4-dichloro-	6	NJ
SW-WDMSD	544-63-8	Tetradecanoic acid	3	NJ
SW-WDMSD	473-55-2	Bicyclo[3.1.1]heptane, 2,6,6	6	NJ
SW-WDMSD	78-27-3	Cyclohexanol, 1-ethynyl-	4	NJ
SW-WDMSD	2091-29-4	9-Hexadecenoic acid	3	NJ
SW-WDMSD	57-10-3	Hexadecanoic acid	11	NJ
SW-WDMSD	112-80-1	9-Octadecenoic acid (Z)-	2	NJ
SW-WDMSD	1725-04-8	Oxacyclotetradecan-2-one	2	NJ
SW-WDMSD	57-11-4	Octadecanoic acid	6	NJ
SW-WDMSD	630-07-9	Pentatriacontane	2	NJ
SW-WDMSD	629-97-0	Docosane	4	NJ
SW-WDMSD	630-06-8	Hexatriacontane	12	NJ
SW-WDMSD	1454-84-8	1-Nonadecanol	3	NJ
SW-WDMSD	7098-22-8	Tetratetracontane	5	NJ
SW-WDMSD	295-17-0	Cyclotetradecane	3	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 189

SDG FILE: 1F34784 DATE: MATRIX:
ES: SW-WE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SW-WE	112-05-0	Nonanoic acid	3	NJ
SW-WE	57-10-3	Hexadecanoic acid	6	NJ
SW-WE	57-11-4	Octadecanoic acid	2	NJ
SW-WE	646-31-1	Tetracosane	3	NJ

TOTAL UNKNOWN TICS:	21
TOTAL TICS	35

QA/QC

SDG FILE: 1F150424 DATE: MATRIX:
ES: DW1206-1
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
DW1206-1	88-04-0	PHENOL, 4-CHLORO-3,5-DIMETHY	10	J
DW1206-1	646-31-1	TETRACOSANE	14	J
DW1206-1	629-99-2	PENTACOSANE	16	J
DW1206-1	630-01-3	HEXACOSANE	20	J
DW1206-1	593-49-7	HEPTACOSANE	29	J
DW1206-1	630-02-4	OCTACOSANE	30	J
DW1206-1	630-03-5	NONACOSANE	59	J
DW1206-1	638-68-6	TRIACONTANE	53	J

TOTAL UNKNOWN TICS: 296
TOTAL TICS 527

SDG FILE: 1F150424 DATE: MATRIX:
ES: DW1206-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
DW1206-2	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	66	JA
DW1206-2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	210	JA
DW1206-2	646-31-1	TETRACOSANE	10	J
DW1206-2	629-99-2	PENTACOSANE	9	J
DW1206-2	630-01-3	HEXACOSANE	12	J
W1206-2	593-49-7	HEPTACOSANE	18	J
W1206-2	630-02-4	OCTACOSANE	16	J
DW1206-2	630-03-5	NONACOSANE	34	J
DW1206-2	638-68-6	TRIACONTANE	28	J

TOTAL UNKNOWN TICS: 151
TOTAL TICS 554

SDG FILE: 1F150424 DATE: MATRIX:
ES: SBLKV6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKV6	141-79-7	3-PENTEN-2-ONE, 4-METHYL-	27	JA
SBLKV6	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	310	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 337

SDG FILE: 1E34784 DATE: MATRIX:
ES: RBSDSW-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BSDSW-1	110-54-3	Hexane	17	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 17

SDG FILE: 1F34784 DATE: MATRIX:
ES: RBSDSW-1
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	16	
		TOTAL TICS	16	

SDG FILE: 1F34784 DATE: MATRIX:
ES: RBSDSW-2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RBSDSW-2	103-23-1	Hexanedioic acid, bis(2-ethy	2	NJ
RBSDSW-2	791-28-6	Phosphine oxide, triphenyl-	6	XN
		TOTAL UNKNOWN TICS:	25	
		TOTAL TICS	33	

SDG FILE: 1F34784 DATE: MATRIX:
ES: SBLK4A
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	8	
		TOTAL TICS	8	

SDG FILE: 1F34784 DATE: MATRIX:
ES: SBLKA4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKA4	105-60-2	Caprolactam	2	NJ
SBLKA4	112-05-0	Nonanoic acid	3	NJ
SBLKA4	57-10-3	Hexadecanoic acid	4	NJ
		TOTAL UNKNOWN TICS:	8	
		TOTAL TICS	17	

SDG FILE: 1E34765 DATE: MATRIX:
ES: MSB2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	16	
		TOTAL TICS	16	

SDG FILE: 1F34765 DATE: MATRIX:
ES: FH1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
FH1	57-10-3	Hexadecanoic acid	2	NJ
FH1	791-28-6	Phosphine oxide, triphenyl-	6	NJ
		TOTAL UNKNOWN TICS:	13	
		TOTAL TICS	21	

SDG FILE: 1F34765 DATE: MATRIX:
ES: SBLK3N
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK3N	791-28-6	Phosphine oxide, triphenyl-	4	NJ
		TOTAL UNKNOWN TICS:	7	
		TOTAL TICS	11	

SDG FILE: 1F34765 DATE: MATRIX:
ES: SBLK4Y
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK4Y	123-42-2	2-Pentanone, 4-hydroxy-4-met	2400	NJ
SBLK4Y	143-07-7	Dodecanoic acid	290	NJ
		TOTAL UNKNOWN TICS:	77	
		TOTAL TICS	2767	

SDG FILE: 1F34765 DATE: MATRIX:
ES: SBLK5A
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK5A	57-10-3	Hexadecanoic acid	3	NJ
		TOTAL UNKNOWN TICS:	6	
		TOTAL TICS	9	

SDG FILE: 1F34765 DATE: MATRIX:
ES: SBLKB3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKB3	123-42-2	2-Pentanone, 4-hydroxy-4-met	3000	NJ
SBLKB3	143-07-7	Dodecanoic acid	800	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	3800	

SDG FILE: 1F34765 DATE: MATRIX:
ES: SBLKP6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

SBLKP6	123-42-2	2-Pentanone, 4-hydroxy-4-met	5300	JN
		TOTAL UNKNOWN TICS:	750	
		TOTAL TICS	6050	

SDG FILE: 1F34765 DATE: MATRIX:
ES: SBLKQ5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKQ5	123-42-2	2-Pentanone, 4-hydroxy-4-met	6700	NJ
		TOTAL UNKNOWN TICS:	985	
		TOTAL TICS	7685	

SDG FILE: 1F34765 DATE: MATRIX:
ES: SBLKY4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKY4	123-42-2	2-Pentanone, 4-hydroxy-4-met	2300	NJ
SBLKY4	143-07-7	Dodecanoic Acid	350	NJ
		TOTAL UNKNOWN TICS:	120	
		TOTAL TICS	2770	

SDG FILE: 1F34782 DATE: MATRIX:
S: SBLKQ2
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKQ2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3800	NJ
		TOTAL UNKNOWN TICS:	600	
		TOTAL TICS	4400	

SDG FILE: 1F34782 DATE: MATRIX:
ES: SBLKV5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKV5	123-42-2	2-Pentanone, 4-hydroxy-4-met	5700	NJ
		TOTAL UNKNOWN TICS:	210	
		TOTAL TICS	5910	

SDG FILE: 1E34848 DATE: MATRIX:
ES: VBLK5Y
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BLK5Y	67-63-0	Isopropyl alcohol	870	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	870	

SDG FILE: 1F34848 DATE: MATRIX:
ES: MSB
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MSB	1003-17-4	Tetrahydrofuran, 2,2-dimethy	95	NJ
MSB	141-79-7	3-Penten-2-one, 4-methyl-	120	NJ
MSB	3031-75-2	Hydroperoxide, 1-methylethyl	150	NJ
MSB	123-42-2	2-Pentanone, 4-hydroxy-4-met	3500	NJ
MSB	123-42-2	2-Pentanone, 4-hydroxy-4-met	88	NJ
MSB	1611-83-2	2-Propenamide, 2-methyl-N-ph	100	NJ
MSB	100-02-7	Phenol, 4-nitro-	150	NJ
MSB	693-67-4	Undecane, 1-bromo-	120	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 4323

SDG FILE: 1F34848 DATE: MATRIX:
ES: RA1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 12
TOTAL TICS 12

'DG FILE: 1F34848 DATE: MATRIX:
.S: RA2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RA2	123-42-2	2-Pentanone, 4-hydroxy-4-met	3	NJ
RA2	78-86-4	Unknown	5	JB
RA2	541-02-6	Cyclopentasiloxane, decameth	2	NJ

TOTAL UNKNOWN TICS: 37
TOTAL TICS 47

SDG FILE: 1F34848 DATE: MATRIX:
ES: SBLK4N
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK4N	791-28-6	Phosphine oxide, triphenyl-	3	NJ

TOTAL UNKNOWN TICS: 9
TOTAL TICS 12

SDG FILE: 1F34848 DATE: MATRIX:
ES: SBLK5N
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK5N	123-42-2	2-Pentanone, 4-hydroxy-4-met	31	NJ

TOTAL UNKNOWN TICS:	71
TOTAL TICS	102

SDG FILE: 1F34848 DATE: MATRIX:
ES: SBLKC7
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKC7	123-42-2	2-Pentanone, 4-hydroxy-4-met	5200	AN
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5200	

SDG FILE: 1F34848 DATE: MATRIX:
ES: SBLKS3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKS3	123-42-2	2-Pentanone, 4-hydroxy-4-met	3600	NJ
		TOTAL UNKNOWN TICS:	268	
		TOTAL TICS	3868	

SDG FILE: 1F34848 DATE: MATRIX:
ES: SBLKU1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKU1	123-42-2	2-Pentanone, 4-hydroxy-4-met	4100	NJ
		TOTAL UNKNOWN TICS:	2389	
		TOTAL TICS	6489	

SDG FILE: 1F37818 DATE: MATRIX:
ES: SBLK2T
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK2T	123-42-2	2-Pentanone, 4-hydroxy-4-met	22	NJ
SBLK2T	95-16-9	Benzothiazole	2	NJ
SBLK2T	791-28-6	Phosphine oxide, triphenyl-	3	NJ
		TOTAL UNKNOWN TICS:	2	
		TOTAL TICS	29	

SDG FILE: 1F37818 DATE: MATRIX:
ES: SBLK9S
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK9S	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
		TOTAL UNKNOWN TICS:	2	
		TOTAL TICS	9	

SDG FILE: 1F37818 DATE: MATRIX:
ES: SBLKO2
AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKO2	123-42-2	2-Pentanone, 4-hydroxy-4-met	25	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	25	

SDG FILE: 2E37818 DATE: MATRIX:
ES: TB77
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TB77	75-28-	PROPANE, 2-METHYL-	1	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	1	

SDG FILE: 2E37818 DATE: MATRIX:
ES: VBLKD2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKD2	541-02-	CYCLOPENTASILOXANE, DECAMETH	1	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	1	

SDG FILE: 2E37818 DATE: MATRIX:
ES: VBLKD5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKD5	541-02-	CYCLOPENTASILOXANE, DECAMETH	1	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	1	

SDG FILE: 1F37862 DATE: MATRIX:
ES: SBLK2T
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK2T	123-42-2	2-Pentanone, 4-hydroxy-4-met	22	NJ
SBLK2T	95-16-9	Benzothiazole	2	NJ
SBLK2T	791-28-6	Phosphine oxide, triphenyl-	3	NJ
		TOTAL UNKNOWN TICS:	2	
		TOTAL TICS	29	

SDG FILE: 1F37862 DATE: MATRIX:

ES: SBLK4T
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
3LK4T	123-42-2	2-Pentanone, 4-hydroxy-4-met	8	NJ
		TOTAL UNKNOWN TICS:	3	
		TOTAL TICS	11	

SDG FILE: 1F37914 DATE: MATRIX:
ES: MSB
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MSB	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	6	

SDG FILE: 1F37914 DATE: MATRIX:
ES: SBLK6T
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK6T	123-42-2	2-Pentanone, 4-hydroxy-4-met	7	NJ
		TOTAL UNKNOWN TICS:	23	
		TOTAL TICS	30	

SDG FILE: 1F37914 DATE: MATRIX:
ES: SBLKT6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKT6	123-42-2	2-Pentanone, 4-hydroxy-4-met	9	NJ
		TOTAL UNKNOWN TICS:	9	
		TOTAL TICS	18	

SDG FILE: 1E36521 DATE: MATRIX:
ES: RB37-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RB37-3	106-97-	BUTANE	6	JX
RB37-3	110-54-	HEXANE	7	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	13	

SDG FILE: 1F36521 DATE: MATRIX:
'S: RB36-3
.AB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

RB36-3	544-63-	TETRADECANOIC ACID	2	JX
RB36-3	57-10-	HEXADECANOIC ACID	12	JX
RB36-3	57-11-	OCTADECANOIC ACID	12	JX
		TOTAL UNKNOWN TICS:	6	
		TOTAL TICS	32	

SDG FILE: 1F36521 DATE: MATRIX:
ES: SBLK8Q
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK8Q	105-60-	CAPROLACTAM	2	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	2	

SDG FILE: 1F36521 DATE: MATRIX:
ES: SBLKF6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKF6	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	4	

DG FILE: 1F36521 DATE: MATRIX:
.S: SBLKP5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKP5	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2800	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	2800	

SDG FILE: 1F36521 DATE: MATRIX:
ES: SBLKP7
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKP7	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	1800	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	1800	

SDG FILE: 1E36549 DATE: MATRIX:
ES: MSB
LAB:

'SID	CAS NO	COMPOUND	RESULT	QUAL.
.SB	124-38-9	Carbon dioxide	20	NJ
		TOTAL UNKNOWN TICS:	0	

TOTAL TICS 20

SDG FILE: 1E36549 DATE: MATRIX:
S: RB46-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RB46-3	75-28-5	Propane, 2-methyl-	9	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 9

SDG FILE: 1F36549 DATE: MATRIX:
ES: RB46-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RB46-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	5	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5

SDG FILE: 1F36549 DATE: MATRIX:
ES: RB47-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
347-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ
.B47-3	541-02-6	Cyclopentasiloxane, decameth	2	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 6

SDG FILE: 1F36549 DATE: MATRIX:
ES: RB48-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RB48-3	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ

TOTAL UNKNOWN TICS: 19
TOTAL TICS 23

SDG FILE: 1F36549 DATE: MATRIX:
ES: SBLK9Q
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK9Q	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 4

SDG FILE: 1F36549 DATE: MATRIX:

ES: SBLKP6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
BLKP6	123-42-2	2-Pentanone, 4-hydroxy-4-met	3100	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	3100	

SDG FILE: 1F36549 DATE: MATRIX:
ES: SBLKP8
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKP8	123-42-2	2-Pentanone, 4-hydroxy-4-met	3200	NJ
		TOTAL UNKNOWN TICS:	1600	
		TOTAL TICS	4800	

SDG FILE: 1E37456 DATE: MATRIX:
ES: TB620
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	1	
		TOTAL TICS	1	

SDG FILE: 1E37456 DATE: MATRIX:
ES: VBLKC1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKC1	541-02-	CYCLOPENTASILOXANE, DECAMETH	1	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	1	

SDG FILE: 1E37456 DATE: MATRIX:
ES: VBLKC3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKC3	541-02-	CYCLOPENTASILOXANE, DECAMETH	1	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	1	

SDG FILE: 1E37456 DATE: MATRIX:
ES: VBLKC4
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKC4	541-02-	CYCLOPENTASILOXANE, DECAMETH	1	JX

TOTAL UNKNOWN TICS: 0
TOTAL TICS 1

SDG FILE: 1E37456 DATE: MATRIX:
ES: VBLKC8
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKC8	541-02-	CYCLOPENTASILOXANE, DECAMETH	1	JX

TOTAL UNKNOWN TICS: 0
TOTAL TICS 1

SDG FILE: 1F37456 DATE: MATRIX:
ES: SBLK1S
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK1S	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 4

SDG FILE: 1F37456 DATE: MATRIX:
ES: SBLK2S
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK2S	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 4

SDG FILE: 1F37456 DATE: MATRIX:
ES: SBLK3S
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK3S	123-42-2	2-Pentanone, 4-hydroxy-4-met	8	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 8

SDG FILE: 1F37456 DATE: MATRIX:
ES: SBLK9R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK9R	123-42-2	2-Pentanone, 4-hydroxy-4-met	5	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 5

SDG FILE: 1F37456 DATE: MATRIX:

ES: SBLKS1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKS1	123-42-2	2-Pentanone, 4-hydroxy-4-met	4	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	4	

SDG FILE: 1E37727 DATE: MATRIX:
ES: TB629
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TB629	75-28-	PROPANE, 2-METHYL-	2	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	2	

SDG FILE: 1E37727 DATE: MATRIX:
ES: VBLKD1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
VBLKD1	541-02-	CYCLOPENTASILOXANE, DECAMETH	1	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	1	

SDG FILE: 1F37727 DATE: MATRIX:
ES: SBLK5S
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK5S	123-42-2	2-Pentanone, 4-hydroxy-4-met	5	NJ
SBLK5S	111-76-2	Ethanol, 2-butoxy-	4	NJ
SBLK5S	142-62-1	Hexanoic acid	2	NJ
		TOTAL UNKNOWN TICS:	60	
		TOTAL TICS	71	

SDG FILE: 1F37727 DATE: MATRIX:
ES: SBLK7S
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK7S	123-42-2	2-Pentanone, 4-hydroxy-4-met	10	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	10	

SDG FILE: 1F37727 DATE: MATRIX:
ES: SBLKS5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKS5	123-42-2	2-Pentanone, 4-hydroxy-4-met	6	NJ
SBLKS5	111-76-2	Ethanol, 2-butoxy-	4	NJ
SBLKS5	142-62-1	Hexanoic acid	3	NJ
BLKS5	112-05-0	Nonanoic acid	2	NJ

SDG FILE: FILE1F1 DATE: 11/08/91 MATRIX: WATER
ES: S1106-35
AB: 148461

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1106-35	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	30	JB

TOTAL UNKNOWN TICS:	56
TOTAL TICS	86

SDG FILE: FILE1F1 DATE: 11/06/91 MATRIX: WATER
ES: X1104-1
LAB: 148033

ESID	CAS NO	COMPOUND	RESULT	QUAL.
X1104-1	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	16	JB

TOTAL UNKNOWN TICS:	18
TOTAL TICS	34

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: WATER
ES: SBLKJ4
LAB: SBLKJ4

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKJ4	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	25	JA

TOTAL UNKNOWN TICS:	0
TOTAL TICS	25

SDG FILE: FILE1F1 DATE: 00/00/00 MATRIX: WATER
ES: SBLKK5
LAB: SBLKK5

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKK5	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	20	JA

TOTAL UNKNOWN TICS:	43
TOTAL TICS	63

SDG FILE: FILE1F2 DATE: 11/09/91 MATRIX: WATER
ES: X1108-2
LAB: 148718

ESID	CAS NO	COMPOUND	RESULT	QUAL.
X1108-2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	48	JB

TOTAL UNKNOWN TICS:	17
TOTAL TICS	65

SDG FILE: FILE1F2 DATE: 00/00/00 MATRIX: WATER
ES: SBLKL7
LAB: SBLKL7

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKL7	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	23	JA

TOTAL UNKNOWN TICS: 12
TOTAL TICS 35

SDG FILE: 1E152702 DATE: 01/18/92 MATRIX: WATER
ES: TRIP BLK
LAB: 152702

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TRIP BLK	109-99-9	TETRAHYDROFURAN	9	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 9

SDG FILE: 1F152702 DATE: 00/00/00 MATRIX: WATER
ES: SBLKI7
LAB: SBLKI7

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKI7	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	17	J

TOTAL UNKNOWN TICS: 9
TOTAL TICS 26

SDG FILE: 1F152702 DATE: 00/00/00 MATRIX: WATER
ES: SBLKJ2
LAB: SBLKJ2

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKJ2	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	14	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 14

SDG FILE: 1F152702 DATE: 00/00/00 MATRIX: WATER
ES: SBLKN9
LAB: SBLKN9

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKN9	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	10	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 10

SDG FILE: 1E148931 DATE: 11/16/91 MATRIX: WATER
ES: X1114-6
LAB: 149184

ESID	CAS NO	COMPOUND	RESULT	QUAL.
X1114-6	1066-40-6	SILANOL, TRIMETHYL-	68	JL

TOTAL UNKNOWN TICS: 0

TOTAL TICS 68

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: WATER
S: X1112-3
LAB: 148938

ESID	CAS NO	COMPOUND	RESULT	QUAL.
X1112-3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	44	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 44

SDG FILE: 1F148931 DATE: 11/14/91 MATRIX: WATER
ES: X1113-4
LAB: 148939

ESID	CAS NO	COMPOUND	RESULT	QUAL.
X1113-4	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	41	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 41

SDG FILE: 1F148931 DATE: 11/16/91 MATRIX: WATER
ES: X1114-5
LAB: 149183

ESID	CAS NO	COMPOUND	RESULT	QUAL.
1114-5	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	65	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 65

SDG FILE: 1F148931 DATE: 00/00/00 MATRIX: WATER
ES: SBLKN8
LAB: SBLKN8

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKN8	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	41	JA

TOTAL UNKNOWN TICS: 8
TOTAL TICS 49

SDG FILE: 1F148931 DATE: 00/00/00 MATRIX: WATER
ES: SBLKO8
LAB: SBLKO8

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKO8	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	61	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 61

SDG FILE: 1E149114 DATE: 11/16/91 MATRIX: WATER
ES: S1511-81

LAB: 149118

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-81	111-76-2	ETHANOL, 2-BUTOXY-	5	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	5	

SDG FILE: 1F149114 DATE: 11/16/91 MATRIX: WATER
ES: S1511-81
LAB: 149118

ESID	CAS NO	COMPOUND	RESULT	QUAL.
S1511-81	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	43	JB
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	43	

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: WATER
ES: SBLK8P
LAB: SBLKP8

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLK8P	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	11	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	11	

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: WATER
ES: SBLKO7
LAB: SBLKO7

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKO7	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	130	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	130	

SDG FILE: 1F149114 DATE: 00/00/00 MATRIX: WATER
ES: SBLKP8
LAB: SBLKP8

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKP8	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	37	JA
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	37	

SDG FILE: 1F150016 DATE: 12/04/91 MATRIX: WATER
ES: X1203-8
LAB: 150031

ESID	CAS NO	COMPOUND	RESULT	QUAL.
X1203-8	85-60-9	PHENOL, 4,4'-BUTYLIDENEBIS[2	8	J
X1203-8	630-03-5	NONACOSANE	11	J

TOTAL UNKNOWN TICS: 25
TOTAL TICS 44

SDG FILE: 1F150726 DATE: 00/00/00 MATRIX: WATER
ES: SBLKX3
LAB: SBLKX3

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKX3	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	21	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 21

SDG FILE: 1F150240 DATE: 12/06/91 MATRIX: WATER
ES: X1204-9
LAB: 150257

ESID	CAS NO	COMPOUND	RESULT	QUAL.
X1204-9	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	47	JB

TOTAL UNKNOWN TICS: 0
TOTAL TICS 47

SDG FILE: 1F150240 DATE: 00/00/00 MATRIX: WATER
ES: SBLKU6
LAB: SBLKU6

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SBLKU6	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	55	JA

TOTAL UNKNOWN TICS: 0
TOTAL TICS 55

SDG FILE: 1E152151 DATE: 01/10/92 MATRIX: WATER
ES: RINSE BLAN
LAB: 152153

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RINSE BLAN	109-99-9	TETRAHYDROFURAN	9	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 9

SDG FILE: 1E152151 DATE: 01/10/92 MATRIX: WATER
ES: RINSE BLAN
LAB: 152166

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RINSE BLAN	110-54-3	HEXANE	6	J

TOTAL UNKNOWN TICS: 0
TOTAL TICS 6

SDG FILE: 1E152151 DATE: 01/11/92 MATRIX: WATER
ES: RINSE BLAN
LAB: 152261

ESID	CAS NO	COMPOUND	RESULT	QUAL.
RINSE BLAN	109-99-9	TETRAHYDROFURAN	9	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	9	

SDG FILE: 1E152151 DATE: 01/14/92 MATRIX: WATER
ES: TRIP BLANK
LAB: 152408

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TRIP BLANK	109-99-9	TETRAHYDROFURAN	9	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	9	

SDG FILE: 1E152502 DATE: 01/15/92 MATRIX: WATER
ES: TRIP BLANK
LAB: 152502

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TRIP BLANK	109-99-9	TETRAHYDROFURAN	9	J
TRIP BLANK	1066-40-6	TRIMETHYLSILANOL	9	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	18	

SDG FILE: 1E152502 DATE: 01/17/92 MATRIX: WATER
ES: TRIP BLANK
LAB: 152640

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TRIP BLANK	109-99-9	TETRAHYDROFURAN	9	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	9	

SDG FILE: 1E152502 DATE: 01/16/92 MATRIX: WATER
ES: TRIP BLANK
LAB: 152569

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TRIP BLANK	109-99-9	TETRAHYDROFURAN	9	J
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	9	

ADDITIONAL ANALYTICAL DATA
FOR APPENDIX J

- Replace data qualifier sheet
- Replace groundwater data section
- Replace farmhouse well section
- Add new data qualifier sheet to TIC section
- Method CRQLs from workplan

INTRODUCTION

All data in this appendix have been validated using EPA Region II data validation guidelines. These guidelines prescribe the use of the following qualifiers:

U	The analyte was not detected.
UJ	The analyte was not detected; however, the associated reporting limit is approximate.
J	The analyte was positively identified; however, QC results indicate that the reported concentration may not be accurate and is therefore an estimate.
R	The analyte was rejected due to laboratory QC deficiencies, sample preservation problems, or holding time exceedance. The presence or absence of the analyte cannot be determined.

GROUNDWATER

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-10	PT-10	PT-10	PT10	PT-11	PT-11	PT11
	DATE	01/08/92	01/08/92	01/08/92	06/23/93	01/15/92	01/15/92	07/10/93
	ES ID	PT-1(1)	PT-10(2)	PT-10(2)Filtered	PT10	PT-11	PT-11Filter	PT11
	LAB ID	152259	152156	152199	187234	152574	152593	188728
COMPOUND	UNITS							
Chloromethane	ug/L		10 U			10 U		10 U
Bromomethane	ug/L		10 U			10 U		10 U
Vinyl Chloride	ug/L		10 U			10 U		10 U
Chloroethane	ug/L		10 U			10 U		10 U
Methylene Chloride	ug/L		5 U			5 U		10 U
Acetone	ug/L		10 U			10 U		10 U
Carbon Disulfide	ug/L		5 U			5 U		10 U
1,1-Dichloroethene	ug/L		5 U			5 U		10 U
1,1-Dichloroethane	ug/L		5 U			5 U		10 U
1,2-Dichloroethene (total)	ug/L		5 U			5 U		10 U
Chloroform	ug/L		5 U			5 U		10 U
1,2-Dichloroethane	ug/L		5 U			5 U		10 U
2-Butanone	ug/L		10 U			10 U		10 U
1,1,1-Trichloroethane	ug/L		5 U			5 U		10 U
Carbon Tetrachloride	ug/L		5 U			5 U		10 U
Vinyl Acetate	ug/L		10 U			10 U		
Bromodichloromethane	ug/L		5 U			5 U		10 U
1,2-Dichloropropane	ug/L		5 U			5 U		10 U
cis-1,3-Dichloropropene	ug/L		5 U			5 U		10 U
Trichloroethene	ug/L		5 U			5 U		10 U
Dibromochloromethane	ug/L		5 U			5 U		10 U
1,1,2-Trichloroethane	ug/L		5 U			5 U		10 U
Benzene	ug/L		5 U			5 U		10 U
trans-1,3-Dichloropropene	ug/L		5 U			5 U		10 U
Bromoform	ug/L		5 U			5 U		10 U
4-Methyl-2-Pentanone	ug/L		10 U			10 U		10 U
2-Hexanone	ug/L		10 U			10 U		10 U
Tetrachloroethene	ug/L		5 U			5 U		10 U
1,1,2,2-Tetrachloroethane	ug/L		5 U			5 U		10 U
Toluene	ug/L		5 U			5 U		10 U
Chlorobenzene	ug/L		5 U			5 U		10 U
Ethylbenzene	ug/L		5 U			5 U		10 U
Styrene	ug/L		5 U			5 U		10 U
Xylene (total)	ug/L		5 U			4 J		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-10	PT-10	PT-10	PT10	PT-11	PT-11	PT11
	DATE	01/08/92	01/08/92	01/08/92	06/23/93	01/15/92	01/15/92	07/10/93
	ES ID	PT-1(1)	PT-10(2)	PT-10(2)Filtered	PT10	PT-11	PT-11Filter	PT11
	LAB ID	152259	152156	152199	187234	152574	152593	188726
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L				0.5 U			
Chloromethane	ug/L				0.5 U			
Vinyl Chloride	ug/L				0.5 U			
Bromomethane	ug/L				0.5 U			
Chloroethane	ug/L				0.5 U			
Trichlorofluoromethane	ug/L				0.5 U			
1,1-Dichloroethene	ug/L				0.5 U			
Acetone	ug/L				5 U			
Carbon Disulfide	ug/L				0.5 U			
Methylene Chloride	ug/L				0.5 U			
trans-1,2-Dichloroethene	ug/L				0.5 U			
1,1-Dichloroethane	ug/L				0.5 U			
2,2-Dichloropropane	ug/L				0.5 U			
cis-1,2-Dichloroethene	ug/L				0.5 U			
2-Butanone	ug/L				5 U			
Bromochloromethane	ug/L				0.5 U			
Chloroform	ug/L				0.5 U			
1,1,1-Trichloroethane	ug/L				0.5 U			
Carbon Tetrachloride	ug/L				0.5 U			
1,1-Dichloropropene	ug/L				0.5 U			
Benzene	ug/L				0.5 U			
1,2-Dichloroethane	ug/L				0.5 U			
Trichloroethene	ug/L				0.5 U			
1,2-Dichloropropane	ug/L				0.5 U			
Dibromomethane	ug/L				0.5 U			
Bromodichloromethane	ug/L				0.5 U			
cis-1,3-Dichloropropene	ug/L				0.5 U			
4-Methyl-2-Pentanone	ug/L				5 U			
Toluene	ug/L				0.5 U			
trans-1,3-Dichloropropene	ug/L				0.5 U			
1,1,2-Trichloroethane	ug/L				0.5 U			
Tetrachloroethene	ug/L				0.5 U			
1,3-Dichloropropane	ug/L				0.5 U			
2-Hexanone	ug/L				5 U			
Dibromochloromethane	ug/L				0.5 U			
1,2-Dibromoethane	ug/L				0.5 U			
Chlorobenzene	ug/L				0.5 U			
1,1,1,2-Tetrachloroethane	ug/L				0.5 U			
Ethylbenzene	ug/L				0.5 U			
Styrene	ug/L				0.5 U			
Bromoform	ug/L				0.5 U			
Isopropylbenzene	ug/L				0.5 U			
Bromobenzene	ug/L				0.5 U			
1,1,2,2-Tetrachloroethane	ug/L				0.5 U			
1,2,3-Trichloropropane	ug/L				0.5 U			
n-Propylbenzene	ug/L				0.5 U			
2-Chlorotoluene	ug/L				0.5 U			
4-Chlorotoluene	ug/L				0.5 U			
1,3,5-Trimethylbenzene	ug/L				0.5 U			
tert-Butylbenzene	ug/L				0.5 U			
1,2,4-Trimethylbenzene	ug/L				0.5 U			
sec-Butylbenzene	ug/L				0.5 U			
1,3-Dichlorobenzene	ug/L				0.5 U			
1,4-Dichlorobenzene	ug/L				0.5 U			
p-Isopropyltoluene	ug/L				0.5 U			
1,2-Dichlorobenzene	ug/L				0.5 U			
n-Butylbenzene	ug/L				0.5 U			
1,2-Dibromo-3-Chloropropane	ug/L				0.5 U			
1,2,4-Trichlorobenzene	ug/L				0.5 U			
Hexachlorobutadiene	ug/L				0.5 U			
Naphthalene	ug/L				0.5 U			
1,2,3-Trichlorobenzene	ug/L				0.5 U			
Xylene (total)	ug/L				0.5 U			

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	LOCATION	PT-10	PT-10	PT-10	PT10	PT-11	PT-11	PT11
	DATE	01/08/92	01/08/92	01/08/92	06/23/93	01/15/92	01/15/92	07/10/93
	ES ID	PT-1(1)	PT-10(2)	PT-10(2)Filtered	PT10	PT-11	PT-11Filter	PT11
	LAB ID	152259	152156	152199	187234	152574	152593	188726
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	11 U	10 U		10 U	11 U		10 U
bis(2-Chloroethyl) ether	ug/L	11 U	10 U		10 U	11 U		10 U
2-Chlorophenol	ug/L	11 U	10 U		10 U	11 U		10 U
1,3-Dichlorobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
1,4-Dichlorobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
Benzyl Alcohol	ug/L	11 U	10 U			11 U		
1,2-Dichlorobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
2-Methylphenol	ug/L	11 U	10 U		10 U	11 U		10 U
bis(2-Chloroisopropyl) ether	ug/L	11 U	10 U		10 U	11 U		10 U
4-Methylphenol	ug/L	11 U	10 U		10 U	11 U		10 U
N-Nitroso-di-n-propylamine	ug/L	11 U	10 U		10 U	11 U		10 U
Hexachloroethane	ug/L	11 U	10 U		10 U	11 U		10 U
Nitrobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
Isophorone	ug/L	11 U	10 U		10 U	11 U		10 U
2-Nitrophenol	ug/L	11 U	10 U		10 U	11 U		10 U
2,4-Dimethylphenol	ug/L	11 U	10 U		10 U	11 U		10 U
Benzoic acid	ug/L	54 U	52 U			55 U		
bis(2-Chloroethoxy) methane	ug/L	11 U	10 U		10 U	11 U		10 U
2,4-Dichlorophenol	ug/L	11 U	10 U		10 U	11 U		10 U
1,2,4-Trichlorobenzene	ug/L	11 U	10 U		10 U	11 U		10 U
Naphthalene	ug/L	11 U	10 U		10 U	11 U		10 U
4-Chloroaniline	ug/L	11 U	10 U		10 U	11 U		10 U
Hexachlorobutadiene	ug/L	11 U	10 U		10 U	11 U		10 U
4-Chloro-3-methylphenol	ug/L	11 U	10 U		10 U	11 U		10 U
2-Methylnaphthalene	ug/L	11 U	10 U		10 U	11 U		10 U
Hexachlorocyclopentadiene	ug/L	11 U	10 U		10 U	11 U		10 U
2,4,6-Trichlorophenol	ug/L	11 U	10 U		10 U	11 U		10 U
2,4,5-Trichlorophenol	ug/L	54 U	52 U		25 U	55 U		25 U
2-Chloronaphthalene	ug/L	11 U	10 U		10 U	11 U		10 U
2-Nitroaniline	ug/L	54 U	52 U		25 U	55 U		25 U
Dimethylphthalate	ug/L	11 U	10 U		10 U	11 U		10 U
Acenaphthylene	ug/L	11 U	10 U		10 U	11 U		10 U
2,6-Dinitrotoluene	ug/L	11 U	10 U		10 U	11 U		10 U
3-Nitroaniline	ug/L		52 U		25 U	55 U		25 U
Acenaphthene	ug/L		10 U		10 U	11 U		10 U
2,4-Dinitrophenol	ug/L		52 U		25 U	55 U		25 U
4-Nitrophenol	ug/L		52 U		25 U	55 U		25 U
Dibenzofuran	ug/L		10 U		10 U	11 U		10 U
2,4-Dinitrotoluene	ug/L		10 U		10 U	11 U		10 U
Diethylphthalate	ug/L		10 U		10 U	11 U		10 U
4-Chlorophenyl-phenylether	ug/L		10 U		10 U	11 U		10 U
Fluorene	ug/L		10 U		10 U	11 U		10 U
4-Nitroaniline	ug/L		52 U		25 U	55 U		25 U
4,6-Dinitro-2-methylphenol	ug/L		52 U		25 U	55 U		25 U
N-Nitrosodiphenylamine (1)	ug/L		10 U		10 U	11 U		10 U
4-Bromophenyl-phenylether	ug/L		10 U		10 U	11 U		10 U
Hexachlorobenzene	ug/L		10 U		10 U	11 U		10 U
Pentachlorophenol	ug/L		52 U		25 U	55 U		25 U
Phenanthrene	ug/L		10 U		10 U	11 U		10 U
Anthracene	ug/L		10 U		10 U	11 U		10 U
Carbazole	ug/L				10 U			10 U
Di-n-butylphthalate	ug/L		10 U		18	11 U		10 U
Fluoranthene	ug/L		10 U		10 U	11 U		10 U
Pyrene	ug/L		10 U		10 U	11 U		10 U
Butylbenzylphthalate	ug/L		10 U		10 U	11 U		10 U
3,3'-Dichlorobenzidine	ug/L		21 U		10 U	22 U		10 U
Benzo(a)anthracene	ug/L		10 U		10 U	11 U		10 U
Chrysene	ug/L		10 U		10 U	11 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L		10 U		30 U	11 U		10 U
Di-n-octylphthalate	ug/L		10 U		10 U	11 U		10 U
Benzo(b)fluoranthene	ug/L		10 U		10 U	11 U		10 U
Benzo(k)fluoranthene	ug/L		10 U		10 U	11 U		10 U
Benzo(a)pyrene	ug/L		10 U		10 U	11 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L		10 U		10 U	11 U		10 U
Dibenz(a,h)anthracene	ug/L		10 U		10 U	11 U		10 U
Benzo(g,h,i)perylene	ug/L		10 U		10 U	11 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3

COMPOUND		PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-10	PT-10	PT-10	PT10	PT-11	PT-11	PT11
	DATE	01/08/92	01/08/92	01/08/92	06/23/93	01/15/92	01/15/92	07/10/93
	ES ID	PT-1(1)	PT-10(2)	PT-10(2)Filtered	PT10	PT-11	PT-11Filter	PT11
	LAB ID	152259	152156	152199	187234	152574	152593	188728
	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
beta-BHC	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
delta-BHC	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
gamma-BHC (Lindane)	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Heptachlor	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Aldrin	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Heptachlor epoxide	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Endosulfan I	ug/L	0.058 U	0.05 U		0.05 U	0.055 U		
Dieldrin	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
4,4'-DDE	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Endrin	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Endosulfan II	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
4,4'-DDD	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Endosulfan sulfate	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
4,4'-DDT	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Methoxychlor	ug/L	0.58 U	0.5 U		0.5 U	0.55 U		
Endrin ketone	ug/L	0.12 U	0.1 U		0.1 U	0.11 U		
Endrin aldehyde	ug/L				0.1 U			
alpha-Chlordane	ug/L	0.58 U	0.5 U		0.05 U	0.55 U		
gamma-Chlordane	ug/L	0.58 U	0.5 U		0.05 U	0.55 U		
Toxaphene	ug/L	1.2 U	1 U		5 U	1.1 U		
Aroclor-1016	ug/L	0.58 U	0.5 U		1 U	0.55 U		
Aroclor-1221	ug/L	0.58 U	0.5 U		2 U	0.55 U		
Aroclor-1232	ug/L	0.58 U	0.5 U		1 U	0.55 U		
Aroclor-1242	ug/L	0.58 U	0.5 U		1 U	0.55 U		
Aroclor-1248	ug/L	0.58 U	0.5 U		1 U	0.55 U		
Aroclor-1254	ug/L	1.2 U	1 U		1 U	1.1 U		
Aroclor-1260	ug/L	1.2 U	1 U		1 U	1.1 U		
HERBICIDES								
2,4-D	ug/L		1 U		1.1 U	1.2 U		
2,4-DB	ug/L		1 U		1.1 U	1.2 U		
2,4,5-T	ug/L		0.1 U		0.11 U	0.1 U		
2,4,5-TP (Silvex)	ug/L		0.1 U		0.11 U	0.1 U		
Dalapon	ug/L		2.3 U		2.4 U	2.7 U		
Dicamba	ug/L		0.1 U		0.11 U	0.1 U		
Dichloroprop	ug/L		1 U		1.1 U	1.2 U		
Dinoseb	ug/L		0.5 U		0.51 U	0.5 U		
MCPA	ug/L		100 U		110 U	120 U		
MCPP	ug/L		100 U		110 U	120 U		
METALS								
Aluminum	ug/L		96.1 U	24.4 U	72 U	2960	24.4 U	
Antimony	ug/L		55.9 U	53 U	49.5 UJ	53.3 U	52.9 U	
Arsenic	ug/L		3.5 U J	3.5 U	1.4 UJ	3.5 U	3.5 U	
Barium	ug/L		196 J	203	193 J	121 J	77 J	
Beryllium	ug/L		1.4 R	2.6 R	0.89 U	2 R	1.3 R	
Cadmium	ug/L		2.9 U	3 U	2.8 U	3 U	3 U	
Calcium	ug/L		86500 J	86900	79100	124000	114000	
Chromium	ug/L		6.2 U	6.2 U	2.7 UJ	6.6 J	6.1 U	
Cobalt	ug/L		20 U	20.3 U	5.4 U	20.5 U	20.3 U	
Copper	ug/L		14.5 U	10.1 U	4.7 U	10.2 U	10.1 U	
Iron	ug/L		109	6.9 U	85.6 J	3270	6.9 U	
Lead	ug/L		1.2 U	1.4 J	0.79 U	1.2 U	1.2 U	
Magnesium	ug/L		32700 J	39600	34200	37300	33600	
Manganese	ug/L		99.6	43.8	124	59.1	4.8 U	
Mercury	ug/L		0.13 R	0.09 R	0.09 UJ	0.09 R	0.1 R	
Nickel	ug/L		16 U	14.7 U	7.4 UJ	14.8 U	14.7 U	
Potassium	ug/L		1300 J	1830 J	2870 J	3480 J	1880 J	
Selenium	ug/L		1 U	1 U	0.99 UJ	1.3 U	1 U	
Silver	ug/L		9.1 U	3.4 U	5.4 U	3.4 U	3.4 U	
Sodium	ug/L		37700 J	35900	41100	40300	37600	
Thallium	ug/L		3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	
Vanadium	ug/L		30.5 U	9.4 U	6.7 UJ	9.5 U	9.4 U	
Zinc	ug/L		19.2 J	8.4 U	8.8 J	18.5 R	8.4 U	
Cyanide	ug/L		11.2 J		10 UJ	10 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX LOCATION DATE ES ID LAB ID	PHASE II WATER ASH 07/13/93 PT11 186605	PHASE II WATER ASH 07/10/93 PT11 186795	PHASE I WATER PT-12 01/17/92 PT-12 152704	PHASE I WATER PT-12 01/17/92 PT-12Filtered 152711	PHASE I WATER PT-12 01/17/92 PT-3(1) 152703	PHASE I WATER PT-12 01/17/92 PT-3(1)Filt 152710	PHASE II WATER PT12 07/15/93 PT12 189112
COMPOUND	UNITS							
Chloromethane	ug/L			10 U		10 U		10 U
Bromomethane	ug/L			10 U		10 U		10 U
Vinyl Chloride	ug/L			4 J		4 J		88
Chloroethane	ug/L			10 U		10 U		10 U
Methylene Chloride	ug/L			5 U		5 U		10 U
Acetone	ug/L			10 U		10 U		10 U
Carbon Disulfide	ug/L			5 U		5 U		10 U
1,1-Dichloroethene	ug/L			5 U		5 U		3 J
1,1-Dichloroethane	ug/L			5 U		5 U		10 U
1,2-Dichloroethene (total)	ug/L			190		200		1400
Chloroform	ug/L			5 U		5 U		10 U
1,2-Dichloroethane	ug/L			5 U		5 U		10 U
2-Butanone	ug/L			10 U		10 U		10 U
1,1,1-Trichloroethane	ug/L			5 U		5 U		10 U
Carbon Tetrachloride	ug/L			5 U		5 U		10 U
Vinyl Acetate	ug/L			10 U		10 U		
Bromodichloromethane	ug/L			5 U		5 U		10 U
1,2-Dichloropropane	ug/L			5 U		5 U		10 U
cis-1,3-Dichloropropene	ug/L			5 U		5 U		10 U
Trichloroethene	ug/L			180		180		970
Dibromochloromethane	ug/L			5 U		5 U		10 U
1,1,2-Trichloroethane	ug/L			5 U		5 U		10 U
Benzene	ug/L			5 U		5 U		10 U
trans-1,3-Dichloropropene	ug/L			5 U		5 U		10 U
Bromoform	ug/L			5 U		5 U		10 U
4-Methyl-2-Pentanone	ug/L			10 U		10 U		10 U
2-Hexanone	ug/L			10 U		10 U		10 U
Tetrachloroethene	ug/L			5 U		5 U		10 U
1,1,2,2-Tetrachloroethane	ug/L			5 U		5 U		10 U
Toluene	ug/L			5 U		5 U		2 J
Chlorobenzene	ug/L			5 U		5 U		10 U
Ethylbenzene	ug/L			5 U		5 U		10 U
Styrene	ug/L			5 U		5 U		10 U
Xylene (total)	ug/L			5 U		5 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3								
		PHASE II	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	ASH	ASH	PT-12	PT-12	PT-12	PT-12	PT12
	DATE	07/13/93	07/10/93	01/17/92	01/17/92	01/17/92	01/17/92	07/15/93
	ES ID	PT11	PT11	PT-12	PT-12Filtered	PT-3(1)	PT-3(1)Filt	PT12
	LAB ID	168805	168795	152704	152711	152703	152710	169112
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX / LOCATION / DATE / ES ID / LAB ID	PHASE II WATER ASH 07/13/93 PT11 188805	PHASE II WATER ASH 07/10/93 PT11 188795	PHASE I WATER PT-12 01/17/92 PT-12 152704	PHASE I WATER PT-12 01/17/92 PT-12Filtered 152711	PHASE I WATER PT-12 01/17/92 PT-3(1) 152703	PHASE I WATER PT-12 01/17/92 PT-3(1)Filt 152710	PHASE II WATER PT12 07/15/93 PT12 189112
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L			11 U		11 U		10 U
bis(2-Chloroethyl) ether	ug/L			11 U		11 U		10 U
2-Chlorophenol	ug/L			11 U		11 U		10 U
1,3-Dichlorobenzene	ug/L			11 U		11 U		10 U
1,4-Dichlorobenzene	ug/L			11 U		11 U		10 U
Benzyl Alcohol	ug/L			11 U		11 U		
1,2-Dichlorobenzene	ug/L			11 U		11 U		10 U
2-Methylphenol	ug/L			11 U		11 U		10 U
bis(2-Chloroisopropyl) ether	ug/L			11 U		11 U		10 U
4-Methylphenol	ug/L			11 U		11 U		10 U
N-Nitroso-di-n-propylamine	ug/L			11 U		11 U		10 U
Hexachloroethane	ug/L			11 U		11 U		10 U
Nitrobenzene	ug/L			11 U		11 U		10 U
Isophorone	ug/L			11 U		11 U		10 U
2-Nitrophenol	ug/L			11 U		11 U		10 U
2,4-Dimethylphenol	ug/L			11 U		11 U		10 U
Benzoic acid	ug/L			55 U		55 U		
bis(2-Chloroethoxy) methane	ug/L			11 U		11 U		10 U
2,4-Dichlorophenol	ug/L			11 U		11 U		10 U
1,2,4-Trichlorobenzene	ug/L			11 U		11 U		10 U
Naphthalene	ug/L			11 U		11 U		10 U
4-Chloroaniline	ug/L			11 U		11 U		10 U
Hexachlorobutadiene	ug/L			11 U		11 U		10 U
4-Chloro-3-methylphenol	ug/L			11 U		11 U		10 U
2-Methylnaphthalene	ug/L			11 U		11 U		10 U
Hexachlorocyclopentadiene	ug/L			11 U		11 U		10 U
2,4,6-Trichlorophenol	ug/L			11 U		11 U		10 U
2,4,5-Trichlorophenol	ug/L			55 U		55 U		25 U
2-Chloronaphthalene	ug/L			11 U		11 U		10 U
2-Nitroaniline	ug/L			55 U		55 U		25 U
Dimethylphthalate	ug/L			11 U		11 U		10 U
Acenaphthylene	ug/L			11 U		11 U		10 U
2,6-Dinitrotoluene	ug/L			11 U		11 U		10 U
3-Nitroaniline	ug/L			55 U		55 U		25 U
Acenaphthene	ug/L			11 U		11 U		10 U
2,4-Dinitrophenol	ug/L			55 U		55 U		25 U
4-Nitrophenol	ug/L			55 U		55 U		25 U
Dibenzofuran	ug/L			11 U		11 U		10 U
2,4-Dinitrotoluene	ug/L			11 U		11 U		10 U
Diethylphthalate	ug/L			11 U		11 U		10 U
4-Chlorophenyl-phenylether	ug/L			11 U		11 U		10 U
Fluorene	ug/L			11 U		11 U		10 U
4-Nitroaniline	ug/L			55 U		55 U		25 U
4,6-Dinitro-2-methylphenol	ug/L			55 U		55 U		25 U
N-Nitrosodiphenylamine (1)	ug/L			11 U		11 U		10 U
4-Bromophenyl-phenylether	ug/L			11 U		11 U		10 U
Hexachlorobenzene	ug/L			11 U		11 U		10 U
Pentachlorophenol	ug/L			55 U		55 U		25 U
Phenanthrene	ug/L			11 U		11 U		10 U
Anthracene	ug/L			11 U		11 U		10 U
Carbazole	ug/L							10 U
Di-n-butylphthalate	ug/L			11 U		11 U		3 J
Fluoranthene	ug/L			11 U		11 U		10 U
Pyrene	ug/L			11 U		11 U		10 U
Butylbenzylphthalate	ug/L			11 U		11 U		10 U
3,3'-Dichlorobenzidine	ug/L			22 U		22 U		10 U
Benzo(a)anthracene	ug/L			11 U		11 U		10 U
Chrysene	ug/L			11 U		11 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L			30 U		11 U		10 U
Di-n-octylphthalate	ug/L			11 U		11 U		10 U
Benzo(b)fluoranthene	ug/L			11 U		11 U		10 U
Benzo(k)fluoranthene	ug/L			11 U		11 U		10 U
Benzo(a)pyrene	ug/L			11 U		11 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L			11 U		11 U		10 U
Dibenz(a,h)anthracene	ug/L			11 U		11 U		10 U
Benzo(g,h,i)perylene	ug/L			11 U		11 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE II	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE II
	LOCATION	ASH	ASH	PT-12	PT-12	PT-12	PT-12	PT12
	DATE	07/13/93	07/10/93	01/17/92	01/17/92	01/17/92	01/17/92	07/15/93
	ES ID	PT11	PT11	PT-12	PT-12Filtered	PT-3(1)	PT-3(1)Filt(	PT12
	LAB ID	166605	168795	152704	152711	152703	152710	169112
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 UJ		0.053 U		0.058 U		0.05 U
beta-BHC	ug/L	0.05 UJ		0.053 U		0.058 U		0.05 U
delta-BHC	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
gamma-BHC (Lindane)	ug/L	0.05 UJ		0.053 U		0.058 U		0.05 U
Heptachlor	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
Aldrin	ug/L	0.05 UJ		0.053 U		0.058 U		0.05 U
Heptachlor epoxide	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
Endosulfan I	ug/L	0.05 UJ		0.053 U		0.056 U		0.05 U
Dieldrin	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
4,4'-DDE	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Endrin	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Endosulfan II	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
4,4'-DDD	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Endosulfan sulfate	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
4,4'-DDT	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Methoxychlor	ug/L	0.5 UJ		0.53 U		0.58 U		0.5 U
Endrin ketone	ug/L	0.1 UJ		0.11 U		0.12 U		0.1 U
Endrin aldehyde	ug/L	0.1 UJ						0.1 U
alpha-Chlordane	ug/L	0.05 UJ		0.53 U		0.58 U		0.05 U
gamma-Chlordane	ug/L	0.05 UJ		0.53 U		0.58 U		0.05 U
Toxaphene	ug/L	5 UJ		1.1 U		1.2 U		5 U
Aroclor-1016	ug/L	1 UJ		0.53 U		0.58 U		1 U
Aroclor-1221	ug/L	2 UJ		0.53 U		0.58 U		2 U
Aroclor-1232	ug/L	1 UJ		0.53 U		0.58 U		1 U
Aroclor-1242	ug/L	1 UJ		0.53 U		0.58 U		1 U
Aroclor-1248	ug/L	1 UJ		0.53 U		0.58 U		1 U
Aroclor-1254	ug/L	1 UJ		1.1 U		1.2 U		1 U
Aroclor-1260	ug/L	1 UJ		1.1 U		1.2 U		1 U
HERBICIDES								
2,4-D	ug/L		1 R	1.4 U		1 U		1.1 U
2,4-DB	ug/L		1 R	1.4 U		1 U		1.1 U
2,4,5-T	ug/L		0.1 R	0.1 U		0.1 U		0.11 U
2,4,5-TP (Silvex)	ug/L		0.1 R	0.1 U		0.1 U		0.11 U
Dalapon	ug/L		2.3 R	3.2 U		2.3 U		3.9
Dicamba	ug/L		0.1 R	0.1 U		0.1 U		0.11 U
Dichloroprop	ug/L		1 R	1.4 U		1 U		1.1 U
Dinoseb	ug/L		0.5 R	0.7 U		0.5 U		0.53 U
MCPA	ug/L		100 R	140 U		100 U		110 U
MCPP	ug/L		100 R	140 U		100 U		110 U
METALS								
Aluminum	ug/L		3530	27300 J	24.5 U	18400 J	24.4 U	10100 J
Antimony	ug/L		49.7 U	53.2 U	53.2 U	53.1 U	53 U	49.9 U
Arsenic	ug/L		1.4 U	4.5 J	3.5 U	7.5 J	3.5 U	2.4 J
Barium	ug/L		143 J	258	55.7 R	255	53.2 R	115 J
Beryllium	ug/L		0.69 U	2.3 R	1.1 U	1.9 R	1.1 U	0.9 U
Cadmium	ug/L		2.6 U	4.5 J	3 U	3.6 J	3 U	2.8 U
Calcium	ug/L		128000	274000 J	180000	246000 J	175000	285000
Chromium	ug/L		6.1 J	35.8	6.2 U	26.3	6.1 U	13.6 J
Cobalt	ug/L		5.5 U	20.4 U	20.4 U	20.4 U	20.3 U	6.7 J
Copper	ug/L		6.2 J	32.6	10.2 U	24.7 J	10.1 U	4.7 UJ
Iron	ug/L		4370 J	36400 J	7 U	26900 J	6.9 U	14200 J
Lead	ug/L		2.3 J	16.9 R	1.2 U	10 R	1.2 U	2.9 J
Magnesium	ug/L		36200	41600 J	20800	37000 J	20000	38600
Manganese	ug/L		191	1270 J	4.6 U	970 J	4.8 U	608
Mercury	ug/L		0.09 UJ	0.03 U	0.03 U	0.03 U	0.03 U	0.09 U
Nickel	ug/L		7.4 U	46.3	14.7 U	30 J	14.7 U	18 J
Potassium	ug/L		3910 J	8120	1600 J	5690	1430 J	4900 J
Selenium	ug/L		1.5 U	1 U J	1.7 J	1.3 J	1 U	0.99 UJ
Silver	ug/L		5.5 U	3.4 U	3.4 U	3.4 U	3.4 U	5.5 U
Sodium	ug/L		33300	33900	34900	33800	27200	133000
Thallium	ug/L		2.6 U	3.2 U	3.2 U	3.2 U	3.2 U	2.6 U
Vanadium	ug/L		8.3 J	35.6 J	9.5 U	25.3 J	9.4 U	14.8 J
Zinc	ug/L		31.4	201 J	22.3 R	159 J	24.5 R	86.1 R
Cyanide	ug/L		4.3 J	10 U J		10 U J		4.1 J

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3								
		PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT12	PT-15	PT-15	PT-15	PT-15	PT-15	PT-15
	DATE	07/13/93	01/10-13/9:	01/10-13/92	1/10-13/92	1/10-13/92	01/11/92	01/10-13/9:
	ES ID	PT12	PT-15	PT-15	PT-15	PT-15RE(4)	PT-15	PT-15Filter
	LAB ID	189113	152157	152167	152411	152411	152260	152293
COMPOUND	UNITS							
Chloromethane	ug/L		10 U					
Bromomethane	ug/L		10 U					
Vinyl Chloride	ug/L		10 U					
Chloroethane	ug/L		10 U					
Methylene Chloride	ug/L		5 U					
Acetone	ug/L		10 U					
Carbon Disulfide	ug/L		5 U					
1,1-Dichloroethene	ug/L		5 U					
1,1-Dichloroethane	ug/L		5 U					
1,2-Dichloroethene (total)	ug/L		5 U					
Chloroform	ug/L		5 U					
1,2-Dichloroethane	ug/L		5 U					
2-Butanone	ug/L		10 U					
1,1,1-Trichloroethane	ug/L		5 U					
Carbon Tetrachloride	ug/L		5 U					
Vinyl Acetate	ug/L		10 U					
Bromodichloromethane	ug/L		5 U					
1,2-Dichloropropane	ug/L		5 U					
cis-1,3-Dichloropropene	ug/L		5 U					
Trichloroethene	ug/L		5 U					
Dibromochloromethane	ug/L		5 U					
1,1,2-Trichloroethane	ug/L		5 U					
Benzene	ug/L		5 U					
trans-1,3-Dichloropropene	ug/L		5 U					
Bromoform	ug/L		5 U					
4-Methyl-2-Pentanone	ug/L		10 U					
2-Hexanone	ug/L		10 U					
Tetrachloroethene	ug/L		5 U					
1,1,2,2-Tetrachloroethane	ug/L		5 U					
Toluene	ug/L		5 U					
Chlorobenzene	ug/L		5 U					
Ethylbenzene	ug/L		5 U					
Styrene	ug/L		5 U					
Xylene (total)	ug/L		5 U					

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT12	PT-15	PT-15	PT-15	PT-15	PT-15	PT-15
	DATE	07/13/93	01/10-13/9:	01/10-13/92	1/10-13/92	1/10-13/92	01/11/92	01/10-13/9:
	ES ID	PT12	PT-15	PT-15	PT-15	PT-15RE(4)	PT-15	PT-15Filter
	LAB ID	189113	152157	152167	152411	152411	152260	152293
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3								
		PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT12	PT-15	PT-15	PT-15	PT-15	PT-15	PT-15
	DATE	07/13/93	01/10-13/9:	01/10-13/92	1/10-13/92	1/10-13/92	01/11/92	01/10-13/9:
	ES ID	PT12	PT-15	PT-15	PT-15	PT-15RE(4)	PT-15	PT-15Filter
	LAB ID	169113	152157	152167	152411	152411	152260	152293
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L		12 U					
bis(2-Chloroethyl) ether	ug/L		12 U					
2-Chlorophenol	ug/L		12 U					
1,3-Dichlorobenzene	ug/L		12 U					
1,4-Dichlorobenzene	ug/L		12 U					
Benzyl Alcohol	ug/L		12 U					
1,2-Dichlorobenzene	ug/L		12 U					
2-Methylphenol	ug/L		12 U					
bis(2-Chloroisopropyl) ether	ug/L		12 U					
4-Methylphenol	ug/L		12 U					
N-Nitroso-di-n-propylamine	ug/L		12 U					
Hexachloroethane	ug/L		12 U					
Nitrobenzene	ug/L		12 U					
Isophorone	ug/L		12 U					
2-Nitrophenol	ug/L		12 U					
2,4-Dimethylphenol	ug/L		12 U					
Benzoic acid	ug/L		60 U					
bis(2-Chloroethoxy) methane	ug/L		12 U					
2,4-Dichlorophenol	ug/L		12 U					
1,2,4-Trichlorobenzene	ug/L		12 U					
Naphthalene	ug/L		12 U					
4-Chloroaniline	ug/L		12 U					
Hexachlorobutadiene	ug/L		12 U					
4-Chloro-3-methylphenol	ug/L		12 U					
2-Methylnaphthalene	ug/L		12 U					
Hexachlorocyclopentadiene	ug/L		12 U					
2,4,6-Trichlorophenol	ug/L		12 U					
2,4,5-Trichlorophenol	ug/L		60 U					
2-Chloronaphthalene	ug/L		12 U					
2-Nitroaniline	ug/L		60 U					
Dimethylphthalate	ug/L		12 U					
Acenaphthylene	ug/L		12 U					
2,6-Dinitrotoluene	ug/L		12 U					
3-Nitroaniline	ug/L		60 U					
Acenaphthene	ug/L		12 U					
2,4-Dinitrophenol	ug/L		60 U					
4-Nitrophenol	ug/L		60 U					
Dibenzofuran	ug/L		12 U					
2,4-Dinitrotoluene	ug/L		12 U					
Diethylphthalate	ug/L		12 U					
4-Chlorophenyl-phenylether	ug/L		12 U					
Fluorene	ug/L		12 U					
4-Nitroaniline	ug/L		60 U					
4,6-Dinitro-2-methylphenol	ug/L		60 U					
N-Nitrosodiphenylamine (1)	ug/L		12 U					
4-Bromophenyl-phenylether	ug/L		12 U					
Hexachlorobenzene	ug/L		12 U					
Pentachlorophenol	ug/L		60 U					
Phenanthrene	ug/L		12 U					
Anthracene	ug/L		12 U					
Carbazole	ug/L							
Di-n-butylphthalate	ug/L		12 U					
Fluoranthene	ug/L		12 U					
Pyrene	ug/L		12 U					
Butylbenzylphthalate	ug/L		12 U					
3,3'-Dichlorobenzidine	ug/L		24 U					
Benzo(a)anthracene	ug/L		12 U					
Chrysene	ug/L		12 U					
bis(2-Ethylhexyl)phthalate	ug/L		12 U					
Di-n-octylphthalate	ug/L		12 U					
Benzo(b)fluoranthene	ug/L		12 U					
Benzo(k)fluoranthene	ug/L		12 U					
Benzo(a)pyrene	ug/L		12 U					
Indeno(1,2,3-cd)pyrene	ug/L		12 U					
Dibenz(a,h)anthracene	ug/L		12 U					
Benzo(g,h,i)perylene	ug/L		12 U					

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	LOCATION	PT12	PT-15	PT-15	PT-15	PT-15	PT-15	PT-15
	DATE	07/13/93	01/10-13/9:	01/10-13/92	1/10-13/92	1/10-13/92	01/11/92	01/10-13/9:
	ES ID	PT12	PT-15	PT-15	PT-15	PT-15RE(4)	PT-15	PT-15Filter
	LAB ID	189113	152157	152167	152411	152411	152260	152293
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L				0.05 U R	0.05 U J		
beta-BHC	ug/L				0.05 U R	0.05 U J		
delta-BHC	ug/L				0.05 U R	0.05 U J		
gamma-BHC (Lindane)	ug/L				0.05 U R	0.05 U J		
Heptachlor	ug/L				0.05 U R	0.05 U J		
Aldrin	ug/L				0.05 U R	0.05 U J		
Heptachlor epoxide	ug/L				0.05 U R	0.05 U J		
Endosulfan I	ug/L				0.05 U R	0.05 U J		
Dieldrin	ug/L				0.1 U R	0.1 U J		
4,4'-DDE	ug/L				0.1 U R	0.1 U J		
Endrin	ug/L				0.1 U R	0.1 U J		
Endosulfan II	ug/L				0.1 U R	0.1 U J		
4,4'-DDD	ug/L				0.1 U R	0.1 U J		
Endosulfan sulfate	ug/L				0.1 U R	0.1 U J		
4,4'-DDT	ug/L				0.1 U R	0.1 U J		
Methoxychlor	ug/L				0.5 U R	0.5 U J		
Endrin ketone	ug/L				0.1 U R	0.1 U J		
Endrin aldehyde	ug/L							
alpha-Chlordane	ug/L				0.5 U R	0.5 U J		
gamma-Chlordane	ug/L				0.5 U R	0.5 U J		
Toxaphene	ug/L				1 U R	1 U J		
Aroclor-1016	ug/L				0.5 U R	0.5 U J		
Aroclor-1221	ug/L				0.5 U R	0.5 U J		
Aroclor-1232	ug/L				0.5 U R	0.5 U J		
Aroclor-1242	ug/L				0.5 U R	0.5 U J		
Aroclor-1248	ug/L				0.5 U R	0.5 U J		
Aroclor-1254	ug/L				1 U R	1 U J		
Aroclor-1260	ug/L				1 U R	1 U J		
HERBICIDES								
2,4-D	ug/L	1 U			1 U			
2,4-DB	ug/L	1 U			1 U			
2,4,5-T	ug/L	0.1 U			0.1 U			
2,4,5-TP (Silvex)	ug/L	0.1 U			0.1 U			
Dalapon	ug/L	2.3 U			2.3 U			
Dicamba	ug/L	0.1 U			0.1 U			
Dichloroprop	ug/L	1 U			1 U			
Dinoseb	ug/L	0.5 U			0.5 U			
MCPA	ug/L	100 U			100 U			
MCPP	ug/L	100 U			100 U			
METALS								
Aluminum	ug/L						389	24.6 U
Antimony	ug/L						55.8 U J	53.4 U
Arsenic	ug/L						3.5 U	3.5 U
Barium	ug/L						93.5 J	79.7 J
Beryllium	ug/L						1.7 R	2.4 R
Cadmium	ug/L						2.9 U	3 U
Calcium	ug/L						58500 J	59700
Chromium	ug/L						6.2 U	6.2 U
Cobalt	ug/L						19.9 U	20.5 U
Copper	ug/L						14.5 U	10.2 U
Iron	ug/L						673	7 U
Lead	ug/L						1.2 U	1.2 U
Magnesium	ug/L						15000 J	17600
Manganese	ug/L						60.8	6 J
Mercury	ug/L						0.13 R	0.1 R
Nickel	ug/L						15.9 U	14.8 U
Potassium	ug/L						1620 J	2030 J
Selenium	ug/L						1 U	1 U
Silver	ug/L						9.1 U	3.4 U
Sodium	ug/L						29900	29800
Thallium	ug/L						3.2 U	3.2 U
Vanadium	ug/L						30.5 U	9.5 U
Zinc	ug/L						17.4 B	8.5 U
Cyanide	ug/L						10 U J	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE II	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT15	ASH	PT-16	PT-16	PT16	PT-17	PT-17
	DATE 2	06/24/93	06/30/93	01/08/92	01/08/92	07/03/93	01/16/92	01/16/92
	ES ID ed	PT15	PT-15	PT-16	PT-16Filter	PT16	PT-17	PT-17Filter
	LAB ID	187343	187934	152156	152200	188260	152647	152671
COMPOUND	UNITS							
Chloromethane	ug/L			10 U			14 U	
Bromomethane	ug/L			10 U			14 U	
Vinyl Chloride	ug/L			10 U			14 U	
Chloroethane	ug/L			10 U			14 U	
Methylene Chloride	ug/L			5 U			6 U	
Acetone	ug/L			10 U			10 U	
Carbon Disulfide	ug/L			5 U			7 U	
1,1-Dichloroethene	ug/L			5 U			7 U	
1,1-Dichloroethane	ug/L			5 U			7 U	
1,2-Dichloroethene (total)	ug/L			5 U			53	
Chloroform	ug/L			5 U			3 J	
1,2-Dichloroethane	ug/L			5 U			7 U	
2-Butanone	ug/L			10 U			14 U	
1,1,1-Trichloroethane	ug/L			5 U			7 U	
Carbon Tetrachloride	ug/L			5 U			7 U	
Vinyl Acetate	ug/L			10 U			14 U	
Bromodichloromethane	ug/L			5 U			7 U	
1,2-Dichloropropane	ug/L			5 U			7 U	
cis-1,3-Dichloropropene	ug/L			5 U			7 U	
Trichloroethene	ug/L			5 U			260	
Dibromochloromethane	ug/L			5 U			7 U	
1,1,2-Trichloroethane	ug/L			5 U			7 U	
Benzene	ug/L			5 U			7 U	
trans-1,3-Dichloropropene	ug/L			5 U			7 U	
Bromoform	ug/L			5 U			7 U	
4-Methyl-2-Pentanone	ug/L			10 U			14 U	
2-Hexanone	ug/L			10 U			14 U	
Tetrachloroethene	ug/L			5 U			7 U	
1,1,2,2-Tetrachloroethane	ug/L			5 U			7 U	
Toluene	ug/L			5 U			7 U	
Chlorobenzene	ug/L			5 U			7 U	
Ethylbenzene	ug/L			5 U			7 U	
Styrene	ug/L			5 U			7 U	
Xylene (total)	ug/L			5 U			7 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE II	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT15	ASH	PT-16	PT-16	PT16	PT-17	PT-17
	DATE 2	06/24/93	06/30/93	01/08/92	01/08/92	07/03/93	01/16/92	01/16/92
	ES ID ed	PT15	PT-15	PT-16	PT-16Filter	PT16	PT-17	PT-17Filter
	LAB ID	187343	187934	152158	152200	188260	152647	152671
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L	0.5 U				0.5 U		
Chloromethane	ug/L	0.5 U				0.5 U		
Vinyl Chloride	ug/L	0.5 U				0.5 U		
Bromomethane	ug/L	0.5 U				0.5 U		
Chloroethane	ug/L	0.5 U				0.5 U		
Trichlorofluoromethane	ug/L	0.5 U				0.5 U		
1,1-Dichloroethene	ug/L	0.5 U				0.5 U		
Acetone	ug/L	5 U				5 U		
Carbon Disulfide	ug/L	0.5 U				0.5 U		
Methylene Chloride	ug/L	0.5 U				0.5 U		
trans-1,2-Dichloroethene	ug/L	0.5 U				0.5 U		
1,1-Dichloroethane	ug/L	0.5 U				0.5 U		
2,2-Dichloropropane	ug/L	0.5 U				0.5 U		
cis-1,2-Dichloroethene	ug/L	0.5 U				0.5 U		
2-Butanone	ug/L	5 U				5 U		
Bromochloromethane	ug/L	0.5 U				0.5 U		
Chloroform	ug/L	0.5 U				0.5 U		
1,1,1-Trichloroethane	ug/L	0.5 U				0.5 U		
Carbon Tetrachloride	ug/L	0.5 U				0.5 U		
1,1-Dichloropropene	ug/L	0.5 U				0.5 U		
Benzene	ug/L	0.5 U				0.5 U		
1,2-Dichloroethane	ug/L	0.5 U				0.5 U		
Trichloroethene	ug/L	0.5 U				0.5 U		
1,2-Dichloropropane	ug/L	0.5 U				0.5 U		
Dibromomethane	ug/L	0.5 U				0.5 U		
Bromodichloromethane	ug/L	0.5 U				0.5 U		
cis-1,3-Dichloropropene	ug/L	0.5 U				0.5 U		
4-Methyl-2-Pentanone	ug/L	5 U				5 U		
Toluene	ug/L	0.5 U				0.5 U		
trans-1,3-Dichloropropene	ug/L	0.5 U				0.5 U		
1,1,2-Trichloroethane	ug/L	0.5 U				0.5 U		
Tetrachloroethene	ug/L	0.5 U				0.5 U		
1,3-Dichloropropane	ug/L	0.5 U				0.5 U		
2-Hexanone	ug/L	5 U				5 U		
Dibromochloromethane	ug/L	0.5 U				0.5 U		
1,2-Dibromoethane	ug/L	0.5 U				0.5 U		
Chlorobenzene	ug/L	0.5 U				0.5 U		
1,1,1,2-Tetrachloroethane	ug/L	0.5 U				0.5 U		
Ethylbenzene	ug/L	0.5 U				0.5 U		
Styrene	ug/L	0.5 U				0.5 U		
Bromoform	ug/L	0.5 U				0.5 U		
Isopropylbenzene	ug/L	0.5 U				0.5 U		
Bromobenzene	ug/L	0.5 U				0.5 U		
1,1,2,2-Tetrachloroethane	ug/L	0.5 U				0.5 U		
1,2,3-Trichloropropane	ug/L	0.5 U				0.5 U		
n-Propylbenzene	ug/L	0.5 U				0.5 U		
2-Chlorotoluene	ug/L	0.5 U				0.5 U		
4-Chlorotoluene	ug/L	0.5 U				0.5 U		
1,3,5-Trimethylbenzene	ug/L	0.5 U				0.5 U		
tert-Butylbenzene	ug/L	0.5 U				0.5 U		
1,2,4-Trimethylbenzene	ug/L	0.5 U				0.5 U		
sec-Butylbenzene	ug/L	0.5 U				0.5 U		
1,3-Dichlorobenzene	ug/L	0.5 U				0.5 U		
1,4-Dichlorobenzene	ug/L	0.5 U				0.5 U		
p-Isopropyltoluene	ug/L	0.5 U				0.5 U		
1,2-Dichlorobenzene	ug/L	0.5 U				0.5 U		
n-Butylbenzene	ug/L	0.5 U				0.5 U		
1,2-Dibromo-3-Chloropropane	ug/L	0.5 U				0.5 U		
1,2,4-Trichlorobenzene	ug/L	0.5 U				0.5 U		
Hexachlorobutadiene	ug/L	0.5 U				0.5 U		
Naphthalene	ug/L	0.5 U				0.5 U		
1,2,3-Trichlorobenzene	ug/L	0.5 U				0.5 U		
Xylene (total)	ug/L	0.5 U				0.5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT15	ASH	PT-16	PT-16	PT16	PT-17	PT-17
	DATE 2	06/24/93	06/30/93	01/08/92	01/08/92	07/03/93	01/16/92	01/16/92
	ES ID ed	PT15	PT-15	PT-16	PT-16Filter	PT16	PT-17	PT-17Filter
	LAB ID	187343	187934	152158	152200	188260	152647	152671
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U		11 U		10 U	11 U	
bis(2-Chloroethyl) ether	ug/L	10 U		11 U		10 U	11 U	
2-Chlorophenol	ug/L	10 U		11 U		10 U	11 U	
1,3-Dichlorobenzene	ug/L	10 U		11 U		10 U	11 U	
1,4-Dichlorobenzene	ug/L	10 U		11 U		10 U	11 U	
Benzyl Alcohol	ug/L			11 U			11 U	
1,2-Dichlorobenzene	ug/L	10 U		11 U		10 U	11 U	
2-Methylphenol	ug/L	10 U		11 U		10 U	11 U	
bis(2-Chloroisopropyl) ether	ug/L	10 U		11 U		10 U	11 U	
4-Methylphenol	ug/L	10 U		11 U		10 U	11 U	
N-Nitroso-di-n-propylamine	ug/L	10 U		11 U		10 U	11 U	
Hexachloroethane	ug/L	10 U		11 U		10 U	11 U	
Nitrobenzene	ug/L	10 U		11 U		10 U	11 U	
Isophorone	ug/L	10 U		11 U		10 U	11 U	
2-Nitrophenol	ug/L	10 U		11 U		10 U	11 U	
2,4-Dimethylphenol	ug/L	10 U		11 U		10 U	11 U	
Benzoic acid	ug/L			56 U			54 U	
bis(2-Chloroethoxy) methane	ug/L	10 U		11 U		10 U	11 U	
2,4-Dichlorophenol	ug/L	10 U		11 U		10 U	11 U	
1,2,4-Trichlorobenzene	ug/L	10 U		11 U		10 U	11 U	
Naphthalene	ug/L	10 U		11 U		10 U	11 U	
4-Chloroaniline	ug/L	10 U		11 U		10 U	11 U	
Hexachlorobutadiene	ug/L	10 U		11 U		10 U	11 U	
4-Chloro-3-methylphenol	ug/L	10 U		11 U		10 U	11 U	
2-Methylnaphthalene	ug/L	10 U		11 U		10 U	11 U	
Hexachlorocyclopentadiene	ug/L	10 U		11 U		10 U	11 U	
2,4,6-Trichlorophenol	ug/L	10 U		11 U		10 U	11 U	
2,4,5-Trichlorophenol	ug/L	26 U		56 U		25 U	54 U	
2-Chloronaphthalene	ug/L	10 U		11 U		10 U	11 U	
2-Nitroaniline	ug/L	26 U		56 U		25 U	54 U	
Dimethylphthalate	ug/L	10 U		11 U		10 U	11 U	
Acenaphthylene	ug/L	10 U		11 U		10 U	11 U	
2,6-Dinitrotoluene	ug/L	10 U		11 U		10 U	11 U	
3-Nitroaniline	ug/L	26 U		56 U		25 U	54 U	
Acenaphthene	ug/L	10 U		11 U		10 U	11 U	
2,4-Dinitrophenol	ug/L	26 U		56 U		25 U	54 U	
4-Nitrophenol	ug/L	26 U		56 U		25 U	54 U	
Dibenzofuran	ug/L	10 U		11 U		10 U	11 U	
2,4-Dinitrotoluene	ug/L	10 U		11 U		10 U	11 U	
Diethylphthalate	ug/L	10 U		11 U		10 U	11 U	
4-Chlorophenyl-phenylether	ug/L	10 U		11 U		10 U	11 U	
Fluorene	ug/L	10 U		11 U		10 U	11 U	
4-Nitroaniline	ug/L	26 U		56 U		25 U	54 U	
4,6-Dinitro-2-methylphenol	ug/L	26 U		56 U		25 U	54 U	
N-Nitrosodiphenylamine (1)	ug/L	10 U		11 U		10 U	11 U	
4-Bromophenyl-phenylether	ug/L	10 U		11 U		10 U	11 U	
Hexachlorobenzene	ug/L	10 U		11 U		10 U	11 U	
Pentachlorophenol	ug/L	26 U		56 U		25 U	54 U	
Phenanthrene	ug/L	10 U		11 U		10 U	11 U	
Anthracene	ug/L	10 U		11 U		10 U	11 U	
Carbazole	ug/L	10 U				10 U		
Di-n-butylphthalate	ug/L	10 U		11 U		10 U	11 U	
Fluoranthene	ug/L	10 U		11 U		10 U	11 U	
Pyrene	ug/L	10 U		11 U		10 U	11 U	
Butylbenzylphthalate	ug/L	10 U		11 U		10 U	11 U	
3,3'-Dichlorobenzidine	ug/L	10 U		22 U		10 U	21 U	
Benzo(a)anthracene	ug/L	10 U		11 U		10 U	11 U	
Chrysene	ug/L	10 U		11 U		10 U	11 U	
bis(2-Ethylhexyl)phthalate	ug/L	10 U		11 U		10 U	20 U	
Di-n-octylphthalate	ug/L	10 U		11 U		10 U	11 U	
Benzo(b)fluoranthene	ug/L	10 U		11 U		10 U	11 U	
Benzo(k)fluoranthene	ug/L	10 U		11 U		10 U	11 U	
Benzo(a)pyrene	ug/L	10 U		11 U		10 U	11 U	
Indeno(1,2,3-cd)pyrene	ug/L	10 U		11 U		10 U	11 U	
Dibenz(a,h)anthracene	ug/L	10 U		11 U		10 U	11 U	
Benzo(g,h,i)perylene	ug/L	10 U		11 U		10 U	11 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE II	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT15	ASH	PT-16	PT-16	PT16	PT-17	PT-17
	DATE 2	06/24/93	06/30/93	01/08/92	01/08/92	07/03/93	01/16/92	01/16/92
	ES ID ed	PT15	PT-15	PT-16	PT-16Filter	PT16	PT-17	PT-17Filter
	LAB ID	187343	187934	152158	152200	188260	152647	152671
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
beta-BHC	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
delta-BHC	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
gamma-BHC (Lindane)	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Heptachlor	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Aldrin	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Heptachlor epoxide	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Endosulfan I	ug/L		0.05 U	0.05 U		0.05 U	0.055 U	
Dieldrin	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDE	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endrin	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endosulfan II	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDD	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endosulfan sulfate	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
4,4'-DDT	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Methoxychlor	ug/L		0.5 U	0.5 U		0.5 U	0.55 U	
Endrin ketone	ug/L		0.1 U	0.1 U		0.1 U	0.11 U	
Endrin aldehyde	ug/L		0.1 U			0.1 U		
alpha-Chlordane	ug/L		0.05 U	0.5 U		0.05 U	0.55 U	
gamma-Chlordane	ug/L		0.05 U	0.5 U		0.05 U	0.55 U	
Toxaphene	ug/L		5 U	1 U		5 U	1.1 U	
Aroclor-1016	ug/L		1 U	0.5 U		1 U	0.55 U	
Aroclor-1221	ug/L		2 U	0.5 U		2 U	0.55 U	
Aroclor-1232	ug/L		1 U	0.5 U		1 U	0.55 U	
Aroclor-1242	ug/L		1 U	0.5 U		1 U	0.55 U	
Aroclor-1248	ug/L		1 U	0.5 U		1 U	0.55 U	
Aroclor-1254	ug/L		1 U	1 U		1 U	1.1 U	
Aroclor-1260	ug/L		1 U	1 U		1 U	1.1 U	
HERBICIDES								
2,4-D	ug/L		1 U	1.2 U		1.1 U	1 U	
2,4-DB	ug/L		1 U	1.2 U		1.1 U	1 U	
2,4,5-T	ug/L		0.1 U	0.1 U		0.11 U	0.1 U	
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U		0.11 U	0.1 U	
Dalapon	ug/L		2.3 U	2.7 U		2.4 U	2.3 U	
Dicamba	ug/L		0.1 U	0.1 U		0.11 U	0.1 U	
Dichloroprop	ug/L		1 U	1.2 U		1.1 U	1 U	
Dinoseb	ug/L		0.5 U	0.6 U		0.53 U	0.5 U	
MCPA	ug/L		100 U	120 U		110 U	100 U	
MCPP	ug/L		100 U	120 U		110 U	100 U	
METALS								
Aluminum	ug/L	693		1520	24.4 U	179 J	14200	24.6 U
Antimony	ug/L	49.9 UJ		53.4 U	53 U	49.6 UJ	53.3 R	53.4 U
Arsenic	ug/L	1.4 UJ		3.5 U J	3.5 U	1.4 UJ	3.5 J	3.5 U
Barium	ug/L	100 J		75 J	36.6 R	48.5 J	131 J	69.5 R
Beryllium	ug/L	0.9 U		2.1 R	2.3 R	0.89 U	2.5 R	1.1 U
Cadmium	ug/L	2.8 U		2.9 U	3 U	2.8 U	3 U	3 U
Calcium	ug/L	68400		129000 J	100000	162000	115000	106000
Chromium	ug/L	2.7 UJ		7.2 J	6.2 U	2.7 UJ	20	6.2 U
Cobalt	ug/L	5.5 U		19.9 U	20.4 U	5.5 U	20.3 U	20.5 U
Copper	ug/L	4.7 U		14.5 U	10.1 U	4.7 U	11.9 J	10.2 U
Iron	ug/L	1400		2780	6.9 U	119	21500	7 U
Lead	ug/L	1.7 J		4.2	1.2 U	0.79 U	6.3	1.2 U
Magnesium	ug/L	17800		14300 J	14300	14900	15700	10700
Manganese	ug/L	158		483	4.6 U	24.6	520	4.8 U
Mercury	ug/L	0.09 UJ		0.12 R	0.1 R	0.09 UJ	0.1 R	0.03 U
Nickel	ug/L	7.5 UJ		16 U	14.7 U	7.4 UJ	21.3 J	14.8 U
Potassium	ug/L	2430 J		633 U	287 U	1080 J	3200 J	289 U
Selenium	ug/L	0.99 UJ		1 U	1 U	1.5 UJ	1.3 U	1 U
Silver	ug/L	5.5 U		9.1 U	3.4 U	5.5 U	3.4 U	3.4 U
Sodium	ug/L	27600		5930 J	5890	6340	29400	27800
Thallium	ug/L	2.6 U		3.2 U	3.2 U	2.6 U	3.2 U	3.2 U
Vanadium	ug/L	6.8 UJ		30.5 U	9.4 U	6.7 UJ	21.6 J	9.5 U
Zinc	ug/L	17.5 R		24.1	8.4 U	9.2 J	69.4 R	20.5 R
Cyanide	ug/L	10 UJ		10 U J		10 UJ	10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	PT17	PT-18	PT-18	PT18	PT-19	PT-19	PT-19
	DATE	07/13/93	01/09/92	01/09/92	07/15/93	01/17/92	01/17/92	06/30/93
	ES ID	PT17	PT-18	PT-18Filter	PT18	PT-19	PT-19Filtered	PT-19
	LAB ID	168806	152159	152201	169114	152705	152712	187935
COMPOUND	UNITS							
Chloromethane	ug/L	10 U	670 U		10 U	10 U		
Bromomethane	ug/L	10 U	670 U		10 U	10 U		
Vinyl Chloride	ug/L	10 U	670 U		10	10 U		
Chloroethane	ug/L	10 U	670 U		10 U	10 U		
Methylene Chloride	ug/L	10 U	330 U		10 U	5 U		
Acetone	ug/L	10 U	670 U		10 U	10 U		
Carbon Disulfide	ug/L	10 U	330 U		10 U	5 U		
1,1-Dichloroethene	ug/L	10 U	330 U		3 J	5 U		
1,1-Dichloroethane	ug/L	10 U	330 U		10 U	5 U		
1,2-Dichloroethene (total)	ug/L	43	400		730 J	5 U		
Chloroform	ug/L	10 U	180 J		210 J	5 U		
1,2-Dichloroethane	ug/L	10 U	330 U		10 U	5 U		
2-Butanone	ug/L	10 U	670 U		10 U	10 U		
1,1,1-Trichloroethane	ug/L	10 U	330 U		10 U	5 U		
Carbon Tetrachloride	ug/L	10 U	330 U		10 U	5 U		
Vinyl Acetate	ug/L		670 U			10 U		
Bromodichloromethane	ug/L	10 U	330 U		10 U	5 U		
1,2-Dichloropropane	ug/L	10 U	330 U		10 U	5 U		
cis-1,3-Dichloropropene	ug/L	10 U	330 U		10 U	5 U		
Trichloroethene	ug/L	190	11000		13000	5 U		
Dibromochloromethane	ug/L	10 U	330 U		10 U	5 U		
1,1,2-Trichloroethane	ug/L	10 U	330 U		10 U	5 U		
Benzene	ug/L	10 U	330 U		1 J	5 U		
trans-1,3-Dichloropropene	ug/L	10 U	330 U		10 U	5 U		
Bromoform	ug/L	10 U	330 U		10 U	5 U		
4-Methyl-2-Pentanone	ug/L	10 U	670 U		10 U	10 U		
2-Hexanone	ug/L	10 U	670 U		10 U	10 U		
Tetrachloroethene	ug/L	10 U	330 U		10 U	5 U		
1,1,2,2-Tetrachloroethane	ug/L	10 U	330 U		10 U	5 U		
Toluene	ug/L	10 U	330 U		10 U	5 U		
Chlorobenzene	ug/L	10 U	330 U		10 U	5 U		
Ethylbenzene	ug/L	10 U	330 U		10 U	5 U		
Styrene	ug/L	10 U	330 U		10 U	5 U		
Xylene (total)	ug/L	10 U	330 U		10 U	5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	PT17	PT-18	PT-18	PT18	PT-19	PT-19	PT-19
	DATE	07/13/93	01/09/92	01/09/92	07/15/93	01/17/92	01/17/92	06/30/93
	ES ID	PT17	PT-18	PT-18Filter	PT18	PT-19	PT-19Filtered	PT-19
	LAB ID	188806	152159	152201	189114	152705	152712	187935
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							0.5 U
Chloromethane	ug/L							0.5 U
Vinyl Chloride	ug/L							0.5 U
Bromomethane	ug/L							0.5 U
Chloroethane	ug/L							0.5 U
Trichlorofluoromethane	ug/L							0.5 U
1,1-Dichloroethene	ug/L							0.5 U
Acetone	ug/L							5 U
Carbon Disulfide	ug/L							0.5 U
Methylene Chloride	ug/L							0.5 U
trans-1,2-Dichloroethene	ug/L							0.5 U
1,1-Dichloroethane	ug/L							0.5 U
2,2-Dichloropropane	ug/L							0.5 U
cis-1,2-Dichloroethene	ug/L							0.5 U
2-Butanone	ug/L							5 U
Bromochloromethane	ug/L							0.5 U
Chloroform	ug/L							0.5 U
1,1,1-Trichloroethane	ug/L							0.5 U
Carbon Tetrachloride	ug/L							0.5 U
1,1-Dichloropropene	ug/L							0.5 U
Benzene	ug/L							0.5 U
1,2-Dichloroethane	ug/L							0.5 U
Trichloroethene	ug/L							0.5 U
1,2-Dichloropropane	ug/L							0.5 U
Dibromomethane	ug/L							0.5 U
Bromodichloromethane	ug/L							0.5 U
cis-1,3-Dichloropropene	ug/L							0.5 U
4-Methyl-2-Pentanone	ug/L							5 U
Toluene	ug/L							0.5 U
trans-1,3-Dichloropropene	ug/L							0.5 U
1,1,2-Trichloroethane	ug/L							0.5 U
Tetrachloroethene	ug/L							0.5 U
1,3-Dichloropropane	ug/L							0.5 U
2-Hexanone	ug/L							5 U
Dibromochloromethane	ug/L							0.5 U
1,2-Dibromoethane	ug/L							0.5 U
Chlorobenzene	ug/L							0.5 U
1,1,1,2-Tetrachloroethane	ug/L							0.5 U
Ethylbenzene	ug/L							0.5 U
Styrene	ug/L							0.5 U
Bromoform	ug/L							0.5 U
Isopropylbenzene	ug/L							0.5 U
Bromobenzene	ug/L							0.5 U
1,1,2,2-Tetrachloroethane	ug/L							0.5 U
1,2,3-Trichloropropane	ug/L							0.5 U
n-Propylbenzene	ug/L							0.5 U
2-Chlorotoluene	ug/L							0.5 U
4-Chlorotoluene	ug/L							0.5 U
1,3,5-Trimethylbenzene	ug/L							0.5 U
tert-Butylbenzene	ug/L							0.5 U
1,2,4-Trimethylbenzene	ug/L							0.5 U
sec-Butylbenzene	ug/L							0.5 U
1,3-Dichlorobenzene	ug/L							0.5 U
1,4-Dichlorobenzene	ug/L							0.5 U
p-Isopropyltoluene	ug/L							0.5 U
1,2-Dichlorobenzene	ug/L							0.5 U
n-Butylbenzene	ug/L							0.5 U
1,2-Dibromo-3-Chloropropane	ug/L							0.5 U
1,2,4-Trichlorobenzene	ug/L							0.5 U
Hexachlorobutadiene	ug/L							0.5 U
Naphthalene	ug/L							0.5 U
1,2,3-Trichlorobenzene	ug/L							0.5 U
Xylene (total)	ug/L							0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT17	PT-18	PT-18	PT18	PT-19	PT-19	PT-19
	DATE	07/13/93	01/09/92	01/09/92	07/15/93	01/17/92	01/17/92	06/30/93
	ES ID	PT17	PT-18	PT-18Filter	PT18	PT-19	PT-19Filtered	PT-19
	LAB ID	188806	152159	152201	189114	152705	152712	187935
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Chloroethyl) ether	ug/L	10 U	11 U		10 U	11 U		10 U
2-Chlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
1,3-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
1,4-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzyl Alcohol	ug/L		11 U			11 U		
1,2-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
2-Methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	11 U		10 U	11 U		10 U
4-Methylphenol	ug/L	10 U	11 U		10 U	11 U		2 J
N-Nitroso-di-n-propylamine	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachloroethane	ug/L	10 U	11 U		10 U	11 U		10 U
Nitrobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Isophorone	ug/L	10 U	11 U		10 U	11 U		10 U
2-Nitrophenol	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dimethylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
Benzoic acid	ug/L		57 U			55 U		
bis(2-Chloroethoxy) methane	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dichlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
1,2,4-Trichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Naphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chloroaniline	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorobutadiene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chloro-3-methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
2-Methylnaphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorocyclopentadiene	ug/L	10 U	11 U		10 U	11 U		10 U
2,4,6-Trichlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
2,4,5-Trichlorophenol	ug/L	25 U	57 U		25 U	55 U		25 U
2-Chloronaphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
2-Nitroaniline	ug/L	25 U	57 U		25 U	55 U		25 U
Dimethylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Acenaphthylene	ug/L	10 U	11 U		10 U	11 U		10 U
2,6-Dinitrotoluene	ug/L	10 U	11 U		10 U	11 U		10 U
3-Nitroaniline	ug/L	25 U	57 U		25 U	55 U		25 U
Acenaphthene	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dinitrophenol	ug/L	25 U	57 U		25 U	55 U		25 U
4-Nitrophenol	ug/L	25 U	57 U		25 U	55 U		25 U
Dibenzofuran	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dinitrotoluene	ug/L	10 U	11 U		10 U	11 U		10 U
Diethylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chlorophenyl-phenylether	ug/L	10 U	11 U		10 U	11 U		10 U
Fluorene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Nitroaniline	ug/L	25 U	57 U		25 U	55 U		25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	57 U		25 U	55 U		25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	11 U		10 U	11 U		10 U
4-Bromophenyl-phenylether	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Pentachlorophenol	ug/L	25 U	57 U		25 U	55 U		25 U
Phenanthrene	ug/L	10 U	11 U		10 U	11 U		10 U
Anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Carbazole	ug/L	10 U			10 U			10 U
Di-n-butylphthalate	ug/L	3 J	11 U		10 U	11 U		10 U
Fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Butylbenzylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
3,3'-Dichlorobenzidine	ug/L	10 U	23 U		10 U	22 U		10 U
Benzo(a)anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Chrysene	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Di-n-octylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(b)fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(k)fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(a)pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Dibenz(a,h)anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(g,h,i)perylene	ug/L	10 U	11 U		10 U	11 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	PT17	PT-18	PT-18	PT18	PT-19	PT-19	PT-19
	DATE	07/13/93	01/09/92	01/09/92	07/15/93	01/17/92	01/17/92	06/30/93
	ES ID	PT17	PT-18	PT-18Filter	PT18	PT-19	PT-19Filtered	PT-19
	LAB ID	188806	152159	152201	189114	152705	152712	187935
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
beta-BHC	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
delta-BHC	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
gamma-BHC (Lindane)	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Heptachlor	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Aldrin	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Heptachlor epoxide	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Endosulfan I	ug/L	0.05 U	0.052 U		0.05 U	0.061 U		0.05 U
Dieldrin	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
4,4'-DDE	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Endrin	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Endosulfan II	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
4,4'-DDD	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Endosulfan sulfate	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
4,4'-DDT	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Methoxychlor	ug/L	0.5 U	0.52 U		0.5 U	0.61 U		0.5 U
Endrin ketone	ug/L	0.1 U	0.1 U		0.1 U	0.12 U		0.1 U
Endrin aldehyde	ug/L	0.1 U			0.1 U			0.1 U
alpha-Chlordane	ug/L	0.05 U	0.52 U		0.05 U	0.61 U		0.05 U
gamma-Chlordane	ug/L	0.05 U	0.52 U		0.05 U	0.61 U		0.05 U
Toxaphene	ug/L	5 U	1 U		5 U	1.2 U		5 U
Aroclor-1016	ug/L	1 U	0.52 U		1 U	0.61 U		1 U
Aroclor-1221	ug/L	2 U	0.52 U		2 U	0.61 U		2 U
Aroclor-1232	ug/L	1 U	0.52 U		1 U	0.61 U		1 U
Aroclor-1242	ug/L	1 U	0.52 U		1 U	0.61 U		1 U
Aroclor-1248	ug/L	1 U	0.52 U		1 U	0.61 U		1 U
Aroclor-1254	ug/L	1 U	1 U		1 U	1.2 U		1 U
Aroclor-1260	ug/L	1 U	1 U		1 U	1.2 U		1 U
HERBICIDES								
2,4-D	ug/L	1 U	1.1 U		1 U	1 U		1 U
2,4-DB	ug/L	1 U	1.1 U		1 U	1 U		1 U
2,4,5-T	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
Dalapon	ug/L	2.3 U	2.4 U		2.3 U	2.4 U		2.3 U
Dicamba	ug/L	0.1 U	0.1 U		0.1 U	0.1 U		0.1 U
Dichloroprop	ug/L	1 U	1.1 U		1 U	1 U		1 U
Dinoseb	ug/L	0.5 U	0.5 U		0.5 U	0.5 U		0.5 U
MCPA	ug/L	100 U	110 U		100 U	100 U		100 U
MCPP	ug/L	100 U	110 U		100 U	100 U		100 U
METALS								
Aluminum	ug/L	72.6 U	1510	24.4 U	318 J	36100	24.5 U	207
Antimony	ug/L	69.6 R	55.5 U J	52.9 U	49.7 U	53.3 U	53.1 U	49.8 UJ
Arsenic	ug/L	1.4 U	3.5 U	3.5 U	1.9 U	3.5 U	3.5 U	1.4 UJ
Barium	ug/L	54.6 J	53.9 J	37.4 R	40 J	217	59.4 R	58 J
Beryllium	ug/L	0.9 U	2.1 R	2.5 R	0.9 U	2.5 R	1.1 U	0.9 U
Cadmium	ug/L	2.8 U	2.9 U	3 U	2.8 U	6.1 J	3 U	2.8 U
Calcium	ug/L	114000	329000 J	271000	203000	110000	95300	114000
Chromium	ug/L	2.7 U	6.1 U	6.1 U	2.8 J	47.2	5.2 U	2.7 UJ
Cobalt	ug/L	5.5 U	19.8 U	20.3 U	5.9 J	20.5 U	20.4 U	5.5 U
Copper	ug/L	4.7 U	14.4 U	10.1 U	4.7 UJ	41.3	10.1 U	6.6 J
Iron	ug/L	105 J	2270	6.9 U	496 J	48300	7 U	409
Lead	ug/L	0.6 U	17.8	1.2 U	0.8 U	12.6 R	1.2 U	0.8 U
Magnesium	ug/L	11100	37000 J	39400	24900	24700 J	12900	14400
Manganese	ug/L	5.1 J	1530	964	752	543 J	8.8 J	361
Mercury	ug/L	0.09 UJ	0.42 R	0.12 R	0.09 U	0.04 R	0.03 U	0.22 J
Nickel	ug/L	7.5 U	15.9 U	14.7 U	7.5 UJ	60.7	14.7 U	7.5 UJ
Potassium	ug/L	1080 J	2280 J	2010 J	1360 J	7550	286 U	1900 J
Selenium	ug/L	1.5 U	1 U	1 U	0.99 UJ	1 U	1 U	1 UJ
Silver	ug/L	5.5 U	9 U	4.3 R	5.5 U	3.4 U	3.4 U	5.5 U
Sodium	ug/L	28300	114000 J	109000	93900	19700	18300	22100
Thallium	ug/L	2.6 U	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U
Vanadium	ug/L	6.8 U	30.3 U	9.4 U	6.8 UJ	45.4 J	9.5 U	6.8 UJ
Zinc	ug/L	2.8 U	496	120	56.1 R	154 J	17.1 R	14.1 J
Cyanide	ug/L	3 J	10 U J		1.4 J	10 U J		10 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-20	PT-20	PT-20	PT20	PT20 RE	PT-21	PT-21
	DATE	01/17/92	01/17/92	01/17/92	07/12/93	07/10/93	01/17/92	01/28/92CK
	ES ID	PT-20(2,3)	PT-20RE(2,3,4)	PT-20(2,3)Filtered	PT20	PT20 RE	PT-21	PT-21
	LAB ID	152706	152706	152713	188796	188796R1	152707	153059
COMPOUND	UNITS							
Chloromethane	ug/L	10 U			10 U		10 U	
Bromomethane	ug/L	10 U			10 U		10 U	
Vinyl Chloride	ug/L	10 U			10 U		10 U	
Chloroethane	ug/L	10 U			10 U		10 U	
Methylene Chloride	ug/L	5 U			10 U		5 U	
Acetone	ug/L	10 U			10 U		10 U	
Carbon Disulfide	ug/L	5 U			10 U		5 U	
1,1-Dichloroethene	ug/L	5 U			10 U		5 U	
1,1-Dichloroethane	ug/L	5 U			10 U		5 U	
1,2-Dichloroethene (total)	ug/L	24			53		16	
Chloroform	ug/L	5 U			10 U		5 U	
1,2-Dichloroethane	ug/L	5 U			10 U		5 U	
2-Butanone	ug/L	10 U			10 U		10 U	
1,1,1-Trichloroethane	ug/L	5 U			10 U		5 U	
Carbon Tetrachloride	ug/L	5 U			10 U		5 U	
Vinyl Acetate	ug/L	10 U					10 U	
Bromodichloromethane	ug/L	5 U			10 U		5 U	
1,2-Dichloropropane	ug/L	5 U			10 U		5 U	
cis-1,3-Dichloropropene	ug/L	5 U			10 U		5 U	
Trichloroethene	ug/L	25			37		2 J	
Dibromochloromethane	ug/L	5 U			10 U		5 U	
1,1,2-Trichloroethane	ug/L	5 U			10 U		5 U	
Benzene	ug/L	5 U			10 U		5 U	
trans-1,3-Dichloropropene	ug/L	5 U			10 U		5 U	
Bromoform	ug/L	5 U			10 U		5 U	
4-Methyl-2-Pentanone	ug/L	10 U			10 U		10 U	
2-Hexanone	ug/L	10 U			10 U		10 U	
Tetrachloroethene	ug/L	5 U			10 U		5 U	
1,1,2,2-Tetrachloroethane	ug/L	5 U			10 U		5 U	
Toluene	ug/L	5 U			10 U		5 U	
Chlorobenzene	ug/L	5 U			10 U		5 U	
Ethylbenzene	ug/L	5 U			10 U		5 U	
Styrene	ug/L	5 U			10 U		5 U	
Xylene (total)	ug/L	5 U			10 U		5 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-20	PT-20	PT-20	PT20	PT20 RE	PT-21	PT-21
	DATE	01/17/92	01/17/92	01/17/92	07/12/93	07/10/93	01/17/92	01/25/92CK
	ES ID	PT-20(2,3)	PT-20RE(2,3,4)	PT-20(2,3)Filtered	PT20	PT20 RE	PT-21	PT-21
	LAB ID	152706	152706	152713	188796	188796R1	152707	153059
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3								
	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT-20	PT-20	PT-20	PT20	PT20 RE	PT-21	PT-21
	DATE	01/17/92	01/17/92	01/17/92	07/12/93	07/10/93	01/17/92	01/25/92CK
	ES ID	PT-20(2,3)	PT-20RE(2,3,4)	PT-20(2,3)Filtered	PT20	PT20 RE	PT-21	PT-21
	LAB ID	152706	152706	152713	188796	188796R1	152707	153059
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	25 R	10 U J		10 U			10 U
bis(2-Chloroethyl) ether	ug/L	11 U R	10 U J		10 U			10 U
2-Chlorophenol	ug/L	34 R	10 U J		10 U			10 U
1,3-Dichlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
1,4-Dichlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
Benzyl Alcohol	ug/L	11 U R	10 U J					10 U
1,2-Dichlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
2-Methylphenol	ug/L	11 U R	10 U J		10 U			10 U
bis(2-Chloroisopropyl) ether	ug/L	11 U R	10 U J		10 U			10 U
4-Methylphenol	ug/L	11 U R	10 U J		10 U			10 U
N-Nitroso-di-n-propylamine	ug/L	11 U R	10 U J		10 U			10 U
Hexachloroethane	ug/L	11 U R	10 U J		10 U			10 U
Nitrobenzene	ug/L	11 U R	10 U J		10 U			10 U
Isophorone	ug/L	11 U R	10 U J		10 U			10 U
2-Nitrophenol	ug/L	11 U R	10 U J		10 U			10 U
2,4-Dimethylphenol	ug/L	11 U R	10 U J		10 U			10 U
Benzoic acid	ug/L	54 U R	50 U J					50 U
bis(2-Chloroethoxy) methane	ug/L	11 U R	10 U J		10 U			10 U
2,4-Dichlorophenol	ug/L	11 U R	10 U J		10 U			10 U
1,2,4-Trichlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
Naphthalene	ug/L	11 U R	10 U J		10 U			10 U
4-Chloroaniline	ug/L	11 U R	10 U J		10 U			10 U
Hexachlorobutadiene	ug/L	11 U R	10 U J		10 U			10 U
4-Chloro-3-methylphenol	ug/L	21 R	10 U J		10 U			10 U
2-Methylnaphthalene	ug/L	11 U R	10 U J		10 U			10 U
Hexachlorocyclopentadiene	ug/L	11 U R	10 U J		10 U			10 U
2,4,6-Trichlorophenol	ug/L	11 U R	10 U J		10 U			10 U
2,4,5-Trichlorophenol	ug/L	54 U R	50 U J		25 U			50 U
2-Chloronaphthalene	ug/L	11 U R	10 U J		10 U			10 U
2-Nitroaniline	ug/L	54 U R	50 U J		25 U			50 U
Dimethylphthalate	ug/L	11 U R	10 U J		10 U			10 U
Acenaphthylene	ug/L	11 U R	10 U J		10 U			10 U
2,6-Dinitrotoluene	ug/L	11 U R	10 U J		10 U			10 U
3-Nitroaniline	ug/L	54 U R	50 U J		25 U			50 U
Acenaphthene	ug/L	11 U R	10 U J		10 U			10 U
2,4-Dinitrophenol	ug/L	54 U R	50 U J		25 U			50 U
4-Nitrophenol	ug/L	9 R	50 U J		25 U			50 U
Dibenzofuran	ug/L	11 U R	10 U J		10 U			10 U
2,4-Dinitrotoluene	ug/L	11 U R	10 U J		10 U			10 U
Diethylphthalate	ug/L	11 U R	10 U J		10 U			10 U
4-Chlorophenyl-phenylether	ug/L	11 U R	10 U J		10 U			10 U
Fluorene	ug/L	11 U R	10 U J		10 U			10 U
4-Nitroaniline	ug/L	54 U R	50 U J		25 U			50 U
4,6-Dinitro-2-methylphenol	ug/L	54 U R	50 U J		25 U			50 U
N-Nitrosodiphenylamine (1)	ug/L	11 U R	10 U J		10 U			10 U
4-Bromophenyl-phenylether	ug/L	11 U R	10 U J		10 U			10 U
Hexachlorobenzene	ug/L	11 U R	10 U J		10 U			10 U
Pentachlorophenol	ug/L	3 R	50 U J		25 U			50 U
Phenanthrene	ug/L	11 U R	10 U J		10 U			10 U
Anthracene	ug/L	11 U R	10 U J		10 U			10 U
Carbazole	ug/L				10 U			
Di-n-butylphthalate	ug/L	11 U R	10 U J		2 J			10 U
Fluoranthene	ug/L	11 U R	10 U J		10 U			10 U
Pyrene	ug/L	11 U R	10 U J		10 U			10 U
Butylbenzylphthalate	ug/L	11 U R	10 U J		10 U			10 U
3,3'-Dichlorobenzidine	ug/L	22 U R	20 U J		10 U			20 U
Benzo(a)anthracene	ug/L	11 U R	10 U J		10 U			10 U
Chrysene	ug/L	11 U R	10 U J		10 U			10 U
bis(2-Ethylhexyl)phthalate	ug/L	11 U R	10 U J		10 U			39 U
Di-n-octylphthalate	ug/L	11 U R	10 U J		10 U			10 U
Benzo(b)fluoranthene	ug/L	11 U R	10 U J		10 U			10 U
Benzo(k)fluoranthene	ug/L	11 U R	10 U J		10 U			10 U
Benzo(a)pyrene	ug/L	11 U R	10 U J		10 U			10 U
Indeno(1,2,3-cd)pyrene	ug/L	11 U R	10 U J		10 U			10 U
Dibenz(a,h)anthracene	ug/L	11 U R	10 U J		10 U			10 U
Benzo(g,h,i)perylene	ug/L	11 U R	10 U J		10 U			10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX / LOCATION / DATE / ES ID / LAB ID	PHASE I WATER PT-20 01/17/92 PT-20(2,3) 152706	PHASE I WATER PT-20 01/17/92 PT-20RE(2,3,4) 152706	PHASE I WATER PT-20 01/17/92 PT-20(2,3)Filtered 152713	PHASE II WATER PT20 07/12/93 PT20 188796	PHASE II WATER PT20 RE 07/10/93 PT20 RE 188796R1	PHASE I WATER PT-21 01/17/92 PT-21 152707	PHASE I WATER PT-21 01/25/92CK PT-21 153059
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.055 U			0.05 U			
beta-BHC	ug/L	0.055 U			0.05 U			
delta-BHC	ug/L	0.055 U			0.05 U			
gamma-BHC (Lindane)	ug/L	0.055 U			0.05 U			
Heptachlor	ug/L	0.055 U			0.05 U			
Aldrin	ug/L	0.055 U			0.05 U			
Heptachlor epoxide	ug/L	0.055 U			0.05 U			
Endosulfan I	ug/L	0.055 U			0.05 U			
Dieldrin	ug/L	0.11 U			0.1 U			
4,4'-DDE	ug/L	0.11 U			0.1 U			
Endrin	ug/L	0.11 U			0.1 U			
Endosulfan II	ug/L	0.11 U			0.1 U			
4,4'-DDD	ug/L	0.11 U			0.1 U			
Endosulfan sulfate	ug/L	0.11 U			0.1 U			
4,4'-DDT	ug/L	0.11 U			0.1 U			
Methoxychlor	ug/L	0.55 U			0.5 U			
Endrin ketone	ug/L	0.11 U			0.1 U			
Endrin aldehyde	ug/L				0.1 U			
alpha-Chlordane	ug/L	0.55 U			0.05 U			
gamma-Chlordane	ug/L	0.55 U			0.05 U			
Toxaphene	ug/L	1.1 U			5 U			
Aroclor-1016	ug/L	0.55 U			1 U			
Aroclor-1221	ug/L	0.55 U			2 U			
Aroclor-1232	ug/L	0.55 U			1 U			
Aroclor-1242	ug/L	0.55 U			1 U			
Aroclor-1248	ug/L	0.55 U			1 U			
Aroclor-1254	ug/L	1.1 U			1 U			
Aroclor-1260	ug/L	1.1 U			1 U			
HERBICIDES								
2,4-D	ug/L	1 U			1 R	1 R		
2,4-DB	ug/L	1 U			1 R	1 R		
2,4,5-T	ug/L	0.1 U			0.1 R	0.1 R		
2,4,5-TP (Silvex)	ug/L	0.1 U			0.1 R	0.1 R		
Dalapon	ug/L	2.3 U			2.3 R	2.3 R		
Dicamba	ug/L	0.1 U			0.1 R	0.1 R		
Dichloroprop	ug/L	1 U			1 R	1 R		
Dinoseb	ug/L	0.5 U			0.5 R	0.5 R		
MCPA	ug/L	100 U			100 R	100 R		
MCPP	ug/L	100 U			100 R	100 R		
METALS								
Aluminum	ug/L	10800		24.4 U	124 J			14200
Antimony	ug/L	53.1 U		62.9 U	62.1 R			52.9 U
Arsenic	ug/L	3.5 U		3.5 U	1.4 U			3.5 U
Barium	ug/L	124 J		85.3 R	73.9 J			230
Beryllium	ug/L	1.8 R		1.1 U	0.9 U			1.7 R
Cadmium	ug/L	3 U		3 U	2.8 U			4 J
Calcium	ug/L	145000		125000	143000			185000
Chromium	ug/L	16.5		6.1 U	2.7 U			18.6
Cobalt	ug/L	20.4 U		20.3 U	5.5 U			20.3 U
Copper	ug/L	11.8 J		10.1 U	4.7 U			17.9 J
Iron	ug/L	16000		8.1 R	197 J			20100
Lead	ug/L	3.8 R		1.2 U	0.6 U			7 R
Magnesium	ug/L	17400 J		13600	14700			34300 J
Manganese	ug/L	378 J		4.8 U	35.1			666 J
Mercury	ug/L	0.03 U		0.03 U	0.09 UJ			0.03 U
Nickel	ug/L	17.1 J		14.7 U	7.5 U			19.6 J
Potassium	ug/L	3440 J		655 J	1800 J			8300
Selenium	ug/L	1 U J		1 U	1.5 U			1 U J
Silver	ug/L	3.4 U		3.4 U	5.5 U			3.4 U
Sodium	ug/L	35100		33900	29700			47800
Thallium	ug/L	3.2 U		3.2 U	2.6 U			3.2 U
Vanadium	ug/L	18.3 J		9.4 U	6.8 U			21.1 J
Zinc	ug/L	60.7 R		16.7 R	5.1 J			773 J
Cyanide	ug/L	10 U			1.2 U			10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-21	PT21	PT-22	PT-22	PT22	PT22RE	PT-23
	DATE	01/23/92	07/12/93	01/09/92	01/09/92	07/12/93	07/10/93	01/14/92
	ES ID	PT-21Filter	PT21	PT-22	PT-22Filter	PT22	PT22RE	PT-23
	LAB ID	153060	168796	152160	152202	188799	188799R1	152506
COMPOUND	UNITS							
Chloromethane	ug/L		10 U	10 U		10 U		10 U
Bromomethane	ug/L		10 U	10 U		10 U		10 U
Vinyl Chloride	ug/L		10 U	10 U		10 U		10 U
Chloroethane	ug/L		10 U	10 U		10 U		10 U
Methylene Chloride	ug/L		10 U	5 U		10 U		5 U
Acetone	ug/L		10 U	10 U		10 U		10 U
Carbon Disulfide	ug/L		10 U	5 U		10 U		5 U
1,1-Dichloroethene	ug/L		10 U	5 U		10 U		5 U
1,1-Dichloroethane	ug/L		10 U	5 U		10 U		5 U
1,2-Dichloroethene (total)	ug/L		14	100		150		5 U
Chloroform	ug/L		10 U	5 U		10 U		5 U
1,2-Dichloroethane	ug/L		10 U	4 J		6 J		5 U
2-Butanone	ug/L		10 U	10 U		10 U		10 U
1,1,1-Trichloroethane	ug/L		10 U	5 U		10 U		5 U
Carbon Tetrachloride	ug/L		10 U	5 U		10 U		5 U
Vinyl Acetate	ug/L			10 U				10 U
Bromodichloromethane	ug/L		10 U	5 U		10 U		5 U
1,2-Dichloropropane	ug/L		10 U	5 U		10 U		5 U
cis-1,3-Dichloropropene	ug/L		10 U	5 U		10 U		5 U
Trichloroethene	ug/L		3 J	60		98		5 U
Dibromochloromethane	ug/L		10 U	5 U		10 U		5 U
1,1,2-Trichloroethane	ug/L		10 U	5 U		10 U		5 U
Benzene	ug/L		6 J	5 U		10 U		5 U
trans-1,3-Dichloropropene	ug/L		10 U	5 U		10 U		5 U
Bromoform	ug/L		10 U	5 U		10 U		5 U
4-Methyl-2-Pentanone	ug/L		10 U	10 U		10 U		10 U
2-Hexanone	ug/L		10 U	10 U		10 U		10 U
Tetrachloroethene	ug/L		10 U	5 U		10 U		5 U
1,1,2,2-Tetrachloroethane	ug/L		10 U	5 U		10 U		5 U
Toluene	ug/L		10 U	5 U		10 U		5 U
Chlorobenzene	ug/L		10 U	5 U		10 U		5 U
Ethylbenzene	ug/L		10 U	5 U		10 U		5 U
Styrene	ug/L		10 U	5 U		10 U		5 U
Xylene (total)	ug/L		10 U	5 U		10 U		5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-21	PT21	PT-22	PT-22	PT22	PT22RE	PT-23
	DATE	01/23/92	07/12/93	01/09/92	01/09/92	07/12/93	07/10/93	01/14/92
	ES ID	PT-21Filter	PT21	PT-22	PT-22Filter	PT22	PT22RE	PT-23
	LAB ID	153060	166798	152160	152202	188799	188799R1	152506
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							
Chloromethane	ug/L							
Vinyl Chloride	ug/L							
Bromomethane	ug/L							
Chloroethane	ug/L							
Trichlorofluoromethane	ug/L							
1,1-Dichloroethene	ug/L							
Acetone	ug/L							
Carbon Disulfide	ug/L							
Methylene Chloride	ug/L							
trans-1,2-Dichloroethene	ug/L							
1,1-Dichloroethane	ug/L							
2,2-Dichloropropane	ug/L							
cis-1,2-Dichloroethene	ug/L							
2-Butanone	ug/L							
Bromochloromethane	ug/L							
Chloroform	ug/L							
1,1,1-Trichloroethane	ug/L							
Carbon Tetrachloride	ug/L							
1,1-Dichloropropene	ug/L							
Benzene	ug/L							
1,2-Dichloroethane	ug/L							
Trichloroethene	ug/L							
1,2-Dichloropropane	ug/L							
Dibromomethane	ug/L							
Bromodichloromethane	ug/L							
cis-1,3-Dichloropropene	ug/L							
4-Methyl-2-Pentanone	ug/L							
Toluene	ug/L							
trans-1,3-Dichloropropene	ug/L							
1,1,2-Trichloroethane	ug/L							
Tetrachloroethene	ug/L							
1,3-Dichloropropane	ug/L							
2-Hexanone	ug/L							
Dibromochloromethane	ug/L							
1,2-Dibromoethane	ug/L							
Chlorobenzene	ug/L							
1,1,1,2-Tetrachloroethane	ug/L							
Ethylbenzene	ug/L							
Styrene	ug/L							
Bromoform	ug/L							
Isopropylbenzene	ug/L							
Bromobenzene	ug/L							
1,1,2,2-Tetrachloroethane	ug/L							
1,2,3-Trichloropropane	ug/L							
n-Propylbenzene	ug/L							
2-Chlorotoluene	ug/L							
4-Chlorotoluene	ug/L							
1,3,5-Trimethylbenzene	ug/L							
tert-Butylbenzene	ug/L							
1,2,4-Trimethylbenzene	ug/L							
sec-Butylbenzene	ug/L							
1,3-Dichlorobenzene	ug/L							
1,4-Dichlorobenzene	ug/L							
p-Isopropyltoluene	ug/L							
1,2-Dichlorobenzene	ug/L							
n-Butylbenzene	ug/L							
1,2-Dibromo-3-Chloropropane	ug/L							
1,2,4-Trichlorobenzene	ug/L							
Hexachlorobutadiene	ug/L							
Naphthalene	ug/L							
1,2,3-Trichlorobenzene	ug/L							
Xylene (total)	ug/L							

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-21	PT21	PT-22	PT-22	PT22	PT22RE	PT-23
	DATE	01/23/92	07/12/93	01/09/92	01/09/92	07/12/93	07/10/93	01/14/92
	ES ID	PT-21Filter	PT21	PT-22	PT-22Filter	PT22	PT22RE	PT-23
	LAB ID	153060	188798	152160	152202	188799	188799R1	152506
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L			11 U		10 U		12 U
bis(2-Chloroethyl) ether	ug/L			11 U		0.6 J		12 U
2-Chlorophenol	ug/L			11 U		10 U		12 U
1,3-Dichlorobenzene	ug/L			11 U		10 U		12 U
1,4-Dichlorobenzene	ug/L			11 U		10 U		12 U
Benzyl Alcohol	ug/L			11 U				12 U
1,2-Dichlorobenzene	ug/L			11 U		10 U		12 U
2-Methylphenol	ug/L			11 U		10 U		12 U
bis(2-Chloroisopropyl) ether	ug/L			11 U		10 U		12 U
4-Methylphenol	ug/L			11 U		10 U		12 U
N-Nitroso-di-n-propylamine	ug/L			11 U		10 U		12 U
Hexachloroethane	ug/L			11 U		10 U		12 U
Nitrobenzene	ug/L			11 U		10 U		12 U
Isophorone	ug/L			11 U		10 U		12 U
2-Nitrophenol	ug/L			11 U		10 U		12 U
2,4-Dimethylphenol	ug/L			11 U		10 U		12 U
Benzoic acid	ug/L			54 U				61 U
bis(2-Chloroethoxy) methane	ug/L			11 U		10 U		12 U
2,4-Dichlorophenol	ug/L			11 U		10 U		12 U
1,2,4-Trichlorobenzene	ug/L			11 U		10 U		12 U
Naphthalene	ug/L			11 U		10 U		12 U
4-Chloroaniline	ug/L			11 U		10 U		12 U
Hexachlorobutadiene	ug/L			11 U		10 U		12 U
4-Chloro-3-methylphenol	ug/L			11 U		10 U		12 U
2-Methylnaphthalene	ug/L			11 U		10 U		12 U
Hexachlorocyclopentadiene	ug/L			11 U		10 U		12 U
2,4,6-Trichlorophenol	ug/L			11 U		10 U		12 U
2,4,5-Trichlorophenol	ug/L			54 U		24 U		61 U
2-Chloronaphthalene	ug/L			11 U		10 U		12 U
2-Nitroaniline	ug/L			54 U		24 U		61 U
Dimethylphthalate	ug/L			11 U		10 U		12 U
Acenaphthylene	ug/L			11 U		10 U		12 U
2,6-Dinitrotoluene	ug/L			11 U		10 U		12 U
3-Nitroaniline	ug/L			54 U		24 U		61 U
Acenaphthene	ug/L			11 U		10 U		12 U
2,4-Dinitrophenol	ug/L			54 U		24 U		61 U
4-Nitrophenol	ug/L			54 U		24 U		61 U
Dibenzofuran	ug/L			11 U		10 U		12 U
2,4-Dinitrotoluene	ug/L			11 U		10 U		12 U
Diethylphthalate	ug/L			11 U		10 U		12 U
4-Chlorophenyl-phenylether	ug/L			11 U		10 U		12 U
Fluorene	ug/L			11 U		10 U		12 U
4-Nitroaniline	ug/L			54 U		24 U		61 U
4,6-Dinitro-2-methylphenol	ug/L			54 U		24 U		61 U
N-Nitrosodiphenylamine (1)	ug/L			11 U		10 U		12 U
4-Bromophenyl-phenylether	ug/L			11 U		10 U		12 U
Hexachlorobenzene	ug/L			11 U		10 U		12 U
Pentachlorophenol	ug/L			54 U		25 U		61 U
Phenanthrene	ug/L			11 U		10 U		12 U
Anthracene	ug/L			11 U		10 U		12 U
Carbazole	ug/L					10 U		
Di-n-butylphthalate	ug/L			11 U		3 J		12 U
Fluoranthene	ug/L			11 U		10 U		12 U
Pyrene	ug/L			11 U		10 U		12 U
Butylbenzylphthalate	ug/L			11 U		10 U		12 U
3,3'-Dichlorobenzidine	ug/L			22 U		10 U		24 U
Benzo(a)anthracene	ug/L			11 U		10 U		12 U
Chrysene	ug/L			11 U		10 U		12 U
bis(2-Ethylhexyl)phthalate	ug/L			11 U		10 U		12 U
Di-n-octylphthalate	ug/L			11 U		10 U		12 U
Benzo(b)fluoranthene	ug/L			11 U		10 U		12 U
Benzo(k)fluoranthene	ug/L			11 U		10 U		12 U
Benzo(a)pyrene	ug/L			11 U		10 U		12 U
Indeno(1,2,3-cd)pyrene	ug/L			11 U		10 U		12 U
Dibenz(a,h)anthracene	ug/L			11 U		10 U		12 U
Benzo(g,h,i)perylene	ug/L			11 U		10 U		12 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	LOCATION	PT-21	PT21	PT-22	PT-22	PT22	PT22RE	PT-23
	DATE	01/23/92	07/12/93	01/09/92	01/09/92	07/12/93	07/10/93	01/14/92
	ES ID	PT-21Filter	PT21	PT-22	PT-22Filter	PT22	PT22RE	PT-23
	LAB ID	153060	186796	152160	152202	186799	186799R1	152506
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L			0.052 U		0.05 U		0.061 U
beta-BHC	ug/L			0.052 U		0.05 U		0.061 U
delta-BHC	ug/L			0.052 U		0.05 U		0.061 U
gamma-BHC (Lindane)	ug/L			0.052 U		0.05 U		0.061 U
Heptachlor	ug/L			0.052 U		0.05 U		0.061 U
Aldrin	ug/L			0.052 U		0.05 U		0.061 U
Heptachlor epoxide	ug/L			0.052 U		0.05 U		0.061 U
Endosulfan I	ug/L			0.052 U		0.05 U		0.061 U
Dieldrin	ug/L			0.1 U		0.1 U		0.12 U
4,4'-DDE	ug/L			0.1 U		0.1 U		0.12 U
Endrin	ug/L			0.1 U		0.1 U		0.12 U
Endosulfan II	ug/L			0.1 U		0.1 U		0.12 U
4,4'-DDD	ug/L			0.1 U		0.1 U		0.12 U
Endosulfan sulfate	ug/L			0.1 U		0.1 U		0.12 U
4,4'-DDT	ug/L			0.1 U		0.1 U		0.12 U
Methoxychlor	ug/L			0.52 U		0.5 U		0.61 U
Endrin ketone	ug/L			0.1 U		0.1 U		0.12 U
Endrin aldehyde	ug/L					0.1 U		
alpha-Chlordane	ug/L			0.52 U		0.05 U		0.61 U
gamma-Chlordane	ug/L			0.52 U		0.05 U		0.61 U
Toxaphene	ug/L			1 U		5 U		1.2 U
Aroclor-1016	ug/L			0.52 U		1 U		0.61 U
Aroclor-1221	ug/L			0.52 U		2 U		0.61 U
Aroclor-1232	ug/L			0.52 U		1 U		0.61 U
Aroclor-1242	ug/L			0.52 U		1 U		0.61 U
Aroclor-1248	ug/L			0.52 U		1 U		0.61 U
Aroclor-1254	ug/L			1 U		1 U		1.2 U
Aroclor-1260	ug/L			1 U		1 U		1.2 U
HERBICIDES								
2,4-D	ug/L			1 U		1 R	1 R	1 U
2,4-DB	ug/L			1 U		1 R	1 R	1 U
2,4,5-T	ug/L			0.1 U		0.1 R	0.1 R	0.1 U
2,4,5-TP (Silvex)	ug/L			0.1 U		0.1 R	0.1 R	0.1 U
Dalapon	ug/L			2.4 U		2.3 R	6.4 J	2.4 U
Dicamba	ug/L			0.1 U		0.1 R	0.1 R	0.1 U
Dichloroprop	ug/L			1 U		1 R	1 R	1 U
Dinoseb	ug/L			0.5 U		0.5 R	0.51 R	0.5 U
MCPA	ug/L			100 U		100 R	100 R	100 U
MCPP	ug/L			100 U		100 R	100 R	100 U
METALS								
Aluminum	ug/L	24.4 U		4090	24.4 U	178 J		2000
Antimony	ug/L	52.9 U		55.8 U J	53 U	50 U		53 U
Arsenic	ug/L	3.5 U		3.5 U	3.5 U	1.4 U		3.5 U
Barium	ug/L	108 R		146 J	42.4 R	69.8 J		45.4 R
Beryllium	ug/L	1.1 U		2.3 R	2.4 R	0.9 U		2.1 R
Cadmium	ug/L	3 U		2.9 U	3 U	2.8 U		3 U
Calcium	ug/L	130000		197000 J	128000	147000		98200
Chromium	ug/L	6.1 U		8.5 J	6.2 U	2.7 U		6.6 J
Cobalt	ug/L	20.3 U		19.9 U	20.4 U	5.5 U		20.4 U
Copper	ug/L	10.1 U		14.4 U	10.1 U	4.7 U		10.1 U
Iron	ug/L	25.2 R		6010	6.9 U	214 J		2510
Lead	ug/L	1.2 U		10.5	1.2 U	0.78 J		1.2 U
Magnesium	ug/L	25800		18200 J	16600	17400		11200
Manganese	ug/L	68.8		1140	4.8 U	57.9		80.4
Mercury	ug/L	0.03 U		0.18 R	0.12 R	0.09 UJ		0.11 R
Nickel	ug/L	14.7 U		15.9 U	14.7 U	7.5 U		14.7 U
Potassium	ug/L	4780 J		632 U	360 J	1840 J		1080 J
Selenium	ug/L	1 U		1 U	1 U	1.5 U		1.3 U
Silver	ug/L	3.4 U		9.1 U	3.4 U	5.5 U		3.4 U
Sodium	ug/L	44400		52800 J	54100	64900		4780 J
Thallium	ug/L	3.2 U		3.2 U	3.2 U	2.6 U		3.2 U
Vanadium	ug/L	9.4 U		30.5 U	9.4 U	6.8 U		9.4 U
Zinc	ug/L	170 R		76.6 R	8.4 U	9.6 J		47.6 R
Cyanide	ug/L			10 U		1.2 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-23	PT23	PT-24	PT-24	PT24	PT24RE	PT-25
	DATE	01/14/92	06/24/93	01/14/92	01/14/92	07/10/93	07/10/93	01/15/92
	ES ID	PT-23Filtered	PT23	PT-24	PT-24Filter	PT24	PT24RE	PT-25
	LAB ID	152511	167344	152507	152512	188729	188729	152575
COMPOUND	UNITS							
Chloromethane	ug/L			10 U		10 U		10 U
Bromomethane	ug/L			10 U		10 U		10 U
Vinyl Chloride	ug/L			10 U		10 U		10 U
Chloroethane	ug/L			10 U		10 U		10 U
Methylene Chloride	ug/L			5 U		10 U		5 U
Acetone	ug/L			10 U		10 U		10 U
Carbon Disulfide	ug/L			5 U		10 U		5 U
1,1-Dichloroethene	ug/L			5 U		10 U		5 U
1,1-Dichloroethane	ug/L			5 U		10 U		5 U
1,2-Dichloroethene (total)	ug/L			100		62		5 U
Chloroform	ug/L			5 U		10 U		5 U
1,2-Dichloroethane	ug/L			5 U		10 U		5 U
2-Butanone	ug/L			10 U		10 U		10 U
1,1,1-Trichloroethane	ug/L			5 U		10 U		5 U
Carbon Tetrachloride	ug/L			5 U		10 U		5 U
Vinyl Acetate	ug/L			10 U				10 U
Bromodichloromethane	ug/L			5 U		10 U		5 U
1,2-Dichloropropane	ug/L			5 U		10 U		5 U
cis-1,3-Dichloropropene	ug/L			5 U		10 U		5 U
Trichloroethene	ug/L			4 J		4 J		5 U
Dibromochloromethane	ug/L			5 U		10 U		5 U
1,1,2-Trichloroethane	ug/L			5 U		10 U		5 U
Benzene	ug/L			5 U		10 U		5 U
trans-1,3-Dichloropropene	ug/L			5 U		10 U		5 U
Bromoform	ug/L			5 U		10 U		5 U
4-Methyl-2-Pentanone	ug/L			10 U		10 U		10 U
2-Hexanone	ug/L			10 U		10 U		10 U
Tetrachloroethene	ug/L			5 U		10 U		5 U
1,1,2,2-Tetrachloroethane	ug/L			5 U		10 U		5 U
Toluene	ug/L			5 U		10 U		5 U
Chlorobenzene	ug/L			5 U		10 U		5 U
Ethylbenzene	ug/L			5 U		10 U		5 U
Styrene	ug/L			5 U		10 U		5 U
Xylene (total)	ug/L			5 U		10 U		5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-23	PT23	PT-24	PT-24	PT24	PT24RE	PT-25
	DATE	01/14/92	06/24/93	01/14/92	01/14/92	07/10/93	07/10/93	01/15/92
	ES ID	PT-23Filtered	PT23	PT-24	PT-24Filter	PT24	PT24RE	PT-25
	LAB ID	152511	187344	152507	152512	188729	188729	152575
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L		0.5 U					
Chloromethane	ug/L		0.5 U					
Vinyl Chloride	ug/L		0.5 U					
Bromomethane	ug/L		0.5 U					
Chloroethane	ug/L		0.5 U					
Trichlorofluoromethane	ug/L		0.5 U					
1,1-Dichloroethene	ug/L		0.5 U					
Acetone	ug/L		5 U					
Carbon Disulfide	ug/L		0.5 U					
Methylene Chloride	ug/L		0.5 U					
trans-1,2-Dichloroethene	ug/L		0.5 U					
1,1-Dichloroethane	ug/L		0.5 U					
2,2-Dichloropropane	ug/L		0.5 U					
cis-1,2-Dichloroethene	ug/L		0.5 U					
2-Butanone	ug/L		5 U					
Bromochloromethane	ug/L		0.5 U					
Chloroform	ug/L		0.5 U					
1,1,1-Trichloroethane	ug/L		0.5 U					
Carbon Tetrachloride	ug/L		0.5 U					
1,1-Dichloropropene	ug/L		0.5 U					
Benzene	ug/L		0.5 U					
1,2-Dichloroethane	ug/L		0.5 U					
Trichloroethene	ug/L		0.5 U					
1,2-Dichloropropane	ug/L		0.5 U					
Dibromomethane	ug/L		0.5 U					
Bromodichloromethane	ug/L		0.5 U					
cis-1,3-Dichloropropene	ug/L		0.5 U					
4-Methyl-2-Pentanone	ug/L		5 U					
Toluene	ug/L		0.5 U					
trans-1,3-Dichloropropene	ug/L		0.5 U					
1,1,2-Trichloroethane	ug/L		0.5 U					
Tetrachloroethene	ug/L		0.5 U					
1,3-Dichloropropane	ug/L		0.5 U					
2-Hexanone	ug/L		5 U					
Dibromochloromethane	ug/L		0.5 U					
1,2-Dibromoethane	ug/L		0.5 U					
Chlorobenzene	ug/L		0.5 U					
1,1,1,2-Tetrachloroethane	ug/L		0.5 U					
Ethylbenzene	ug/L		0.5 U					
Styrene	ug/L		0.5 U					
Bromoform	ug/L		0.5 U					
Isopropylbenzene	ug/L		0.5 U					
Bromobenzene	ug/L		0.5 U					
1,1,2,2-Tetrachloroethane	ug/L		0.5 U					
1,2,3-Trichloropropane	ug/L		0.5 U					
n-Propylbenzene	ug/L		0.5 U					
2-Chlorotoluene	ug/L		0.5 U					
4-Chlorotoluene	ug/L		0.5 U					
1,3,5-Trimethylbenzene	ug/L		0.5 U					
tert-Butylbenzene	ug/L		0.5 U					
1,2,4-Trimethylbenzene	ug/L		0.5 U					
sec-Butylbenzene	ug/L		0.5 U					
1,3-Dichlorobenzene	ug/L		0.5 U					
1,4-Dichlorobenzene	ug/L		0.5 U					
p-Isopropyltoluene	ug/L		0.5 U					
1,2-Dichlorobenzene	ug/L		0.5 U					
n-Butylbenzene	ug/L		0.5 U					
1,2-Dibromo-3-Chloropropane	ug/L		0.5 U					
1,2,4-Trichlorobenzene	ug/L		0.5 U					
Hexachlorobutadiene	ug/L		0.5 U					
Naphthalene	ug/L		0.5 U					
1,2,3-Trichlorobenzene	ug/L		0.5 U					
Xylene (total)	ug/L		0.5 U					

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE II	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	PT-23	PT23	PT-24	PT-24	PT24	PT24RE	PT-25
	DATE	01/14/92	06/24/93	01/14/92	01/14/92	07/10/93	07/10/93	01/15/92
	ES ID	PT-23Filtered	PT23	PT-24	PT-24Filter	PT24	PT24RE	PT-25
	LAB ID	152511	187344	152507	152512	188729	188729	152575
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L		10 U	11 U		10 U	10 U	11 U
bis(2-Chloroethyl) ether	ug/L		10 U	11 U		10 U	10 U	11 U
2-Chlorophenol	ug/L		10 U	11 U		10 U	10 U	11 U
1,3-Dichlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
1,4-Dichlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
Benzyl Alcohol	ug/L			11 U				11 U
1,2-Dichlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
2-Methylphenol	ug/L		10 U	11 U		10 U	10 U	11 U
bis(2-Chloroisopropyl) ether	ug/L		10 U	11 U		10 U	10 U	11 U
4-Methylphenol	ug/L		10 U	11 U		10 U	10 U	11 U
N-Nitroso-di-n-propylamine	ug/L		10 U	11 U		10 U	10 U	11 U
Hexachloroethane	ug/L		10 U	11 U		10 U	10 U	11 U
Nitrobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
Isophorone	ug/L		10 U	11 U		10 U	10 U	11 U
2-Nitrophenol	ug/L		10 U	11 U		10 U	10 U	11 U
2,4-Dimethylphenol	ug/L		10 U	11 U		10 U	10 U	11 U
Benzoic acid	ug/L			55 U				55 U
bis(2-Chloroethoxy) methane	ug/L		10 U	11 U		10 U	10 U	11 U
2,4-Dichlorophenol	ug/L		10 U	11 U		10 U	10 U	11 U
1,2,4-Trichlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
Naphthalene	ug/L		10 U	11 U		10 U	10 U	11 U
4-Chloroaniline	ug/L		10 U	11 U		10 U	10 U	11 U
Hexachlorobutadiene	ug/L		10 U	11 U		10 U	10 U	11 U
4-Chloro-3-methylphenol	ug/L		10 U	11 U		10 U	10 U	11 U
2-Methylnaphthalene	ug/L		10 U	11 U		10 U	10 U	11 U
Hexachlorocyclopentadiene	ug/L		10 U	11 U		10 U	10 U	11 U
2,4,6-Trichlorophenol	ug/L		10 U	11 U		10 U	10 U	11 U
2,4,5-Trichlorophenol	ug/L		25 U	55 U		25 U	25 U	55 U
2-Chloronaphthalene	ug/L		10 U	11 U		10 U	10 U	11 U
2-Nitroaniline	ug/L		25 U	55 U		25 U	25 U	55 U
Dimethylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
Acenaphthylene	ug/L		10 U	11 U		10 U	10 U	11 U
2,6-Dinitrotoluene	ug/L		10 U	11 U		10 U	10 U	11 U
3-Nitroaniline	ug/L		25 U	55 U		25 U	25 U	55 U
Acenaphthene	ug/L		10 U	11 U		10 U	10 U	11 U
2,4-Dinitrophenol	ug/L		25 U	55 U		25 U	25 U	55 U
4-Nitrophenol	ug/L		25 U	55 U		25 U	25 U	55 U
Dibenzofuran	ug/L		10 U	11 U		10 U	10 U	11 U
2,4-Dinitrotoluene	ug/L		10 U	11 U		10 U	10 U	11 U
Diethylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
4-Chlorophenyl-phenylether	ug/L		10 U	11 U		10 U	10 U	11 U
Fluorene	ug/L		10 U	11 U		10 U	10 U	11 U
4-Nitroaniline	ug/L		25 U	55 U		25 U	25 U	55 U
4,6-Dinitro-2-methylphenol	ug/L		25 U	55 U		25 U	25 U	55 U
N-Nitrosodiphenylamine (1)	ug/L		10 U	11 U		10 U	10 U	11 U
4-Bromophenyl-phenylether	ug/L		10 U	11 U		10 U	10 U	11 U
Hexachlorobenzene	ug/L		10 U	11 U		10 U	10 U	11 U
Pentachlorophenol	ug/L		25 U	55 U		25 U	25 U	55 U
Phenanthrene	ug/L		10 U	11 U		10 U	10 U	11 U
Anthracene	ug/L		10 U	11 U		10 U	10 U	11 U
Carbazole	ug/L		10 U			10 U	10 U	
Di-n-butylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
Fluoranthene	ug/L		10 U	11 U		10 U	10 U	11 U
Pyrene	ug/L		10 U	11 U		10 U	10 U	11 U
Butylbenzylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
3,3'-Dichlorobenzidine	ug/L		10 U	22 U		10 U	10 U	22 U
Benzo(a)anthracene	ug/L		10 U	11 U		10 U	10 U	11 U
Chrysene	ug/L		10 U	11 U		10 U	10 U	11 U
bis(2-Ethylhexyl)phthalate	ug/L		10 U	11 U		46 U	10 U	11 U
Di-n-octylphthalate	ug/L		10 U	11 U		10 U	10 U	11 U
Benzo(b)fluoranthene	ug/L		10 U	11 U		10 U	10 U	11 U
Benzo(k)fluoranthene	ug/L		10 U	11 U		10 U	10 U	11 U
Benzo(a)pyrene	ug/L		10 U	11 U		10 U	10 U	11 U
Indeno(1,2,3-cd)pyrene	ug/L		10 U	11 U		10 U	10 U	11 U
Dibenz(a,h)anthracene	ug/L		10 U	11 U		10 U	10 U	11 U
Benzo(g,h,i)perylene	ug/L		10 U	11 U		10 U	10 U	11 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE II WATER	PHASE I WATER
	LOCATION	PT-23	PT23	PT-24	PT-24	PT24	PT24RE	PT-25
	DATE	01/14/92	06/24/93	01/14/92	01/14/92	07/10/93	07/10/93	01/15/92
	ES ID	PT-23Filtered	PT23	PT-24	PT-24Filter	PT24	PT24RE	PT-25
	LAB ID	152511	187344	152507	152512	188729	188729	152575
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
beta-BHC	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
delta-BHC	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
gamma-BHC (Lindane)	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Heptachlor	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Aldrin	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Heptachlor epoxide	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Endosulfan I	ug/L		0.056 U	0.057 U		0.05 U		0.054 U
Dieldrin	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
4,4'-DDE	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Endrin	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Endosulfan II	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
4,4'-DDD	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Endosulfan sulfate	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
4,4'-DDT	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Methoxychlor	ug/L		0.56 U	0.57 U		0.5 U		0.54 U
Endrin ketone	ug/L		0.11 U	0.11 U		0.1 U		0.11 U
Endrin aldehyde	ug/L		0.11 U			0.1 U		
alpha-Chlordane	ug/L		0.056 U	0.57 U		0.05 U		0.54 U
gamma-Chlordane	ug/L		0.056 U	0.57 U		0.05 U		0.54 U
Toxaphene	ug/L		5.6 U	1.1 U		5 U		1.1 U
Aroclor-1016	ug/L		1.1 U	0.57 U		1 U		0.54 U
Aroclor-1221	ug/L		2.2 U	0.57 U		2 U		0.54 U
Aroclor-1232	ug/L		1.1 U	0.57 U		1 U		0.54 U
Aroclor-1242	ug/L		1.1 U	0.57 U		1 U		0.54 U
Aroclor-1248	ug/L		1.1 U	0.57 U		1 U		0.54 U
Aroclor-1254	ug/L		1.1 U	1.1 U		1 U		1.1 U
Aroclor-1260	ug/L		1.1 U	1.1 U		1 U		1.1 U
HERBICIDES								
2,4-D	ug/L		1 U	1 U		1 U		1 U
2,4-DB	ug/L		1 U	1 U		1 U		1 U
2,4,5-T	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
Dalapon	ug/L		2.3 U	2.4 U		2.3 U		2.4 U
Dicamba	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
Dichloroprop	ug/L		1 U	1 U		1 U		1 U
Dinoseb	ug/L		0.5 U	0.5 U		0.5 U		0.5 U
MCPA	ug/L		100 U	100 U		100 U		100 U
MCPP	ug/L		100 U	100 U		100 U		100 U
METALS								
Aluminum	ug/L	24.4 U	209	18600	24.4 U	150 J		24000
Antimony	ug/L	53 U	49.8 UJ	53.1 U	53 U	49.7 UJ		52.9 U
Arsenic	ug/L	3.5 U	1.4 UJ	3.5 U	3.5 U	1.4 UJ		3.5 U
Barium	ug/L	34 R	46.9 J	132 J	45.7 R	48.4 J		135 J
Beryllium	ug/L	1.4 R	0.9 U	2.7 R	1.3 R	0.89 U		3 R
Cadmium	ug/L	3 U	2.8 U	3 U	3 U	2.8 U		3.2 J
Calcium	ug/L	86200	118000	135000	106000	117000		75300
Chromium	ug/L	6.2 U	2.7 UJ	27.1	6.2 U	2.7 UJ		32.2
Cobalt	ug/L	20.4 U	5.5 U	20.4 U	20.4 U	5.5 U		20.3 U
Copper	ug/L	10.1 U	4.7 U	11.1 J	10.1 U	4.7 U		22.5 J
Iron	ug/L	7 U	283	26000	7 U	181		39000
Lead	ug/L	1.2 U	0.79 U	9	1.2 U	0.59 U		5.6
Magnesium	ug/L	9510	13000	19100	12200	13200		16800
Manganese	ug/L	4.8 U	39.2	423	4.8 U	36.4		595
Mercury	ug/L	0.08 R	0.09 UJ	0.12 R	0.1 R	0.09 UJ		0.11 R
Nickel	ug/L	14.7 U	7.5 UJ	28.1 J	14.7 U	7.5 UJ		40.6
Potassium	ug/L	904 B	1440 J	4530 J	500 J	817 J		4620 J
Selenium	ug/L	1 U	0.99 UJ	1.3 U	1.7 J	1.5 UJ		1.3 U
Silver	ug/L	3.4 U	5.5 U	3.4 U	4.1 R	5.5 U		3.4 U
Sodium	ug/L	4940 J	4820 J	14900	13600	15400		15900
Thallium	ug/L	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U		3.2 U
Vanadium	ug/L	9.4 U	8.8 UJ	25.5 J	9.4 U	6.8 UJ		31.4 J
Zinc	ug/L	14.7 J	11.6 R	92.9 R	8.4 U	6.7 R		119
Cyanide	ug/L		10 UJ	10 U		3 UJ		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER
	LOCATION	PT-25	PT-25	PT-26	PT-26	PT26	MW-27	MW-27
	DATE	01/15/92	06/30/93	01/17/92	01/17/92	07/03/93	01/15/92	01/15/92
	ES ID	PT-25Filter	PT-25	PT-26	PT-26Filtered	PT26	MW-27	MW-27
	LAB ID	152594	167936	152708	152714	168262	152641	152570
COMPOUND	UNITS							
Chloromethane	ug/L			10 U				10 U
Bromomethane	ug/L			10 U				10 U
Vinyl Chloride	ug/L			10 U				10 U
Chloroethane	ug/L			10 U				10 U
Methylene Chloride	ug/L			5 U				5 U
Acetone	ug/L			10 U				10 U
Carbon Disulfide	ug/L			5 U				5 U
1,1-Dichloroethene	ug/L			5 U				5 U
1,1-Dichloroethane	ug/L			5 U				5 U
1,2-Dichloroethene (total)	ug/L			5 U				5 U
Chloroform	ug/L			5 U				5 U
1,2-Dichloroethane	ug/L			5 U				5 U
2-Butanone	ug/L			10 U				10 U
1,1,1-Trichloroethane	ug/L			5 U				5 U
Carbon Tetrachloride	ug/L			5 U				5 U
Vinyl Acetate	ug/L			10 U				10 U
Bromodichloromethane	ug/L			5 U				5 U
1,2-Dichloropropane	ug/L			5 U				5 U
cis-1,3-Dichloropropene	ug/L			5 U				5 U
Trichloroethene	ug/L			5 U				5 U
Dibromochloromethane	ug/L			5 U				5 U
1,1,2-Trichloroethane	ug/L			5 U				5 U
Benzene	ug/L			5 U				5 U
trans-1,3-Dichloropropene	ug/L			5 U				5 U
Bromoform	ug/L			5 U				5 U
4-Methyl-2-Pentanone	ug/L			10 U				10 U
2-Hexanone	ug/L			10 U				10 U
Tetrachloroethene	ug/L			5 U				5 U
1,1,2,2-Tetrachloroethane	ug/L			5 U				5 U
Toluene	ug/L			5 U				5 U
Chlorobenzene	ug/L			5 U				5 U
Ethylbenzene	ug/L			5 U				5 U
Styrene	ug/L			5 U				5 U
Xylene (total)	ug/L			5 U				5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-25	PT-25	PT-26	PT-26	PT26	MW-27	MW-27
	DATE	01/15/92	06/30/93	01/17/92	01/17/92	07/03/93	01/15/92	01/15/92
	ES ID	PT-25Filter	PT-25	PT-26	PT-26Filtered	PT26	MW-27	MW-27
	LAB ID	152594	157936	152706	152714	158262	152641	152570
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L		0.5 U			0.5 U		
Chloromethane	ug/L		0.5 U			0.5 U		
Vinyl Chloride	ug/L		0.5 U			0.5 U		
Bromomethane	ug/L		0.5 U			0.5 U		
Chloroethane	ug/L		0.5 U			0.5 U		
Trichlorofluoromethane	ug/L		0.5 U			0.5 U		
1,1-Dichloroethene	ug/L		0.5 U			0.5 U		
Acetone	ug/L		5 U			5 U		
Carbon Disulfide	ug/L		0.5 U			0.5 U		
Methylene Chloride	ug/L		0.5 U			0.5 U		
trans-1,2-Dichloroethene	ug/L		0.5 U			0.5 U		
1,1-Dichloroethane	ug/L		0.5 U			0.5 U		
2,2-Dichloropropane	ug/L		0.5 U			0.5 U		
cis-1,2-Dichloroethene	ug/L		0.5 U			0.5 U		
2-Butanone	ug/L		5 U			5 U		
Bromochloromethane	ug/L		0.5 U			0.5 U		
Chloroform	ug/L		0.5 U			0.5 U		
1,1,1-Trichloroethane	ug/L		0.5 U			0.5 U		
Carbon Tetrachloride	ug/L		0.5 U			0.5 U		
1,1-Dichloropropene	ug/L		0.5 U			0.5 U		
Benzene	ug/L		0.5 U			0.5 U		
1,2-Dichloroethane	ug/L		0.5 U			0.5 U		
Trichloroethene	ug/L		0.5 U			0.5 U		
1,2-Dichloropropane	ug/L		0.5 U			0.5 U		
Dibromomethane	ug/L		0.5 U			0.5 U		
Bromodichloromethane	ug/L		0.5 U			0.5 U		
cis-1,3-Dichloropropene	ug/L		0.5 U			0.5 U		
4-Methyl-2-Pentanone	ug/L		5 U			5 U		
Toluene	ug/L		0.5 U			0.5 U		
trans-1,3-Dichloropropene	ug/L		0.5 U			0.5 U		
1,1,2-Trichloroethane	ug/L		0.5 U			0.5 U		
Tetrachloroethene	ug/L		0.5 U			0.5 U		
1,3-Dichloropropane	ug/L		0.5 U			0.5 U		
2-Hexanone	ug/L		5 U			5 U		
Dibromochloromethane	ug/L		0.5 U			0.5 U		
1,2-Dibromoethane	ug/L		0.5 U			0.5 U		
Chlorobenzene	ug/L		0.5 U			0.5 U		
1,1,1,2-Tetrachloroethane	ug/L		0.5 U			0.5 U		
Ethylbenzene	ug/L		0.5 U			0.5 U		
Styrene	ug/L		0.5 U			0.5 U		
Bromoform	ug/L		0.5 U			0.5 U		
Isopropylbenzene	ug/L		0.5 U			0.5 U		
Bromobenzene	ug/L		0.5 U			0.5 U		
1,1,2,2-Tetrachloroethane	ug/L		0.5 U			0.5 U		
1,2,3-Trichloropropane	ug/L		0.5 U			0.5 U		
n-Propylbenzene	ug/L		0.5 U			0.5 U		
2-Chlorotoluene	ug/L		0.5 U			0.5 U		
4-Chlorotoluene	ug/L		0.5 U			0.5 U		
1,3,5-Trimethylbenzene	ug/L		0.5 U			0.5 U		
tert-Butylbenzene	ug/L		0.5 U			0.5 U		
1,2,4-Trimethylbenzene	ug/L		0.5 U			0.5 U		
sec-Butylbenzene	ug/L		0.5 U			0.5 U		
1,3-Dichlorobenzene	ug/L		0.5 U			0.5 U		
1,4-Dichlorobenzene	ug/L		0.5 U			0.5 U		
p-Isopropyltoluene	ug/L		0.5 U			0.5 U		
1,2-Dichlorobenzene	ug/L		0.5 U			0.5 U		
n-Butylbenzene	ug/L		0.5 U			0.5 U		
1,2-Dibromo-3-Chloropropane	ug/L		0.5 U			0.5 U		
1,2,4-Trichlorobenzene	ug/L		0.5 U			0.5 U		
Hexachlorobutadiene	ug/L		0.5 U			0.5 U		
Naphthalene	ug/L		0.5 U			0.5 U		
1,2,3-Trichlorobenzene	ug/L		0.5 U			0.5 U		
Xylene (total)	ug/L		0.5 U			0.5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	LOCATION	PT-25	PT-25	PT-26	PT-26	PT26	MW-27	MW-27
	DATE	01/15/92	06/30/93	01/17/92	01/17/92	07/03/93	01/15/92	01/15/92
	ES ID	PT-25Filter	PT-25	PT-26	PT-26Filtered	PT26	MW-27	MW-27
	LAB ID	152594	187936	152708	152714	188262	152641	152570
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L		10 U	11 U		10 U		12 U
bis(2-Chloroethyl) ether	ug/L		10 U	11 U		10 U		12 U
2-Chlorophenol	ug/L		10 U	11 U		10 U		12 U
1,3-Dichlorobenzene	ug/L		10 U	11 U		10 U		12 U
1,4-Dichlorobenzene	ug/L		10 U	11 U		10 U		12 U
Benzyl Alcohol	ug/L			11 U				12 U
1,2-Dichlorobenzene	ug/L		10 U	11 U		10 U		12 U
2-Methylphenol	ug/L		10 U	11 U		10 U		12 U
bis(2-Chloroisopropyl) ether	ug/L		10 U	11 U		10 U		12 U
4-Methylphenol	ug/L		10 U	11 U		10 U		12 U
N-Nitroso-di-n-propylamine	ug/L		10 U	11 U		10 U		12 U
Hexachloroethane	ug/L		10 U	11 U		10 U		12 U
Nitrobenzene	ug/L		10 U	11 U		10 U		12 U
Isophorone	ug/L		10 U	11 U		10 U		12 U
2-Nitrophenol	ug/L		10 U	11 U		10 U		12 U
2,4-Dimethylphenol	ug/L		10 U	11 U		10 U		12 U
Benzoic acid	ug/L			55 U				61 U
bis(2-Chloroethoxy) methane	ug/L		10 U	11 U		10 U		12 U
2,4-Dichlorophenol	ug/L		10 U	11 U		10 U		12 U
1,2,4-Trichlorobenzene	ug/L		10 U	11 U		10 U		12 U
Naphthalene	ug/L		10 U	11 U		10 U		12 U
4-Chloroaniline	ug/L		10 U	11 U		10 U		12 U
Hexachlorobutadiene	ug/L		10 U	11 U		10 U		12 U
4-Chloro-3-methylphenol	ug/L		10 U	11 U		10 U		12 U
2-Methylnaphthalene	ug/L		10 U	11 U		10 U		12 U
Hexachlorocyclopentadiene	ug/L		10 U	11 U		10 U		12 U
2,4,6-Trichlorophenol	ug/L		10 U	11 U		10 U		12 U
2,4,5-Trichlorophenol	ug/L		25 U	55 U		25 U		61 U
2-Chloronaphthalene	ug/L		10 U	11 U		10 U		12 U
2-Nitroaniline	ug/L		25 U	55 U		25 U		61 U
Dimethylphthalate	ug/L		10 U	11 U		10 U		12 U
Acenaphthylene	ug/L		10 U	11 U		10 U		12 U
2,6-Dinitrotoluene	ug/L		10 U	11 U		10 U		12 U
3-Nitroaniline	ug/L		25 U	55 U		25 U		61 U
Acenaphthene	ug/L		10 U	11 U		10 U		12 U
2,4-Dinitrophenol	ug/L		25 U	55 U		25 U		61 U
4-Nitrophenol	ug/L		25 U	55 U		25 U		61 U
Dibenzofuran	ug/L		10 U	11 U		10 U		12 U
2,4-Dinitrotoluene	ug/L		10 U	11 U		10 U		12 U
Diethylphthalate	ug/L		10 U	11 U		10 U		12 U
4-Chlorophenyl-phenylether	ug/L		10 U	11 U		10 U		12 U
Fluorene	ug/L		10 U	11 U		10 U		12 U
4-Nitroaniline	ug/L		25 U	55 U		25 U		61 U
4,6-Dinitro-2-methylphenol	ug/L		25 U	55 U		25 U		61 U
N-Nitrosodiphenylamine (1)	ug/L		10 U	11 U		10 U		12 U
4-Bromophenyl-phenylether	ug/L		10 U	11 U		10 U		12 U
Hexachlorobenzene	ug/L		10 U	11 U		10 U		12 U
Pentachlorophenol	ug/L		25 U	55 U		25 U		61 U
Phenanthrene	ug/L		10 U	11 U		10 U		12 U
Anthracene	ug/L		10 U	11 U		10 U		12 U
Carbazole	ug/L		10 U			10 U		
Di-n-butylphthalate	ug/L		10 U	11 U		10 U		12 U
Fluoranthene	ug/L		10 U	11 U		10 U		12 U
Pyrene	ug/L		10 U	11 U		10 U		12 U
Butylbenzylphthalate	ug/L		10 U	11 U		10 U		12 U
3,3'-Dichlorobenzidine	ug/L		10 U	22 U		10 U		25 U
Benzo(a)anthracene	ug/L		10 U	11 U		10 U		12 U
Chrysene	ug/L		10 U	11 U		10 U		12 U
bis(2-Ethylhexyl)phthalate	ug/L		10 U	11 U		10 U		12 U
Di-n-octylphthalate	ug/L		10 U	11 U		10 U		12 U
Benzo(b)fluoranthene	ug/L		10 U	11 U		10 U		12 U
Benzo(k)fluoranthene	ug/L		10 U	11 U		10 U		12 U
Benzo(a)pyrene	ug/L		10 U	11 U		10 U		12 U
Indeno(1,2,3-cd)pyrene	ug/L		10 U	11 U		10 U		12 U
Dibenz(a,h)anthracene	ug/L		10 U	11 U		10 U		12 U
Benzo(g,h,i)perylene	ug/L		10 U	11 U		10 U		12 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX / LOCATION / DATE / ES ID / LAB ID	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	PT-25	PT-25	PT-26	PT-26	PT26	MW-27	MW-27
	DATE	01/15/92	06/30/93	01/17/92	01/17/92	07/03/93	01/15/92	01/15/92
	ES ID	PT-25Filter	PT-25	PT-26	PT-26Filtered	PT26	MW-27	MW-27
	LAB ID	152594	187936	152708	152714	188262	152641	152570
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
beta-BHC	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
delta-BHC	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
gamma-BHC (Lindane)	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Heptachlor	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Aldrin	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Heptachlor epoxide	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Endosulfan I	ug/L		0.05 U	0.059 U		0.05 U		0.055 U
Dieldrin	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
4,4'-DDE	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Endrin	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Endosulfan II	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
4,4'-DDD	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Endosulfan sulfate	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
4,4'-DDT	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Methoxychlor	ug/L		0.5 U	0.59 U		0.5 U		0.55 U
Endrin ketone	ug/L		0.1 U	0.12 U		0.1 U		0.11 U
Endrin aldehyde	ug/L		0.1 U			0.1 U		
alpha-Chlordane	ug/L		0.05 U	0.59 U		0.05 U		0.55 U
gamma-Chlordane	ug/L		0.05 U	0.59 U		0.05 U		0.55 U
Toxaphene	ug/L		5 U	1.2 U		5 U		1.1 U
Aroclor-1016	ug/L		1 U	0.59 U		1 U		0.55 U
Aroclor-1221	ug/L		2 U	0.59 U		2 U		0.55 U
Aroclor-1232	ug/L		1 U	0.59 U		1 U		0.55 U
Aroclor-1242	ug/L		1 U	0.59 U		1 U		0.55 U
Aroclor-1248	ug/L		1 U	0.59 U		1 U		0.55 U
Aroclor-1254	ug/L		1 U	1.2 U		1 U		1.1 U
Aroclor-1260	ug/L		1 U	1.2 U		1 U		1.1 U
HERBICIDES								
2,4-D	ug/L		1 U	1.1 U		1 U		1 U
2,4-DB	ug/L		1 U	1.1 U		1 U		1 U
2,4,5-T	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
Dalapon	ug/L		2.3 U	2.4 U		2.3 U		2.4 U
Dicamba	ug/L		0.1 U	0.1 U		0.1 U		0.1 U
Dichloroprop	ug/L		1 U	1.1 U		1 U		1 U
Dinoseb	ug/L		0.5 U	0.5 U		0.5 U		0.5 U
MCPA	ug/L		100 U	110 U		100 U		100 U
MCPP	ug/L		100 U	110 U		100 U		100 U
METALS								
Aluminum	ug/L	24.5 U	318	306000	24.5 U	43800	8590	
Antimony	ug/L	53.3 U	49.7 UJ	83.8 R	53.1 U	56.9 J	53.4 U	
Arsenic	ug/L	3.5 U	1.4 UJ	3.5 U	3.5 U	2.4 J	3.5 U	
Barium	ug/L	50.9 R	40.9 J	1600	97.8 R	376	90.8 J	
Beryllium	ug/L	1.1 U	0.89 U	12.2 R	1.1 U	2.5 J	2.4 R	
Cadmium	ug/L	3 U	2.8 U	64.6 J	3 U	2.8 U	3 U	
Calcium	ug/L	72100	101000	1790000	93700	395000	102000	
Chromium	ug/L	6.2 U	2.7 UJ	418	6.2 U	69.7 J	10.4	
Cobalt	ug/L	20.4 U	5.5 U	196	20.4 U	33.4 J	20.5 U	
Copper	ug/L	10.2 U	4.7 U	412	10.1 U	62.2	10.2 U	
Iron	ug/L	7 U	360	510000	7 U	78400	10500	
Lead	ug/L	1.2 U	0.8 U	103	1.2 U	17.3	3.2	
Magnesium	ug/L	8220	10700	267000 J	37600	74900	13800	
Manganese	ug/L	4.8 U	25	11400	4.8 U	1760	355	
Mercury	ug/L	0.03 U	0.09 UJ	0.05 R	0.03 U	0.09 UJ	0.11 R	
Nickel	ug/L	14.8 U	7.5 UJ	622	14.7 U	106 J	14.8 U	
Potassium	ug/L	289 U	1210 J	23200	1080 J	8540	4160 J	
Selenium	ug/L	1 U	1 UJ	5 U J	1.4 J	1.5 UJ	1.3 U	
Silver	ug/L	3.4 U	5.5 U	5.8 R	3.4 U	5.5 U	3.4 U	
Sodium	ug/L	15000	21600	40600	36800	31600	28300	
Thallium	ug/L	3.2 U	2.6 U	32 U	3.2 U	2.6 U	3.2 U	
Vanadium	ug/L	9.5 U	6.8 UJ	358	9.4 U	64.7 J	10 J	
Zinc	ug/L	19 R	8 J	1750 J	18 R	277	35.9 R	
Cyanide	ug/L		10 UJ	10 U J		10 UJ	10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3								
		PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW-27	MW27	MW-28	MW-28	MW-28	MW-28	MW-28
	DATE	01/15/92	07/01/93	01/15/92	01/15/92	01/15/92	01/15/92	01/15/92
	ES ID	MW-27Filtered	MW27	MW-28	MW-28RE(4)	MW-28Filtered	PT-2(1)	PT-2(1)Filt
	LAB ID	152666	188122	152571	152571	152590	152573	152592
COMPOUND	UNITS							
Chloromethane	ug/L			10 U			10 U	
Bromomethane	ug/L			10 U			10 U	
Vinyl Chloride	ug/L			10 U			10 U	
Chloroethane	ug/L			10 U			10 U	
Methylene Chloride	ug/L			5 U			5 U	
Acetone	ug/L			10 U			10 U	
Carbon Disulfide	ug/L			5 U			5 U	
1,1-Dichloroethene	ug/L			5 U			5 U	
1,1-Dichloroethane	ug/L			5 U			5 U	
1,2-Dichloroethene (total)	ug/L			60			62	
Chloroform	ug/L			5 U			5 U	
1,2-Dichloroethane	ug/L			5 U			5 U	
2-Butanone	ug/L			10 U			10 U	
1,1,1-Trichloroethane	ug/L			5 U			5 U	
Carbon Tetrachloride	ug/L			5 U			5 U	
Vinyl Acetate	ug/L			10 U			10 U	
Bromodichloromethane	ug/L			5 U			5 U	
1,2-Dichloropropane	ug/L			5 U			5 U	
cis-1,3-Dichloropropene	ug/L			5 U			5 U	
Trichloroethene	ug/L			32			33	
Dibromochloromethane	ug/L			5 U			5 U	
1,1,2-Trichloroethane	ug/L			5 U			5 U	
Benzene	ug/L			5 U			5 U	
trans-1,3-Dichloropropene	ug/L			5 U			5 U	
Bromoform	ug/L			5 U			5 U	
4-Methyl-2-Pentanone	ug/L			10 U			10 U	
2-Hexanone	ug/L			10 U			10 U	
Tetrachloroethene	ug/L			5 U			5 U	
1,1,2,2-Tetrachloroethane	ug/L			5 U			5 U	
Toluene	ug/L			5 U			5 U	
Chlorobenzene	ug/L			5 U			5 U	
Ethylbenzene	ug/L			5 U			5 U	
Styrene	ug/L			5 U			5 U	
Xylene (total)	ug/L			5 U			5 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-27	MW27	MW-28	MW-28	MW-28	MW-28	MW-28
	DATE	01/15/92	07/01/93	01/15/92	01/15/92	01/15/92	01/15/92	01/15/92
	ES ID	MW-27Filtered	MW27	MW-28	MW-28RE(4)	MW-28Filtered	PT-2(1)	PT-2(1)Filt
	LAB ID	152666	188122	152571	152571	152590	152573	152592
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L		0.5 U					
Chloromethane	ug/L		0.5 U					
Vinyl Chloride	ug/L		0.5 U					
Bromomethane	ug/L		0.5 U					
Chloroethane	ug/L		0.5 U					
Trichlorofluoromethane	ug/L		0.5 U					
1,1-Dichloroethene	ug/L		0.5 U					
Acetone	ug/L		5 U					
Carbon Disulfide	ug/L		0.5 U					
Methylene Chloride	ug/L		0.5 U					
trans-1,2-Dichloroethene	ug/L		0.5 U					
1,1-Dichloroethane	ug/L		0.5 U					
2,2-Dichloropropane	ug/L		0.5 U					
cis-1,2-Dichloroethene	ug/L		0.5 U					
2-Butanone	ug/L		5 U					
Bromochloromethane	ug/L		0.5 U					
Chloroform	ug/L		0.5 U					
1,1,1-Trichloroethane	ug/L		0.5 U					
Carbon Tetrachloride	ug/L		0.5 U					
1,1-Dichloropropene	ug/L		0.5 U					
Benzene	ug/L		0.5 U					
1,2-Dichloroethane	ug/L		0.5 U					
Trichloroethene	ug/L		0.5 U					
1,2-Dichloropropane	ug/L		0.5 U					
Dibromomethane	ug/L		0.5 U					
Bromodichloromethane	ug/L		0.5 U					
cis-1,3-Dichloropropene	ug/L		0.5 U					
4-Methyl-2-Pentanone	ug/L		5 U					
Toluene	ug/L		0.5 U					
trans-1,3-Dichloropropene	ug/L		0.5 U					
1,1,2-Trichloroethane	ug/L		0.5 U					
Tetrachloroethene	ug/L		0.5 U					
1,3-Dichloropropane	ug/L		0.5 U					
2-Hexanone	ug/L		5 U					
Dibromochloromethane	ug/L		0.5 U					
1,2-Dibromoethane	ug/L		0.5 U					
Chlorobenzene	ug/L		0.5 U					
1,1,1,2-Tetrachloroethane	ug/L		0.5 U					
Ethylbenzene	ug/L		0.5 U					
Styrene	ug/L		0.5 U					
Bromoform	ug/L		0.5 U					
Isopropylbenzene	ug/L		0.5 U					
Bromobenzene	ug/L		0.5 U					
1,1,2,2-Tetrachloroethane	ug/L		0.5 U					
1,2,3-Trichloropropane	ug/L		0.5 U					
n-Propylbenzene	ug/L		0.5 U					
2-Chlorotoluene	ug/L		0.5 U					
4-Chlorotoluene	ug/L		0.5 U					
1,3,5-Trimethylbenzene	ug/L		0.5 U					
tert-Butylbenzene	ug/L		0.5 U					
1,2,4-Trimethylbenzene	ug/L		0.5 U					
sec-Butylbenzene	ug/L		0.5 U					
1,3-Dichlorobenzene	ug/L		0.5 U					
1,4-Dichlorobenzene	ug/L		0.5 U					
p-Isopropyltoluene	ug/L		0.5 U					
1,2-Dichlorobenzene	ug/L		0.5 U					
n-Butylbenzene	ug/L		0.5 U					
1,2-Dibromo-3-Chloropropane	ug/L		0.5 U					
1,2,4-Trichlorobenzene	ug/L		0.5 U					
Hexachlorobutadiene	ug/L		0.5 U					
Naphthalene	ug/L		0.5 U					
1,2,3-Trichlorobenzene	ug/L		0.5 U					
Xylene (total)	ug/L		0.5 U					

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

		PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-27	MW27	MW-28	MW-28	MW-28	MW-28	MW-28
	DATE	01/15/92	07/01/93	01/15/92	01/15/92	01/15/92	01/15/92	01/15/92
	ES ID	MW-27Filtered	MW27	MW-28	MW-28RE(4)	MW-28Filtered	PT-2(1)	PT-2(1)Filt
	LAB ID	152666	168122	152571	152571	152590	152573	152592
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L		11 U	11 U			11 U	
bis(2-Chloroethyl) ether	ug/L		11 U	11 U			11 U	
2-Chlorophenol	ug/L		11 U	11 U			11 U	
1,3-Dichlorobenzene	ug/L		11 U	11 U			11 U	
1,4-Dichlorobenzene	ug/L		11 U	11 U			11 U	
Benzyl Alcohol	ug/L			11 U			11 U	
1,2-Dichlorobenzene	ug/L		11 U	11 U			11 U	
2-Methylphenol	ug/L		11 U	11 U			11 U	
bis(2-Chloroisopropyl) ether	ug/L		11 U	11 U			11 U	
4-Methylphenol	ug/L		11 U	11 U			11 U	
N-Nitroso-di-n-propylamine	ug/L		11 U	11 U			11 U	
Hexachloroethane	ug/L		11 U	11 U			11 U	
Nitrobenzene	ug/L		11 U	11 U			11 U	
Isophorone	ug/L		11 U	11 U			11 U	
2-Nitrophenol	ug/L		11 U	11 U			11 U	
2,4-Dimethylphenol	ug/L		11 U	11 U			11 U	
Benzoic acid	ug/L			54 U			55 U	
bis(2-Chloroethoxy) methane	ug/L		11 U	11 U			11 U	
2,4-Dichlorophenol	ug/L		11 U	11 U			11 U	
1,2,4-Trichlorobenzene	ug/L		11 U	11 U			11 U	
Naphthalene	ug/L		11 U	11 U			11 U	
4-Chloroaniline	ug/L		11 U	11 U			11 U	
Hexachlorobutadiene	ug/L		11 U	11 U			11 U	
4-Chloro-3-methylphenol	ug/L		11 U	11 U			11 U	
2-Methylnaphthalene	ug/L		11 U	11 U			11 U	
Hexachlorocyclopentadiene	ug/L		11 U	11 U			11 U	
2,4,6-Trichlorophenol	ug/L		11 U	11 U			11 U	
2,4,5-Trichlorophenol	ug/L		27 U	54 U			55 U	
2-Chloronaphthalene	ug/L		11 U	11 U			11 U	
2-Nitroaniline	ug/L		27 U	54 U			55 U	
Dimethylphthalate	ug/L		11 U	11 U			11 U	
Acenaphthylene	ug/L		11 U	11 U			11 U	
2,6-Dinitrotoluene	ug/L		11 U	11 U			11 U	
3-Nitroaniline	ug/L		27 U	54 U			55 U	
Acenaphthene	ug/L		11 U	11 U			11 U	
2,4-Dinitrophenol	ug/L		27 U	54 U			55 U	
4-Nitrophenol	ug/L		27 U	54 U			55 U	
Dibenzofuran	ug/L		11 U	11 U			11 U	
2,4-Dinitrotoluene	ug/L		11 U	11 U			11 U	
Diethylphthalate	ug/L		11 U	11 U			11 U	
4-Chlorophenyl-phenylether	ug/L		11 U	11 U			11 U	
Fluorene	ug/L		11 U	11 U			11 U	
4-Nitroaniline	ug/L		27 U	54 U			55 U	
4,6-Dinitro-2-methylphenol	ug/L		27 U	54 U			55 U	
N-Nitrosodiphenylamine (1)	ug/L		11 U	11 U			11 U	
4-Bromophenyl-phenylether	ug/L		11 U	11 U			11 U	
Hexachlorobenzene	ug/L		11 U	11 U			11 U	
Pentachlorophenol	ug/L		27 U	54 U			55 U	
Phenanthrene	ug/L		11 U	11 U			11 U	
Anthracene	ug/L		11 U	11 U			11 U	
Carbazole	ug/L		11 U					
Di-n-butylphthalate	ug/L		11 U	11 U			11 U	
Fluoranthene	ug/L		11 U	11 U			11 U	
Pyrene	ug/L		11 U	11 U			11 U	
Butylbenzylphthalate	ug/L		11 U	11 U			11 U	
3,3'-Dichlorobenzidine	ug/L		11 U	22 U			22 U	
Benzo(a)anthracene	ug/L		11 U	11 U			11 U	
Chrysene	ug/L		27 U	11 U			11 U	
bis(2-Ethylhexyl)phthalate	ug/L		11 U	11 U			11 U	
Di-n-octylphthalate	ug/L		11 U	11 U			11 U	
Benzo(b)fluoranthene	ug/L		11 U	11 U			11 U	
Benzo(k)fluoranthene	ug/L		11 U	11 U			11 U	
Benzo(a)pyrene	ug/L		11 U	11 U			11 U	
Indeno(1,2,3-cd)pyrene	ug/L		11 U	11 U			11 U	
Dibenz(a,h)anthracene	ug/L		11 U	11 U			11 U	
Benzo(g,h,i)perylene	ug/L		11 U	11 U			11 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW-27	MW27	MW-28	MW-28	MW-28	MW-28	MW-28
	DATE	01/15/92	07/01/93	01/15/92	01/15/92	01/15/92	01/15/92	01/15/92
	ES ID	MW-27Filtered	MW27	MW-28	MW-28RE(4)	MW-28Filtered	PT-2(1)	PT-2(1)Filt
	LAB ID	152666	188122	152571	152571	152590	152573	152592
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
beta-BHC	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
delta-BHC	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
gamma-BHC (Lindane)	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Heptachlor	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Aldrin	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Heptachlor epoxide	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Endosulfan I	ug/L		0.05 U	0.055 U	0.051 U		0.054 U	
Dieldrin	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
4,4'-DDE	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Endrin	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Endosulfan II	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
4,4'-DDD	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Endosulfan sulfate	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
4,4'-DDT	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Methoxychlor	ug/L		0.5 U	0.55 U	0.51 U		0.54 U	
Endrin ketone	ug/L		0.1 U	0.11 U	0.1 U		0.11 U	
Endrin aldehyde	ug/L		0.1 U					
alpha-Chlordane	ug/L		0.05 U	0.55 U	0.51 U		0.54 U	
gamma-Chlordane	ug/L		0.05 U	0.55 U	0.51 U		0.54 U	
Toxaphene	ug/L		5 U	1.1 U	1 U		1.1 U	
Aroclor-1016	ug/L		1 U	0.55 U	0.51 U		0.54 U	
Aroclor-1221	ug/L		2 U	0.55 U	0.51 U		0.54 U	
Aroclor-1232	ug/L		1 U	0.55 U	0.51 U		0.54 U	
Aroclor-1242	ug/L		1 U	0.55 U	0.51 U		0.54 U	
Aroclor-1248	ug/L		1 U	0.55 U	0.51 U		0.54 U	
Aroclor-1254	ug/L		1 U	1.1 U	1 U		1.1 U	
Aroclor-1260	ug/L		1 U	3.6 R	1 U		1.1 U	
HERBICIDES								
2,4-D	ug/L		1 U	1 U			1.1 U	
2,4-DB	ug/L		1 U	1 U			1.1 U	
2,4,5-T	ug/L		0.1 U	0.1 U			0.1 U	
2,4,5-TP (Silvex)	ug/L		0.1 U	0.1 U			0.1 U	
Dalapon	ug/L		2.3 U	2.3 U			2.5 U	
Dicamba	ug/L		0.1 U	0.1 U			0.1 U	
Dichloroprop	ug/L		1 U	1 U			1.1 U	
Dinoseb	ug/L		0.5 U	0.5 U			0.5 U	
MCPA	ug/L		100 U	100 U			110 U	
MCPP	ug/L		100 U	100 U			110 U	
METALS								
Aluminum	ug/L	24.4 U	3870	41100 J		24.5 U	27000 J	24.5 U
Antimony	ug/L	52.9 U	49.5 UJ	54.3 R		53.3 U	53 U	53.3 U
Arsenic	ug/L	3.5 U	1.4 UJ	4.4 J		3.5 U	3.5 U	3.5 U
Barium	ug/L	59.9 R	105 J	200		41.1 R	154 J	39.4 R
Beryllium	ug/L	1.1 U	0.89 U	3.7 R		1.4 R	3.2 R	1.4 R
Cadmium	ug/L	3 U	2.8 U	6.1		3 U	5.2	3 U
Calcium	ug/L	85300	137000	170000 J		111000	152000 J	111000
Chromium	ug/L	6.1 U	6.9 J	53.1 J		5.2 U	34.6 J	6.2 U
Cobalt	ug/L	20.3 U	5.5 U	20.5 U		20.5 U	20.3 U	20.5 U
Copper	ug/L	10.1 U	4.7 U	33.9		10.2 U	27.6	10.2 U
Iron	ug/L	6.9 U	6530	80300 J		7 U	46500 J	7 U
Lead	ug/L	1.2 U	0.85 J	10.7		1.2 U	8.9	1.2 U
Magnesium	ug/L	10800	19000	26600		123000	23400	11800
Manganese	ug/L	86	567	1510 J		4.8 U	1100 J	4.8 U
Mercury	ug/L	0.03 U	0.09 UJ	0.11 R		0.11 R	0.11 R	0.1 R
Nickel	ug/L	14.7 U	7.4 UJ	72.5		14.8 U	62.9	14.8 U
Potassium	ug/L	2400 J	5160	6910 J		347 J	4020 J	289 U
Selenium	ug/L	1 U	1.5 UJ	1.3 U		1 U	1.3 U	1 U
Silver	ug/L	3.4 U	5.5 U	3.4 U		3.4 U	3.4 U	3.4 U
Sodium	ug/L	27200	17600	9460		8580	9250	8570
Thallium	ug/L	3.2 U	2.6 U	3.2 U		3.2 U	3.2 U	3.2 U
Vanadium	ug/L	9.4 U	8 J	46.7 J		9.5 U	32.7 J	9.5 U
Zinc	ug/L	22.1 R	37.7	155 J		8.5 U	124 J	8.5 U
Cyanide	ug/L		1.2 R	10 U			10 U	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW28	MW-29	MW-29	MW29	MW-30	MW-30	MW30
	DATE	07/10/93	01/15/92	01/15/92	07/09/93	01/16/92	01/16/92	07/01/93
	ES ID	MW28	MW-29	MW-29Filte	MW29	MW-30	MW-30Filtered	MW30
	LAB ID	188719	152572	152591	188587	152642	152667	188123
COMPOUND	UNITS							
Chloromethane	ug/L	10 U	10 U		10 U	10 U		
Bromomethane	ug/L	10 U	10 U		10 U	10 U		
Vinyl Chloride	ug/L	10 U	10 U		10 U	10 U		
Chloroethane	ug/L	10 U	10 U		10 U	10 U		
Methylene Chloride	ug/L	10 U	5 U		10 U	5 U		
Acetone	ug/L	10 U	10 U		10 U	10 U		
Carbon Disulfide	ug/L	10 U	5 U		10 U	5 U		
1,1-Dichloroethene	ug/L	10 U	5 U		10 U	5 U		
1,1-Dichloroethane	ug/L	10 U	5 U		10 U	5 U		
1,2-Dichloroethene (total)	ug/L	53	71		97	5 U		
Chloroform	ug/L	10 U	5 U		10 U	5 U		
1,2-Dichloroethane	ug/L	10 U	5 U		10 U	5 U		
2-Butanone	ug/L	10 U	10 U		10 U	10 U		
1,1,1-Trichloroethane	ug/L	10 U	5 U		2 J	5 U		
Carbon Tetrachloride	ug/L	10 U	5 U		10 U	5 U		
Vinyl Acetate	ug/L		10 U			10 U		
Bromodichloromethane	ug/L	10 U	5 U		10 U	5 U		
1,2-Dichloropropane	ug/L	10 U	5 U		10 U	5 U		
cis-1,3-Dichloropropene	ug/L	10 U	5 U		10 U	5 U		
Trichloroethene	ug/L	35	1 J		2 J	5 U		
Dibromochloromethane	ug/L	10 U	5 U		10 U	5 U		
1,1,2-Trichloroethane	ug/L	10 U	5 U		10 U	5 U		
Benzene	ug/L	10 U	5 U		10 U	5 U		
trans-1,3-Dichloropropene	ug/L	10 U	5 U		10 U	5 U		
Bromoform	ug/L	10 U	5 U		10 U	5 U		
4-Methyl-2-Pentanone	ug/L	10 U	10 U		10 U	10 U		
2-Hexanone	ug/L	10 U	10 U		10 U	10 U		
Tetrachloroethene	ug/L	10 U	5 U		10 U	5 U		
1,1,2,2-Tetrachloroethane	ug/L	10 U	5 U		10 U	5 U		
Toluene	ug/L	10 U	5 U		10 U	5 U		
Chlorobenzene	ug/L	10 U	5 U		10 U	5 U		
Ethylbenzene	ug/L	10 U	5 U		10 U	5 U		
Styrene	ug/L	10 U	5 U		10 U	5 U		
Xylene (total)	ug/L	10 U	5 U		10 U	5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	LOCATION	MW28	MW-29	MW-29	MW29	MW-30	MW-30	MW30
	DATE	07/10/93	01/15/92	01/15/92	07/09/93	01/16/92	01/16/92	07/01/93
	ES ID	MW28	MW-29	MW-29Filte	MW29	MW-30	MW-30Filtered	MW30
	LAB ID	188719	152572	152591	188567	152642	152667	188123
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L							0.5 U
Chloromethane	ug/L							0.5 U
Vinyl Chloride	ug/L							0.5 U
Bromomethane	ug/L							0.5 U
Chloroethane	ug/L							0.5 U
Trichlorofluoromethane	ug/L							0.5 U
1,1-Dichloroethene	ug/L							0.5 U
Acetone	ug/L							5 U
Carbon Disulfide	ug/L							0.5 U
Methylene Chloride	ug/L							0.5 U
trans-1,2-Dichloroethene	ug/L							0.5 U
1,1-Dichloroethane	ug/L							0.5 U
2,2-Dichloropropane	ug/L							0.5 U
cis-1,2-Dichloroethene	ug/L							0.5 U
2-Butanone	ug/L							5 U
Bromochloromethane	ug/L							0.5 U
Chloroform	ug/L							0.5 U
1,1,1-Trichloroethane	ug/L							0.5 U
Carbon Tetrachloride	ug/L							0.5 U
1,1-Dichloropropene	ug/L							0.5 U
Benzene	ug/L							0.5 U
1,2-Dichloroethane	ug/L							0.5 U
Trichloroethene	ug/L							1
1,2-Dichloropropane	ug/L							0.5 U
Dibromomethane	ug/L							0.5 U
Bromodichloromethane	ug/L							0.5 U
cis-1,3-Dichloropropene	ug/L							0.5 U
4-Methyl-2-Pentanone	ug/L							5 U
Toluene	ug/L							0.5 U
trans-1,3-Dichloropropene	ug/L							0.5 U
1,1,2-Trichloroethane	ug/L							0.5 U
Tetrachloroethene	ug/L							0.5 U
1,3-Dichloropropane	ug/L							0.5 U
2-Hexanone	ug/L							5 U
Dibromochloromethane	ug/L							0.5 U
1,2-Dibromoethane	ug/L							0.5 U
Chlorobenzene	ug/L							0.5 U
1,1,1,2-Tetrachloroethane	ug/L							0.5 U
Ethylbenzene	ug/L							0.5 U
Styrene	ug/L							0.5 U
Bromoform	ug/L							0.5 U
Isopropylbenzene	ug/L							0.5 U
Bromobenzene	ug/L							0.5 U
1,1,2,2-Tetrachloroethane	ug/L							0.5 U
1,2,3-Trichloropropane	ug/L							0.5 U
n-Propylbenzene	ug/L							0.5 U
2-Chlorotoluene	ug/L							0.5 U
4-Chlorotoluene	ug/L							0.5 U
1,3,5-Trimethylbenzene	ug/L							0.5 U
tert-Butylbenzene	ug/L							0.5 U
1,2,4-Trimethylbenzene	ug/L							0.5 U
sec-Butylbenzene	ug/L							0.5 U
1,3-Dichlorobenzene	ug/L							0.5 U
1,4-Dichlorobenzene	ug/L							0.5 U
p-Isopropyltoluene	ug/L							0.5 U
1,2-Dichlorobenzene	ug/L							0.5 U
n-Butylbenzene	ug/L							0.5 U
1,2-Dibromo-3-Chloropropane	ug/L							0.5 U
1,2,4-Trichlorobenzene	ug/L							0.5 U
Hexachlorobutadiene	ug/L							0.5 U
Naphthalene	ug/L							0.5 U
1,2,3-Trichlorobenzene	ug/L							0.5 U
Xylene (total)	ug/L							0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW26	MW-29	MW-29	MW29	MW-30	MW-30	MW30
	DATE	07/10/93	01/15/92	01/15/92	07/09/93	01/16/92	01/16/92	07/01/93
	ES ID	MW26	MW-29	MW-29Filte	MW29	MW-30	MW-30Filtered	MW30
	LAB ID	166719	152572	152591	166567	152642	152667	166123
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Chloroethyl) ether	ug/L	10 U	11 U		10 U	11 U		10 U
2-Chlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
1,3-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
1,4-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzyl Alcohol	ug/L		11 U			11 U		
1,2-Dichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
2-Methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	11 U		10 U	11 U		10 U
4-Methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
N-Nitroso-di-n-propylamine	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachloroethane	ug/L	10 U	11 U		10 U	11 U		10 U
Nitrobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Isophorone	ug/L	10 U	11 U		10 U	11 U		10 U
2-Nitrophenol	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dimethylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
Benzoic acid	ug/L		55 U			56 U		
bis(2-Chloroethoxy) methane	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dichlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
1,2,4-Trichlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Naphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chloroaniline	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorobutadiene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chloro-3-methylphenol	ug/L	10 U	11 U		10 U	11 U		10 U
2-Methylnaphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorocyclopentadiene	ug/L	10 U	11 U		10 U	11 U		10 U
2,4,6-Trichlorophenol	ug/L	10 U	11 U		10 U	11 U		10 U
2,4,5-Trichlorophenol	ug/L	25 U	55 U		25 U	56 U		25 U
2-Chloronaphthalene	ug/L	10 U	11 U		10 U	11 U		10 U
2-Nitroaniline	ug/L	25 U	55 U		25 U	56 U		25 U
Dimethylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Acenaphthylene	ug/L	10 U	11 U		10 U	11 U		10 U
2,6-Dinitrotoluene	ug/L	10 U	11 U		10 U	11 U		10 U
3-Nitroaniline	ug/L	25 U	55 U		25 U	56 U		25 U
Acenaphthene	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dinitrophenol	ug/L	25 U	55 U		25 U	56 U		25 U
4-Nitrophenol	ug/L	25 U	55 U		25 U	56 U		25 U
Dibenzofuran	ug/L	10 U	11 U		10 U	11 U		10 U
2,4-Dinitrotoluene	ug/L	10 U	11 U		10 U	11 U		10 U
Diethylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
4-Chlorophenyl-phenylether	ug/L	10 U	11 U		10 U	11 U		10 U
Fluorene	ug/L	10 U	11 U		10 U	11 U		10 U
4-Nitroaniline	ug/L	25 U	55 U		25 U	56 U		25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	55 U		25 U	56 U		25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	11 U		10 U	11 U		10 U
4-Bromophenyl-phenylether	ug/L	10 U	11 U		10 U	11 U		10 U
Hexachlorobenzene	ug/L	10 U	11 U		10 U	11 U		10 U
Pentachlorophenol	ug/L	25 U	55 U		25 U	56 U		25 U
Phenanthrene	ug/L	10 U	11 U		10 U	11 U		10 U
Anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Carbazole	ug/L	10 U			10 U			10 U
Di-n-butylphthalate	ug/L	10 U	11 U		10 U	11 U		12
Fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Butylbenzylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
3,3'-Dichlorobenzidine	ug/L	10 U	22 U		10 U	23 U		10 U
Benzo(a)anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Chrysene	ug/L	10 U	11 U		10 U	11 U		10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Di-n-octylphthalate	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(b)fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(k)fluoranthene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(a)pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	11 U		10 U	11 U		10 U
Dibenz(a,h)anthracene	ug/L	10 U	11 U		10 U	11 U		10 U
Benzo(g,h,i)perylene	ug/L	10 U	11 U		10 U	11 U		10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW26	MW-29	MW-29	MW29	MW-30	MW-30	MW30
	DATE	07/10/93	01/15/92	01/15/92	07/09/93	01/16/92	01/16/92	07/01/93
	ES ID	MW26	MW-29	MW-29Filte	MW29	MW-30	MW-30Filtered	MW30
	LAB ID	168719	152572	152591	166567	152642	152667	188123
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
beta-BHC	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
delta-BHC	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
gamma-BHC (Lindane)	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Heptachlor	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Aldrin	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Heptachlor epoxide	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Endosulfan I	ug/L	0.05 U	0.055 U		0.05 U	0.051 U		
Dieldrin	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
4,4'-DDE	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Endrin	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Endosulfan II	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
4,4'-DDD	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Endosulfan sulfate	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
4,4'-DDT	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Methoxychlor	ug/L	0.5 U	0.55 U		0.5 U	0.51 U		
Endrin ketone	ug/L	0.1 U	0.11 U		0.1 U	0.1 U		
Endrin aldehyde	ug/L	0.1 U			0.1 U			
alpha-Chlordane	ug/L	0.05 U	0.55 U		0.05 U	0.51 U		
gamma-Chlordane	ug/L	0.05 U	0.55 U		0.05 U	0.51 U		
Toxaphene	ug/L	5 U	1.1 U		5 U	1 U		
Aroclor-1016	ug/L	1 U	0.55 U		1 U	0.51 U		
Aroclor-1221	ug/L	2 U	0.55 U		2 U	0.51 U		
Aroclor-1232	ug/L	1 U	0.55 U		1 U	0.51 U		
Aroclor-1242	ug/L	1 U	0.55 U		1 U	0.51 U		
Aroclor-1248	ug/L	1 U	0.55 U		1 U	0.51 U		
Aroclor-1254	ug/L	1 U	1.1 U		1 U	1 U		
Aroclor-1260	ug/L	1 U	1.1 U		1 U	1 U		
HERBICIDES								
2,4-D	ug/L	1 U			1 U	1 U		
2,4-DB	ug/L	1 U			1 U	1 U		
2,4,5-T	ug/L	0.1 U			0.1 U	0.1 U		
2,4,5-TP (Silvex)	ug/L	0.1 U			0.1 U	0.1 U		
Dalapon	ug/L	2.3 U			2.3 U	2.3 U		
Dicamba	ug/L	0.1 U			0.1 U	0.1 U		
Dichloroprop	ug/L	1 U			1 U	1 U		
Dinoseb	ug/L	0.5 U			0.5 U	0.5 U		
MCPA	ug/L	100 U			100 U	100 U		
MCPP	ug/L	100 U			100 U	100 U		
METALS								
Aluminum	ug/L	6960	85700	24.4 U	55600	11200	24.5 U	188 J
Antimony	ug/L	49.5 UJ	53.3 U	53 U	66.2 J	53.3 U	53.2 U	49.6 UJ
Arsenic	ug/L	1.4 UJ	3.5 U	3.5 U	2.4 J	3.5 U	3.5 U	1.4 UJ
Barium	ug/L	75.9 J	416	46.8 R	382	93.3 J	63.1 R	56.5 J
Beryllium	ug/L	0.89 U	5.6 R	1.3 R	3 J	2.4 R	1.1 U	0.89 U
Cadmium	ug/L	2.8 U	17	3 U	2.8 U	30 U	3 U	2.8 U
Calcium	ug/L	121000	248000	124000	234000	105000	102000	121000
Chromium	ug/L	9.6 J	122	6.2 U	63.8 J	13.2	6.2 U	2.9 J
Cobalt	ug/L	5.4 U	63.8	20.4 U	57.5	20.5 U	20.4 U	5.5 U
Copper	ug/L	6.1 J	111	10.1 U	64.5	10.5 J	10.2 U	4.7 U
Iron	ug/L	6530	159000	7 U	92000	15600	7 U	261
Lead	ug/L	2.2 J	39.4	1.2 U	28.8	3.5	1.2 U	0.59 U
Magnesium	ug/L	13900	59400	14700	48900	16900	147000	16300
Manganese	ug/L	271	4110	4.8 U	3270	250	4.6 U	11.8 J
Mercury	ug/L	0.09 UJ	0.14 R	0.09 R	0.09 UJ	0.1 R	0.03 U	0.09 UJ
Nickel	ug/L	6.2 J	182	14.7 U	122 J	16.8 J	14.7 U	7.4 UJ
Potassium	ug/L	2570 J	10600	563 J	9450	3450 J	1120 J	2910 J
Selenium	ug/L	1.5 UJ	13 U	1.4 J	1.5 J	1.3 U	1 U	1.5 UJ
Silver	ug/L	5.4 U	3.4 U	4.5 R	5.5 U	3.4 U	3.4 U	5.5 U
Sodium	ug/L	10100	26200	25000	25600	16400	17800	26900
Thallium	ug/L	2.5 U	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U
Vanadium	ug/L	12.6 J	98.3	9.4 U	78.2 J	16.5 J	9.5 U	6.7 UJ
Zinc	ug/L	28.5 R	503	8.4 U	300	55.4 R	20.1 R	10.2 J
Cyanide	ug/L	1.7 UJ	10 U		1.2 R	10 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW-31	MW-31	MW31	MW-32	MW-32	MW32	MW-33	MW-33	MW-33	MW33
	DATE	01/16/92	01/16/92	07/01/93	01/16/92	01/16/92	07/09/93	01/16/92	02/03/92 CK	01/16/92	07/10/93
	ES ID	MW-31	MW-31Filte	MW31	MW-32	MW-32Filte	MW32	MW-33	MW-33	MW-33Filte	MW33
	LAB ID	152643	152668	188124	152644	152669	188591	152645	153416	152670	188721
COMPOUND	UNITS										
Chloromethane	ug/L	10 U			10 U				10 U		
Bromomethane	ug/L	10 U			10 U				10 U		
Vinyl Chloride	ug/L	10 U			10 U				10 U		
Chloroethane	ug/L	10 U			10 U				10 U		
Methylene Chloride	ug/L	5 U			5 U				5 U		
Acetone	ug/L	10 U			10 U				10 U		
Carbon Disulfide	ug/L	5 U			5 U				5 U		
1,1-Dichloroethene	ug/L	5 U			5 U				5 U		
1,1-Dichloroethane	ug/L	5 U			5 U				5 U		
1,2-Dichloroethene (total)	ug/L	5 U			5 U				5 U		
Chloroform	ug/L	5 U			5 U				5 U		
1,2-Dichloroethane	ug/L	5 U			5 U				5 U		
2-Butanone	ug/L	10 U			10 U				10 U		
1,1,1-Trichloroethane	ug/L	5 U			5 U				5 U		
Carbon Tetrachloride	ug/L	5 U			5 U				5 U		
Vinyl Acetate	ug/L	10 U			10 U				10 U		
Bromodichloromethane	ug/L	5 U			5 U				5 U		
1,2-Dichloropropane	ug/L	5 U			5 U				5 U		
cis-1,3-Dichloropropene	ug/L	5 U			5 U				5 U		
Trichloroethene	ug/L	5 U			5 U				5 U		
Dibromochloromethane	ug/L	5 U			5 U				5 U		
1,1,2-Trichloroethane	ug/L	5 U			5 U				5 U		
Benzene	ug/L	5 U			5 U				5 U		
trans-1,3-Dichloropropene	ug/L	5 U			5 U				5 U		
Bromoform	ug/L	5 U			5 U				5 U		
4-Methyl-2-Pentanone	ug/L	10 U			10 U				10 U		
2-Hexanone	ug/L	10 U			10 U				10 U		
Tetrachloroethene	ug/L	5 U			5 U				5 U		
1,1,2,2-Tetrachloroethane	ug/L	5 U			5 U				5 U		
Toluene	ug/L	5 U			5 U				5 U		
Chlorobenzene	ug/L	5 U			5 U				5 U		
Ethylbenzene	ug/L	5 U			5 U				5 U		
Styrene	ug/L	5 U			5 U				5 U		
Xylene (total)	ug/L	5 U			5 U				5 U		

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW-31	MW-31	MW31	MW-32	MW-32	MW32	MW-33	MW-33	MW-33	MW33
	DATE	01/16/92	01/16/92	07/01/93	01/16/92	01/16/92	07/09/93	01/16/92	02/03/92 CK	01/16/92	07/10/93
	ES ID	MW-31	MW-31Filte	MW31	MW-32	MW-32Filte	MW32	MW-33	MW-33	MW-33Filte	MW33
	LAB ID	152643	152666	186124	152644	152669	188591	152645	153416	152670	188721
COMPOUND	UNITS										
VOC's (524.2)											
Dichlorodifluoromethane	ug/L			0.5 U			0.5 U				0.5 U
Chloromethane	ug/L			0.5 U			0.5 U				0.5 U
Vinyl Chloride	ug/L			0.5 U			0.5 U				0.5 U
Bromomethane	ug/L			0.5 U			0.5 U				0.5 U
Chloroethane	ug/L			0.5 U			0.5 U				0.5 U
Trichlorofluoromethane	ug/L			0.5 U			0.5 U				0.5 U
1,1-Dichloroethene	ug/L			0.5 U			0.5 U				0.5 U
Acetone	ug/L			5 U			5 U				5 U
Carbon Disulfide	ug/L			0.5 U			0.5 U				0.5 U
Methylene Chloride	ug/L			0.5 U			0.5 U				0.5 U
trans-1,2-Dichloroethene	ug/L			0.5 U			0.5 U				0.5 U
1,1-Dichloroethane	ug/L			0.5 U			0.5 U				0.5 U
2,2-Dichloropropane	ug/L			0.5 U			0.5 U				0.5 U
cis-1,2-Dichloroethene	ug/L			0.5 U			0.5 U				0.5 U
2-Butanone	ug/L			5 U			5 U				5 U
Bromochloromethane	ug/L			0.5 U			0.5 U				0.5 U
Chloroform	ug/L			0.5 U			0.5 U				0.5 U
1,1,1-Trichloroethane	ug/L			0.5 U			0.5 U				0.5 U
Carbon Tetrachloride	ug/L			0.5 U			0.5 U				0.5 U
1,1-Dichloropropene	ug/L			0.5 U			0.5 U				0.5 U
Benzene	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dichloroethane	ug/L			0.5 U			0.5 U				0.5 U
Trichloroethene	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dichloropropane	ug/L			0.5 U			0.5 U				0.5 U
Dibromomethane	ug/L			0.5 U			0.5 U				0.5 U
Bromodichloromethane	ug/L			0.5 U			0.5 U				0.5 U
cis-1,3-Dichloropropene	ug/L			0.5 U			0.5 U				0.5 U
4-Methyl-2-Pentanone	ug/L			5 U			5 U				5 U
Toluene	ug/L			0.5 U			0.5 U				0.5 U
trans-1,3-Dichloropropene	ug/L			0.5 U			0.5 U				0.5 U
1,1,2-Trichloroethane	ug/L			0.5 U			0.5 U				0.5 U
Tetrachloroethene	ug/L			0.5 U			0.5 U				0.5 U
1,3-Dichloropropane	ug/L			0.5 U			0.5 U				0.5 U
2-Hexanone	ug/L			5 U			5 U				5 U
Dibromochloromethane	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dibromoethane	ug/L			0.5 U			0.5 U				0.5 U
Chlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
1,1,1,2-Tetrachloroethane	ug/L			0.5 U			0.5 U				0.5 U
Ethylbenzene	ug/L			0.5 U			0.5 U				0.5 U
Styrene	ug/L			0.5 U			0.5 U				0.5 U
Bromoform	ug/L			0.5 U			0.5 U				0.5 U
Isopropylbenzene	ug/L			0.5 U			0.5 U				0.5 U
Bromobenzene	ug/L			0.5 U			0.5 U				0.5 U
1,1,2,2-Tetrachloroethane	ug/L			0.5 U			0.5 U				0.5 U
1,2,3-Trichloropropane	ug/L			0.5 U			0.5 U				0.5 U
n-Propylbenzene	ug/L			0.5 U			0.5 U				0.5 U
2-Chlorotoluene	ug/L			0.5 U			0.5 U				0.5 U
4-Chlorotoluene	ug/L			0.5 U			0.5 U				0.5 U
1,3,5-Trimethylbenzene	ug/L			0.5 U			0.5 U				0.5 U
tert-Butylbenzene	ug/L			0.5 U			0.5 U				0.5 U
1,2,4-Trimethylbenzene	ug/L			0.5 U			0.5 U				0.5 U
sec-Butylbenzene	ug/L			0.5 U			0.5 U				0.5 U
1,3-Dichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
1,4-Dichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
p-Isopropyltoluene	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
n-Butylbenzene	ug/L			0.5 U			0.5 U				0.5 U
1,2-Dibromo-3-Chloropropane	ug/L			0.5 U			0.5 U				0.5 U
1,2,4-Trichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
Hexachlorobutadiene	ug/L			0.5 U			0.5 U				0.5 U
Naphthalene	ug/L			0.5 U			0.5 U				0.5 U
1,2,3-Trichlorobenzene	ug/L			0.5 U			0.5 U				0.5 U
Xylene (total)	ug/L			0.5 U			0.5 U				0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3	MATRIX	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW-31	MW-31	MW31	MW-32	MW-32	MW32	MW-33	MW-33	MW-33	MW33
	DATE	01/16/92	01/16/92	07/01/93	01/16/92	01/16/92	07/09/93	01/16/92	02/03/92 CK	01/16/92	07/10/93
	ES ID	MW-31	MW-31Filte	MW31	MW-32	MW-32Filte	MW32	MW-33	MW-33	MW-33Filte	MW33
	LAB ID	152643	152668	188124	152644	152669	188591	152645	153416	152670	188721
COMPOUND	UNITS										
SEMIVOLATILES											
Phenol	ug/L	10 U		10 U	10 U		10 U	11 U			
bis(2-Chloroethyl) ether	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Chlorophenol	ug/L	10 U		10 U	10 U		10 U	11 U			
1,3-Dichlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
1,4-Dichlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzyl Alcohol	ug/L	10 U			10 U			11 U			
1,2-Dichlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Methylphenol	ug/L	10 U		10 U	10 U		10 U	11 U			
bis(2-Chloroisopropyl) ether	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Methylphenol	ug/L	10 U		10 U	10 U		10 U	11 U			
N-Nitroso-di-n-propylamine	ug/L	10 U		10 U	10 U		10 U	11 U			
Hexachloroethane	ug/L	10 U		10 U	10 U		10 U	11 U			
Nitrobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
Isophorone	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Nitrophenol	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4-Dimethylphenol	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzoic acid	ug/L	52 U			50 U			55 U			
bis(2-Chloroethoxy) methane	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4-Dichlorophenol	ug/L	10 U		10 U	10 U		10 U	11 U			
1,2,4-Trichlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
Naphthalene	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Chloroaniline	ug/L	10 U		10 U	10 U		10 U	11 U			
Hexachlorobutadiene	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Chloro-3-methylphenol	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Methylnaphthalene	ug/L	10 U		10 U	10 U		10 U	11 U			
Hexachlorocyclopentadiene	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4,6-Trichlorophenol	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4,5-Trichlorophenol	ug/L	52 U		25 U	50 U		25 U	55 U			
2-Chloronaphthalene	ug/L	10 U		10 U	10 U		10 U	11 U			
2-Nitroaniline	ug/L	52 U		25 U	50 U		25 U	55 U			
Dimethylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
Acenaphthylene	ug/L	10 U		10 U	10 U		10 U	11 U			
2,6-Dinitrotoluene	ug/L	10 U		10 U	10 U		10 U	11 U			
3-Nitroaniline	ug/L	52 U		25 U	50 U		25 U	55 U			
Acenaphthene	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4-Dinitrophenol	ug/L	52 U		25 U	50 U		25 U	55 U			
4-Nitrophenol	ug/L	52 U		25 U	50 U		25 U	55 U			
Dibenzofuran	ug/L	10 U		10 U	10 U		10 U	11 U			
2,4-Dinitrotoluene	ug/L	10 U		10 U	10 U		10 U	11 U			
Diethylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Chlorophenyl-phenylether	ug/L	10 U		10 U	10 U		10 U	11 U			
Fluorene	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Nitroaniline	ug/L	52 U		25 U	50 U		25 U	55 U			
4,6-Dinitro-2-methylphenol	ug/L	52 U		25 U	50 U		25 U	55 U			
N-Nitrosodiphenylamine (1)	ug/L	10 U		10 U	10 U		10 U	11 U			
4-Bromophenyl-phenylether	ug/L	10 U		10 U	10 U		10 U	11 U			
Hexachlorobenzene	ug/L	10 U		10 U	10 U		10 U	11 U			
Pentachlorophenol	ug/L	52 U		25 U	50 U		25 U	55 U			
Phenanthrene	ug/L	10 U		10 U	10 U		10 U	11 U			
Anthracene	ug/L	10 U		10 U	10 U		10 U	11 U			
Carbazole	ug/L			10 U			10 U				
Di-n-butylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
Fluoranthene	ug/L	10 U		10 U	10 U		10 U	11 U			
Pyrene	ug/L	10 U		10 U	10 U		10 U	11 U			
Butylbenzylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
3,3'-Dichlorobenzidine	ug/L	21 U		10 U	20 U		10 U	22 U			
Benzo(a)anthracene	ug/L	10 U		10 U	10 U		10 U	11 U			
Chrysene	ug/L	10 U		10 U	10 U		10 U	11 U			
bis(2-Ethylhexyl)phthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
Di-n-octylphthalate	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzo(b)fluoranthene	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzo(k)fluoranthene	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzo(a)pyrene	ug/L	10 U		10 U	10 U		10 U	11 U			
Indeno(1,2,3-cd)pyrene	ug/L	10 U		10 U	10 U		10 U	11 U			
Dibenz(a,h)anthracene	ug/L	10 U		10 U	10 U		10 U	11 U			
Benzo(g,h,i)perylene	ug/L	10 U		10 U	10 U		10 U	11 U			

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I & II)

SUMGW.WK3		PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW-31	MW-31	MW31	MW-32	MW-32	MW32	MW-33	MW-33	MW-33	MW33
	DATE	01/16/92	01/16/92	07/01/93	01/16/92	01/16/92	07/09/93	01/16/92	02/03/92 CK	01/16/92	07/10/93
	ES ID	MW-31	MW-31Filte	MW31	MW-32	MW-32Filte	MW32	MW-33	MW-33	MW-33Filte	MW33
	LAB ID	152643	152668	188124	152644	152669	188591	152645	153416	152670	188721
COMPOUND	UNITS										
PESTICIDES/PCBS											
alpha-BHC	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
beta-BHC	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
delta-BHC	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
gamma-BHC (Lindane)	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Heptachlor	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Aldrin	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Heptachlor epoxide	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Endosulfan I	ug/L	0.05 U		0.05 U	0.05 U		0.05 U	0.056 U			
Dieldrin	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
4,4'-DDE	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Endrin	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Endosulfan II	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
4,4'-DDD	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Endosulfan sulfate	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
4,4'-DDT	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Methoxychlor	ug/L	0.5 U		0.5 U	0.5 U		0.5 U	0.56 U			
Endrin ketone	ug/L	0.1 U		0.1 U	0.1 U		0.1 U	0.11 U			
Endrin aldehyde	ug/L			0.1 U			0.1 U				
alpha-Chlordane	ug/L	0.5 U		0.05 U	0.5 U		0.05 U	0.56 U			
gamma-Chlordane	ug/L	0.5 U		0.05 U	0.5 U		0.05 U	0.56 U			
Toxaphene	ug/L	1 U		5 U	1 U		5 U	1.1 U			
Aroclor-1016	ug/L	0.5 U		1 U	0.5 U		1 U	0.56 U			
Aroclor-1221	ug/L	0.5 U		2 U	0.5 U		2 U	0.56 U			
Aroclor-1232	ug/L	0.5 U		1 U	0.5 U		1 U	0.56 U			
Aroclor-1242	ug/L	0.5 U		1 U	0.5 U		1 U	0.56 U			
Aroclor-1248	ug/L	0.5 U		1 U	0.5 U		1 U	0.56 U			
Aroclor-1254	ug/L	1 U		1 U	1 U		1 U	1.1 U			
Aroclor-1260	ug/L	1 U		1 U	1 U		1 U	1.1 U			
HERBICIDES											
2,4-D	ug/L	1 U		1 U	1 U		1 R	1 U			
2,4-DB	ug/L	1 U		1 U	1 U		1 R	1 U			
2,4,5-T	ug/L	0.1 U		0.1 U	0.1 U		0.1 R	0.1 U			
2,4,5-TP (Silvex)	ug/L	0.1 U		0.1 U	0.1 U		0.1 R	0.1 U			
Dalapon	ug/L	2.4 U		2.3 U	2.3 U		2.3 R	2.3 U			
Dicamba	ug/L	0.1 U		0.1 U	0.1 U		0.1 R	0.1 U			
Dichloroprop	ug/L	1 U		1 U	1 U		1 R	1 U			
Dinoseb	ug/L	0.5 U		0.5 U	0.5 U		0.5 R	0.5 U			
MCPA	ug/L	100 U		100 U	100 U		100 R	100 U			
MCPP	ug/L	100 U		100 U	100 U		100 R	100 U			
METALS											
Aluminum	ug/L	83400	24.6 U	9690	35600	24.6 U	160 J	33700		24.5 U	
Antimony	ug/L	53.3 U	53.3 U	50 UJ	53.2 U	53.3 U	49.5 UJ	53 U		53.1 U	
Arsenic	ug/L	3.5 U	3.5 U	1.4 UJ	3.5 U	3.5 U	1.4 UJ	3.5 U		3.5 U	
Barium	ug/L	397	56.5 R	95 J	193 J	60.3 R	52.2 J	162 J		52.7 R	
Beryllium	ug/L	5.7 R	1.1 U	0.9 U	3.8 R	1.1 U	0.69 U	3.4 R		1.1 U	
Cadmium	ug/L	13.9	3 U	2.8 U	5.4	3 U	2.8 U	3.6 J		3 U	
Calcium	ug/L	171000	92300	122000	156000	102000	131000	103000		95600	
Chromium	ug/L	109	6.2 U	14 J	51.3	6.2 U	2.7 UJ	42		6.2 U	
Cobalt	ug/L	46.2 J	20.5 U	6.5 J	20.4 U	20.5 U	5.4 U	20.3 U		20.4 U	
Copper	ug/L	88.1	10.2 U	10.7 J	33.6	10.2 U	4.7 U	32.8		10.1 U	
Iron	ug/L	147000	7 U	14700	63800	7 U	240	56600		7 U	
Lead	ug/L	20.9	1.2 U	2.3 J	12.1	1.2 U	0.6 U	9.8		1.2 U	
Magnesium	ug/L	48000	11900	17800	31000	13400	17300	22400		9960	
Manganese	ug/L	2530	4.8 U	327	1190	72.4	82.1	953		4.8 U	
Mercury	ug/L	0.14 R	0.03 U	0.09 UJ	0.14 R	0.03 U	0.09 UJ	0.11 R		0.03 U	
Nickel	ug/L	157	14.8 U	15 J	67.3	14.8 U	7.4 UJ	69.2		14.7 U	
Potassium	ug/L	11700	497 J	3820 J	6240	1250 J	1620 J	4500 J		288 U	
Selenium	ug/L	13 U	1 U	1.5 UJ	1.3 U	1.1 J	1.5 UJ	1.3 U		1 U	
Silver	ug/L	3.4 U	3.4 U	5.5 U	3.4 U	3.4 U	5.4 U	3.4 U		3.4 U	
Sodium	ug/L	15600	14700	17100	22200	21600	25500	15700		14700	
Thallium	ug/L	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U	3.2 U		3.2 U	
Vanadium	ug/L	97.3	9.5 U	15.2 J	46.8 J	9.5 U	6.7 UJ	41.8 J		9.4 U	
Zinc	ug/L	412	18.8 R	51.5	174	20.4 R	5 J	162		21.2 R	
Cyanide	ug/L	10 U		10 UJ	10 U		3 J	10 U			

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX / LOCATION / DATE / ES ID / LAB ID	PHASE I	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-34	MW-34	MW-34	MW-34	MW34	MW-35D	MW-35D	MW35D
WORKSHEET B	DATE	01/10/92	01/10/92	01/10/92	01/10/92	06/24/93	01/14/92	01/14/92	07/03/93
	ES ID	MW-34	MW-34Filtered	PT-1(1)	PT-1(1)Filtered	MW34	MW-35D	MW-35DFiltered	MW35D
	LAB ID	152257	152290	152259	152292	187340	152503	152508	188257
COMPOUND	UNITS								
VOC's									
Chloromethane	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
Bromomethane	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
Vinyl Chloride	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
Chloroethane	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
Methylene Chloride	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Acetone	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
Carbon Disulfide	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
1,1-Dichloroethene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
1,1-Dichloroethane	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
1,2-Dichloroethene (total)	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Chloroform	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
1,2-Dichloroethane	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
2-Butanone	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
1,1,1-Trichloroethane	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Carbon Tetrachloride	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Vinyl Acetate	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
Bromodichloromethane	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
1,2-Dichloropropane	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
cis-1,3-Dichloropropene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Trichloroethene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Dibromochloromethane	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
1,1,2-Trichloroethane	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Benzene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
trans-1,3-Dichloropropene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Bromoform	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
4-Methyl-2-Pentanone	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
2-Hexanone	ug/L	10 U	NS	10 U	NS	NS	10 U	NS	NS
Tetrachloroethene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
1,1,2,2-Tetrachloroethane	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Toluene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Chlorobenzene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Ethylbenzene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Styrene	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS
Xylene (total)	ug/L	5 U	NS	5 U	NS	NS	5 U	NS	NS

NOTES:
NA: Not Analyzed
NS: Not Sampled

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE I	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-34	MW-34	MW-34	MW-34	MW34	MW-35D	MW-35D	MW35D
WORKSHEET B	DATE	01/10/92	01/10/92	01/10/92	01/10/92	06/24/93	01/14/92	01/14/92	07/03/93
	ES ID	MW-34	MW-34Filtered	PT-1(1)	PT-1(1)Filtered	MW34	MW-35D	MW-35DFiltered	MW35D
	LAB ID	152257	152290	152259	152292	187340	152503	152508	188257
COMPOUND	UNITS								
VOC's (524.2)									
Dichlorodifluoromethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Chloromethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Vinyl Chloride	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Bromomethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Chloroethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Trichlorofluoromethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloroethene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Acetone	ug/L	NS	NS	NS	NS	5 U	NS	NS	5 U
Carbon Disulfide	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Methylene Chloride	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
trans-1,2-Dichloroethene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloroethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
2,2-Dichloropropane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
cis-1,2-Dichloroethene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
2-Butanone	ug/L	NS	NS	NS	NS	5 U	NS	NS	5 U
Bromochloromethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Chloroform	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,1,1-Trichloroethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Carbon Tetrachloride	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloropropene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Benzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichloroethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Trichloroethene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichloropropane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Dibromomethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Bromodichloromethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
cis-1,3-Dichloropropene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
4-Methyl-2-Pentanone	ug/L	NS	NS	NS	NS	5 U	NS	NS	5 U
Toluene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
trans-1,3-Dichloropropene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,1,2-Trichloroethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Tetrachloroethene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,3-Dichloropropane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
2-Hexanone	ug/L	NS	NS	NS	NS	5 U	NS	NS	5 U
Dibromochloromethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dibromoethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Chlorobenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Ethylbenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Styrene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Bromoform	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Isopropylbenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Bromobenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2,3-Trichloropropane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
n-Propylbenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
2-Chlorotoluene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
4-Chlorotoluene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,3,5-Trimethylbenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
tert-Butylbenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2,4-Trimethylbenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
sec-Butylbenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,3-Dichlorobenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,4-Dichlorobenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
p-Isopropyltoluene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichlorobenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
n-Butylbenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2,4-Trichlorobenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Hexachlorobutadiene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Naphthalene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
1,2,3-Trichlorobenzene	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U
Xylene (total)	ug/L	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE I	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	LOCATION	MW-34	MW-34	MW-34	MW-34	MW34	MW-35D	MW-35D	MW35D
	DATE	01/10/92	01/10/92	01/10/92	01/10/92	06/24/93	01/14/92	01/14/92	07/03/93
	ES ID	MW-34	MW-34Filtered	PT-1(1)	PT-1(1)Filtered	MW34	MW-35D	MW-35DFiltered	MW35D
	LAB ID	152257	152290	152259	152292	187340	152503	152508	188257
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
bis(2-Chloroethyl) ether	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2-Chlorophenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
1,3-Dichlorobenzene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
1,4-Dichlorobenzene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Benzyl Alcohol	ug/L	11 U	NS	NS	NS	NA	10 U	NS	NA
1,2-Dichlorobenzene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2-Methylphenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
bis(2-Chloroisopropyl) ether	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
4-Methylphenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
N-Nitroso-di-n-propylamine	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Hexachloroethane	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Nitrobenzene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Isophorone	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2-Nitrophenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2,4-Dimethylphenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Benzoic acid	ug/L	54 U	NS	NS	NS	NA	50 U	NS	NA
bis(2-Chloroethoxy) methane	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2,4-Dichlorophenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
1,2,4-Trichlorobenzene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Naphthalene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
4-Chloroaniline	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Hexachlorobutadiene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
4-Chloro-3-methylphenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2-Methylnaphthalene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Hexachlorocyclopentadiene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2,4,6-Trichlorophenol	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2,4,5-Trichlorophenol	ug/L	54 U	NS	NS	NS	25 U	50 U	NS	25 U
2-Chloronaphthalene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2-Nitroaniline	ug/L	54 U	NS	NS	NS	25 U	50 U	NS	25 U
Dimethylphthalate	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
Acenaphthylene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
2,6-Dinitrotoluene	ug/L	11 U	NS	NS	NS	10 U	10 U	NS	10 U
3-Nitroaniline	ug/L	54 U	NS	54 U	NS	25 U	50 U	NS	25 U
Acenaphthene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
2,4-Dinitrophenol	ug/L	54 U	NS	54 U	NS	25 U	50 U	NS	25 U
4-Nitrophenol	ug/L	54 U	NS	54 U	NS	25 U	50 U	NS	25 U
Dibenzofuran	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
2,4-Dinitrotoluene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Diethylphthalate	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
4-Chlorophenyl-phenylether	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Fluorene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
4-Nitroaniline	ug/L	54 U	NS	54 U	NS	25 U	50 U	NS	25 U
4,6-Dinitro-2-methylphenol	ug/L	54 U	NS	54 U	NS	25 U	50 U	NS	25 U
N-Nitrosodiphenylamine (1)	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
4-Bromophenyl-phenylether	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Hexachlorobenzene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Pentachlorophenol	ug/L	54 U	NS	54 U	NS	25 U	50 U	NS	25 U
Phenanthrene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Anthracene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Carbazole	ug/L	NA	NS	NA	NS	10 U	NA	NS	10 U
Di-n-butylphthalate	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Fluoranthene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Pyrene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Butylbenzylphthalate	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
3,3'-Dichlorobenzidine	ug/L	21 U	NS	22 U	NS	10 U	20 U	NS	10 U
Benzo(a)anthracene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Chrysene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
bis(2-Ethylhexyl)phthalate	ug/L	11 U	NS	11 U	NS	12 U	10 U	NS	71 B
Di-n-octylphthalate	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Benzo(b)fluoranthene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Benzo(k)fluoranthene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Benzo(a)pyrene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Indeno(1,2,3-cd)pyrene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Dibenz(a,h)anthracene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U
Benzo(g,h,i)perylene	ug/L	11 U	NS	11 U	NS	10 U	10 U	NS	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B		PHASE I	PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-34	MW-34	MW-34	MW-34	MW34	MW-35D	MW-35D	MW35D
WORKSHEET B	DATE	01/10/92	01/10/92	01/10/92	01/10/92	06/24/93	01/14/92	01/14/92	07/03/93
	ES ID	MW-34	MW-34Filtered	PT-1(1)	PT-1(1)Filtered	MW34	MW-35D	MW-35DFiltered	MW35D
	LAB ID	152257	152290	152259	152292	187340	152503	152508	188257
COMPOUND	UNITS								
PESTICIDES/PCBS									
alpha-BHC	ug/L	0.057 U	NS	NS	NS	0.05 U	0.06 U	NS	0.05 U
beta-BHC	ug/L	0.057 U	NS	NS	NS	0.05 U	0.06 U	NS	0.05 U
delta-BHC	ug/L	0.057 U	NS	NS	NS	0.05 U	0.06 U	NS	0.05 U
gamma-BHC (Lindane)	ug/L	0.057 U	NS	NS	NS	0.05 U	0.06 U	NS	0.05 U
Heptachlor	ug/L	0.057 U	NS	NS	NS	0.05 U	0.06 U	NS	0.05 U
Aldrin	ug/L	0.057 U	NS	NS	NS	0.05 U	0.06 U	NS	0.05 U
Heptachlor epoxide	ug/L	0.057 U	NS	NS	NS	0.05 U	0.06 U	NS	0.05 U
Endosulfan I	ug/L	0.057 U	NS	NS	NS	0.05 U	0.06 U	NS	0.05 U
Dieldrin	ug/L	0.11 U	NS	NS	NS	0.1 U	0.12 U	NS	0.1 U
4,4'-DDE	ug/L	0.11 U	NS	NS	NS	0.1 U	0.12 U	NS	0.1 U
Endrin	ug/L	0.11 U	NS	NS	NS	0.1 U	0.12 U	NS	0.1 U
Endosulfan II	ug/L	0.11 U	NS	NS	NS	0.1 U	0.12 U	NS	0.1 U
4,4'-DDD	ug/L	0.11 U	NS	NS	NS	0.1 U	0.12 U	NS	0.1 U
Endosulfan sulfate	ug/L	0.11 U	NS	NS	NS	0.1 U	0.12 U	NS	0.1 U
4,4'-DDT	ug/L	0.11 U	NS	NS	NS	0.1 U	0.12 U	NS	0.1 U
Methoxychlor	ug/L	0.57 U	NS	NS	NS	0.5 U	0.6 U	NS	0.5 U
Endrin ketone	ug/L	0.11 U	NS	NS	NS	0.1 U	0.12 U	NS	0.1 U
Endrin aldehyde	ug/L	NA	NS	NS	NS	0.1 U	NA	NS	0.1 U
alpha-Chlordane	ug/L	0.57 U	NS	NS	NS	0.05 U	0.6 U	NS	0.05 U
gamma-Chlordane	ug/L	0.57 U	NS	NS	NS	0.05 U	0.6 U	NS	0.05 U
Toxaphene	ug/L	1.1 U	NS	NS	NS	5 U	1.2 U	NS	5 U
Aroclor-1016	ug/L	0.57 U	NS	NS	NS	1 U	0.6 U	NS	1 U
Aroclor-1221	ug/L	0.57 U	NS	NS	NS	2 U	0.6 U	NS	2 U
Aroclor-1232	ug/L	0.57 U	NS	NS	NS	1 U	0.6 U	NS	1 U
Aroclor-1242	ug/L	0.57 U	NS	NS	NS	1 U	0.6 U	NS	1 U
Aroclor-1248	ug/L	0.57 U	NS	NS	NS	1 U	0.6 U	NS	1 U
Aroclor-1254	ug/L	1.1 U	NS	NS	NS	1 U	1.2 U	NS	1 U
Aroclor-1260	ug/L	1.1 U	NS	NS	NS	1 U	1.2 U	NS	1 U
HERBICIDES									
2,4-D	ug/L	1 U	NS	1 U	NS	1 U	1.2 U	NS	1 U
2,4-DB	ug/L	1 U	NS	1 U	NS	1 U	1.2 U	NS	1 U
2,4,5-T	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Dalapon	ug/L	2.4 U	NS	2.3 U	NS	2.3 U	2.9 U	NS	2.3 U
Dicamba	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Dichloroprop	ug/L	1 U	NS	1 U	NS	1 U	1.2 U	NS	1 U
Dinoseb	ug/L	0.5 U	NS	0.5 U	NS	0.5 U	0.6 U	NS	0.5 U
MCPA	ug/L	100 U	NS	100 U	NS	100 U	120 U	NS	100 U
MCPP	ug/L	100 U	NS	100 U	NS	100 U	120 U	NS	100 U
METALS									
Aluminum	ug/L	8250 J	24.4 U	7310 J	24.5 U	253	23200	24.5 U	72.2 U
Antimony	ug/L	55.9 U J	53 U	55.9 U J	53.2 U	49.8 UJ	53.2 U	53.1 U	49.7 UJ
Arsenic	ug/L	3.5 U	3.5 U	3.5 U	3.5 U	1.4 UJ	8.6 J	4.3 J	1.4 UJ
Barium	ug/L	225	51.9 R	191 J	45.7 R	82.5 J	318	104 J	106 J
Beryllium	ug/L	2.7 R	2.5 R	2.7 R	2.5 R	0.9 U	3.2 R	1.2 R	0.89 U
Cadmium	ug/L	2.9 U	3 U	2.9 U	3 U	2.8 U	5.4	3 U	2.8 U
Calcium	ug/L	352000 J	108000	268000 J	114000	122000	41100	14600	28900
Chromium	ug/L	10.3	6.2 U	12	6.2 U	2.7 UJ	34.9	6.2 U	2.7 UJ
Cobalt	ug/L	20 U	20.3 U	20 U	20.4 U	5.5 U	20.4 U	20.4 U	5.5 U
Copper	ug/L	14.5 U	10.1 U	14.9 J	10.2 U	4.7 U	22.5 J	10.1 U	4.7 U
Iron	ug/L	10600 J	6.9 U	11300 J	7 U	395	33800	7 U	40.9 J
Lead	ug/L	8.2	1.2 U	7.4	1.2 U	0.79 U	5	1.2 U	0.8 U
Magnesium	ug/L	32100	20200	26300 J	20500	17400	13300	4590 J	9220
Manganese	ug/L	2200	132	1680 J	127	135	662	110	61.8
Mercury	ug/L	0.16 R	0.11 R	0.14 R	0.1 R	0.09 UJ	0.1 R	0.12 R	0.14 J
Nickel	ug/L	17.6 J	14.7 U	18 J	14.7 U	7.5 UJ	49.7	14.7 U	7.5 UJ
Potassium	ug/L	8910	7980	9760	7210	1270 J	6230	2760 J	2590 J
Selenium	ug/L	1 U	1 U	1 U	1 U	0.99 UJ	1.3 U	1 U	1.5 UJ
Silver	ug/L	9.1 U	4.3 R	9.1 U	3.4 U	5.5 U	3.4 U	3.4 U	5.5 U
Sodium	ug/L	24900 J	31200	36500 J	25100	18200	130000	110000	81500
Thallium	ug/L	3.2 U	3.2 U	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U
Vanadium	ug/L	30.5 U	9.4 U	30.5 U	9.5 U	6.8 UJ	32.7 J	9.4 U	6.8 UJ
Zinc	ug/L	51.9	8.4 U	47.6 R	8.5 U	13.1 R	72.7 R	8.5 U	3.1 J
Cyanide	ug/L	10 U J	NS	10 U J	NS	10 UJ	10 U	NS	10 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
SUMGW.WK3	LOCATION	MW-36	MW-36	MW-36	MW36	MW-37	MW-37	MW-37	MW37
WORKSHEET B	DATE	01/14/92	01/14/92	01/14/92	07/03/93	01/10/92	01/10/92	01/10/92	06/24/93
	ES ID	MW-36	MW-36RE(4)	MW-36Filtered	MW36	MW-37	MW-37	MW-37Filtered	MW37
	LAB ID	152504	152504	152509	188258	152646	152258	152291	187342
COMPOUND	UNITS								
VOC's									
Chloromethane	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
Bromomethane	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
Vinyl Chloride	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
Chloroethane	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
Methylene Chloride	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Acetone	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
Carbon Disulfide	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
1,1-Dichloroethene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
1,1-Dichloroethane	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
1,2-Dichloroethene (total)	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Chloroform	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
1,2-Dichloroethane	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
2-Butanone	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
1,1,1-Trichloroethane	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Carbon Tetrachloride	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Vinyl Acetate	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
Bromodichloromethane	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
1,2-Dichloropropane	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
cis-1,3-Dichloropropene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Trichloroethene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Dibromochloromethane	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
1,1,2-Trichloroethane	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Benzene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
trans-1,3-Dichloropropene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Bromoform	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
4-Methyl-2-Pentanone	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
2-Hexanone	ug/L	10 U	NS	NS	NS	10 U	NS	NS	NS
Tetrachloroethene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
1,1,2,2-Tetrachloroethane	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Toluene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Chlorobenzene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Ethylbenzene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Styrene	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS
Xylene (total)	ug/L	5 U	NS	NS	NS	5 U	NS	NS	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW-36	MW-36	MW-36	MW36	MW-37	MW-37	MW-37	MW37
	DATE	01/14/92	01/14/92	01/14/92	07/03/93	01/10/92	01/10/92	01/10/92	06/24/93
	ES ID	MW-36	MW-36RE(4)	MW-36Filtered	MW36	MW-37	MW-37	MW-37Filtered	MW37
	LAB ID	152504	152504	152509	188258	152646	152258	152291	187342
COMPOUND	UNITS								
VOC's (524.2)									
Dichlorodifluoromethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Chloromethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Vinyl Chloride	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Bromomethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Chloroethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Trichlorofluoromethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,1-Dichloroethene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Acetone	ug/L	NS	NS	NS	5 U	NS	NS	NS	5 U
Carbon Disulfide	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Methylene Chloride	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
trans-1,2-Dichloroethene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,1-Dichloroethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
2,2-Dichloropropane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
cis-1,2-Dichloroethene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
2-Butanone	ug/L	NS	NS	NS	5 U	NS	NS	NS	5 U
Bromochloromethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Chloroform	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,1,1-Trichloroethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Carbon Tetrachloride	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,1-Dichloropropene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Benzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2-Dichloroethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Trichloroethene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2-Dichloropropane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Dibromomethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Bromodichloromethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
cis-1,3-Dichloropropene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
4-Methyl-2-Pentanone	ug/L	NS	NS	NS	5 U	NS	NS	NS	5 U
Toluene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
trans-1,3-Dichloropropene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,1,2-Trichloroethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Tetrachloroethene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,3-Dichloropropane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
2-Hexanone	ug/L	NS	NS	NS	5 U	NS	NS	NS	5 U
Dibromochloromethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2-Dibromoethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Chlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Ethylbenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Styrene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Bromoform	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Isopropylbenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Bromobenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2,3-Trichloropropane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
n-Propylbenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
2-Chlorotoluene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
4-Chlorotoluene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,3,5-Trimethylbenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
tert-Butylbenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2,4-Trimethylbenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
sec-Butylbenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,3-Dichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,4-Dichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
p-Isopropyltoluene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2-Dichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
n-Butylbenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2,4-Trichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Hexachlorobutadiene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Naphthalene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
1,2,3-Trichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U
Xylene (total)	ug/L	NS	NS	NS	0.5 U	NS	NS	NS	0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B	MATRIX	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW-36	MW-36	MW-36	MW36	MW-37	MW-37	MW-37	MW37
	DATE	01/14/92	01/14/92	01/14/92	07/03/93	01/10/92	01/10/92	01/10/92	06/24/93
	ES ID	MW-36	MW-36RE(4)	MW-36Filtered	MW36	MW-37	MW-37	MW-37Filtered	MW37
	LAB ID	152504	152504	152509	188258	152646	152258	152291	187342
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
bis(2-Chloroethyl) ether	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2-Chlorophenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
1,3-Dichlorobenzene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
1,4-Dichlorobenzene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Benzyl Alcohol	ug/L	12 U	NS	NS	NA	NS	11 U	NS	NA
1,2-Dichlorobenzene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2-Methylphenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
bis(2-Chloroisopropyl) ether	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
4-Methylphenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
N-Nitroso-di-n-propylamine	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Hexachloroethane	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Nitrobenzene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Isophorone	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2-Nitrophenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2,4-Dimethylphenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Benzoic acid	ug/L	60 U	NS	NS	NA	NS	55 U	NS	NA
bis(2-Chloroethoxy) methane	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2,4-Dichlorophenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
1,2,4-Trichlorobenzene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Naphthalene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
4-Chloroaniline	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Hexachlorobutadiene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
4-Chloro-3-methylphenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2-Methylnaphthalene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Hexachlorocyclopentadiene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2,4,6-Trichlorophenol	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2,4,5-Trichlorophenol	ug/L	60 U	NS	NS	25 U	NS	55 U	NS	25 U
2-Chloronaphthalene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2-Nitroaniline	ug/L	60 U	NS	NS	25 U	NS	55 U	NS	25 U
Dimethylphthalate	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Acenaphthylene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2,6-Dinitrotoluene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
3-Nitroaniline	ug/L	60 U	NS	NS	25 U	NS	55 U	NS	25 U
Acenaphthene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2,4-Dinitrophenol	ug/L	60 U	NS	NS	25 U	NS	55 U	NS	25 U
4-Nitrophenol	ug/L	60 U	NS	NS	25 U	NS	55 U	NS	25 U
Dibenzofuran	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
2,4-Dinitrotoluene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Diethylphthalate	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
4-Chlorophenyl-phenylether	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Fluorene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
4-Nitroaniline	ug/L	60 U	NS	NS	25 U	NS	55 U	NS	25 U
4,6-Dinitro-2-methylphenol	ug/L	60 U	NS	NS	25 U	NS	55 U	NS	25 U
N-Nitrosodiphenylamine (1)	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
4-Bromophenyl-phenylether	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Hexachlorobenzene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Pentachlorophenol	ug/L	60 U	NS	NS	25 U	NS	55 U	NS	25 U
Phenanthrene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Anthracene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Carbazole	ug/L	NA	NS	NS	10 U	NS	NA	NS	10 U
Di-n-butylphthalate	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Fluoranthene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Pyrene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Butylbenzylphthalate	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
3,3'-Dichlorobenzidine	ug/L	24 U	NS	NS	10 U	NS	22 U	NS	10 U
Benzo(a)anthracene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Chrysene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
bis(2-Ethylhexyl)phthalate	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Di-n-octylphthalate	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Benzo(b)fluoranthene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Benzo(k)fluoranthene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Benzo(a)pyrene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Indeno(1,2,3-cd)pyrene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Dibenz(a,h)anthracene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U
Benzo(g,h,i)perylene	ug/L	12 U	NS	NS	10 U	NS	11 U	NS	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B		PHASE I	PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-36	MW-36	MW-36	MW36	MW-37	MW-37	MW-37	MW37
WORKSHEET B	DATE	01/14/92	01/14/92	01/14/92	07/03/93	01/10/92	01/10/92	01/10/92	06/24/93
	ES ID	MW-36	MW-36RE(4)	MW-36Filtered	MW36	MW-37	MW-37	MW-37Filtered	MW37
	LAB ID	152504	152504	152509	188258	152646	152258	152291	187342
COMPOUND	UNITS								
PESTICIDES/PCBS									
alpha-BHC	ug/L	0.054 U J	0.052 U	NS	0.053 U	NS	0.061 U	NS	0.052 U
beta-BHC	ug/L	0.054 U J	0.052 U	NS	0.053 U	NS	0.061 U	NS	0.052 U
delta-BHC	ug/L	0.054 U J	0.052 U	NS	0.053 U	NS	0.061 U	NS	0.052 U
gamma-BHC (Lindane)	ug/L	0.054 U J	0.052 U	NS	0.053 U	NS	0.061 U	NS	0.052 U
Heptachlor	ug/L	0.054 U J	0.052 U	NS	0.053 U	NS	0.061 U	NS	0.052 U
Aldrin	ug/L	0.054 U J	0.052 U	NS	0.053 U	NS	0.061 U	NS	0.052 U
Heptachlor epoxide	ug/L	0.054 U J	0.052 U	NS	0.053 U	NS	0.061 U	NS	0.052 U
Endosulfan I	ug/L	0.054 U J	0.052 U	NS	0.053 U	NS	0.061 U	NS	0.052 U
Dieldrin	ug/L	0.11 U J	0.1 U	NS	0.11 U	NS	0.12 U	NS	0.1 U
4,4'-DDE	ug/L	0.11 U J	0.1 U	NS	0.11 U	NS	0.12 U	NS	0.1 U
Endrin	ug/L	0.11 U J	0.1 U	NS	0.11 U	NS	0.12 U	NS	0.1 U
Endosulfan II	ug/L	0.11 U J	0.1 U	NS	0.11 U	NS	0.12 U	NS	0.1 U
4,4'-DDD	ug/L	0.11 U J	0.1 U	NS	0.11 U	NS	0.12 U	NS	0.1 U
Endosulfan sulfate	ug/L	0.11 U J	0.1 U	NS	0.11 U	NS	0.12 U	NS	0.1 U
4,4'-DDT	ug/L	0.11 U J	0.1 U	NS	0.11 U	NS	0.12 U	NS	0.1 U
Methoxychlor	ug/L	0.54 U J	0.52 U	NS	0.53 U	NS	0.61 U	NS	0.52 U
Endrin ketone	ug/L	0.11 U J	0.1 U	NS	0.11 U	NS	0.12 U	NS	0.1 U
Endrin aldehyde	ug/L	NA	NA	NS	0.11 U	NS	NA	NS	0.1 U
alpha-Chlordane	ug/L	0.54 U J	0.52 U	NS	0.053 U	NS	0.61 U	NS	0.052 U
gamma-Chlordane	ug/L	0.54 U J	0.52 U	NS	0.053 U	NS	0.61 U	NS	0.052 U
Toxaphene	ug/L	1.1 U J	1 U	NS	5.3 U	NS	1.2 U	NS	5.2 U
Aroclor-1016	ug/L	0.54 U J	0.52 U	NS	1.1 U	NS	0.61 U	NS	1 U
Aroclor-1221	ug/L	0.54 U J	0.52 U	NS	2.1 U	NS	0.61 U	NS	2.1 U
Aroclor-1232	ug/L	0.54 U J	0.52 U	NS	1.1 U	NS	0.61 U	NS	1 U
Aroclor-1242	ug/L	0.54 U J	0.52 U	NS	1.1 U	NS	0.61 U	NS	1 U
Aroclor-1248	ug/L	0.54 U J	0.52 U	NS	1.1 U	NS	0.61 U	NS	1 U
Aroclor-1254	ug/L	1.1 U J	1 U	NS	1.1 U	NS	1.2 U	NS	1 U
Aroclor-1260	ug/L	1.1 U J	1 U	NS	1.1 U	NS	1.2 U	NS	1 U
HERBICIDES									
2,4-D	ug/L	1 U	NS	NS	1 U	NS	1 U	NS	1 U
2,4-DB	ug/L	1 U	NS	NS	1 U	NS	1 U	NS	1 U
2,4,5-T	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 U	NS	0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 U	NS	0.1 U
Dalapon	ug/L	2.4 U	NS	NS	2.3 U	NS	2.4 U	NS	2.3 U
Dicamba	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 U	NS	0.1 U
Dichloroprop	ug/L	1 U	NS	NS	1 U	NS	1 U	NS	1 U
Dinoseb	ug/L	0.5 U	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
MCPA	ug/L	100 U	NS	NS	100 U	NS	100 U	NS	100 U
MCPP	ug/L	100 U	NS	NS	100 U	NS	100 U	NS	100 U
METALS									
Aluminum	ug/L	15900	NS	24.4 U	1090	NS	19100	24.5 U	637
Antimony	ug/L	53.1 U	NS	52.9 U	49.7 UJ	NS	55.9 U J	53.2 U	49.7 UJ
Arsenic	ug/L	3.5 U	NS	3.5 U	1.4 UJ	NS	3.5 U	3.5 U	1.4 UJ
Barium	ug/L	167 J	NS	59.2 R	78.6 J	NS	329	32.3 R	79.6 J
Beryllium	ug/L	2.6 R	NS	1.4 R	0.9 U	NS	3.8 R	2.4 R	0.89 U
Cadmium	ug/L	3.6 J	NS	3 U	2.8 U	NS	2.9 U	3 U	2.8 U
Calcium	ug/L	182000	NS	117000	135000	NS	279000 J	109000	115000
Chromium	ug/L	27.1	NS	6.1 U	2.7 UJ	NS	29.8	6.2 U	2.7 UJ
Cobalt	ug/L	20.4 U	NS	20.3 U	5.5 U	NS	28 J	20.4 U	5.5 U
Copper	ug/L	19.8 J	NS	10.1 U	4.7 U	NS	25.3	10.2 U	5.4 J
Iron	ug/L	29000	NS	6.9 U	1260	NS	27800	7 U	1080
Lead	ug/L	5	NS	1.2 U	0.8 U	NS	8	1.2 U	0.8 U
Magnesium	ug/L	31000	NS	17400	19300	NS	28600	17900	16100
Manganese	ug/L	658	NS	44.9	139	NS	2190	84.9	129
Mercury	ug/L	0.1 R	NS	0.11 R	0.09 UJ	NS	0.15 R	0.11 R	0.09 UJ
Nickel	ug/L	39.1 J	NS	14.7 U	7.5 UJ	NS	36.9 J	14.8 U	7.4 UJ
Potassium	ug/L	3310 J	NS	1620 J	2110 J	NS	4470 J	1330 J	1160 J
Selenium	ug/L	1.3 U	NS	1 U	1.8 J	NS	1 U	1 U	1 UJ
Silver	ug/L	3.4 U	NS	3.4 U	5.5 U	NS	9.1 U	3.4 U	5.5 U
Sodium	ug/L	21300	NS	19600	21300	NS	11900 J	11200	15000
Thallium	ug/L	3.2 U	NS	3.2 U	2.6 U	NS	3.2 U	3.2 U	2.6 U
Vanadium	ug/L	23.2 J	NS	9.4 U	6.8 UJ	NS	30.6 U	9.5 U	6.8 UJ
Zinc	ug/L	120	NS	8.4 U	9.3 J	NS	58.8	8.5 U	7.4 R
Cyanide	ug/L	10 U	NS	NS	10 UJ	NS	10 U J	NS	10 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B	MATRIX LOCATION DATE ES ID LAB ID	PHASE I WATER MW-38D 01/08/92 MW-38D 152154	PHASE I WATER MW-38D 01/08/92 MW-38DFiltered 152197	PHASE II WATER MW38D 07/03/93 MW38D 188259	PHASE I WATER MW-39 01/14/92 MW-39 152505	PHASE I WATER MW-39 01/14/92 MW-39Filtered 152510	PHASE II WATER MW39 06/23/93 MW39 187232
COMPOUND	UNITS						
VOC's							
Chloromethane	ug/L	10 U	NS	NS	10 U	NS	NS
Bromomethane	ug/L	10 U	NS	NS	10 U	NS	NS
Vinyl Chloride	ug/L	10 U	NS	NS	10 U	NS	NS
Chloroethane	ug/L	10 U	NS	NS	10 U	NS	NS
Methylene Chloride	ug/L	5 U	NS	NS	5 U	NS	NS
Acetone	ug/L	10 U	NS	NS	10 U	NS	NS
Carbon Disulfide	ug/L	5 U	NS	NS	5 U	NS	NS
1,1-Dichloroethene	ug/L	5 U	NS	NS	5 U	NS	NS
1,1-Dichloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
1,2-Dichloroethene (total)	ug/L	5 U	NS	NS	5 U	NS	NS
Chloroform	ug/L	5 U	NS	NS	5 U	NS	NS
1,2-Dichloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
2-Butanone	ug/L	10 U	NS	NS	10 U	NS	NS
1,1,1-Trichloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
Carbon Tetrachloride	ug/L	5 U	NS	NS	5 U	NS	NS
Vinyl Acetate	ug/L	10 U	NS	NS	10 U	NS	NS
Bromodichloromethane	ug/L	5 U	NS	NS	5 U	NS	NS
1,2-Dichloropropane	ug/L	5 U	NS	NS	5 U	NS	NS
cis-1,3-Dichloropropene	ug/L	5 U	NS	NS	5 U	NS	NS
Trichloroethene	ug/L	5 U	NS	NS	5 U	NS	NS
Dibromochloromethane	ug/L	5 U	NS	NS	5 U	NS	NS
1,1,2-Trichloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
Benzene	ug/L	5 U	NS	NS	5 U	NS	NS
trans-1,3-Dichloropropene	ug/L	5 U	NS	NS	5 U	NS	NS
Bromoform	ug/L	5 U	NS	NS	5 U	NS	NS
4-Methyl-2-Pentanone	ug/L	10 U	NS	NS	10 U	NS	NS
2-Hexanone	ug/L	10 U	NS	NS	10 U	NS	NS
Tetrachloroethene	ug/L	5 U	NS	NS	5 U	NS	NS
1,1,2,2-Tetrachloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
Toluene	ug/L	5 U	NS	NS	5 U	NS	NS
Chlorobenzene	ug/L	5 U	NS	NS	5 U	NS	NS
Ethylbenzene	ug/L	5 U	NS	NS	5 U	NS	NS
Styrene	ug/L	5 U	NS	NS	5 U	NS	NS
Xylene (total)	ug/L	5 U	NS	NS	5 U	NS	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-38D	MW-38D	MW38D	MW-39	MW-39	MW39
WORKSHEET B	DATE	01/08/92	01/08/92	07/03/93	01/14/92	01/14/92	06/23/93
	ES ID	MW-38D	MW-38DFiltered	MW38D	MW-39	MW-39Filtered	MW39
	LAB ID	152154	152197	188259	152505	152510	187232
COMPOUND	UNITS						
VOC's (524.2)							
Dichlorodifluoromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Chloromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Vinyl Chloride	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Bromomethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Chloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Trichlorofluoromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Acetone	ug/L	NS	NS	5 U	NS	NS	5 U
Carbon Disulfide	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Methylene Chloride	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
trans-1,2-Dichloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
2,2-Dichloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
cis-1,2-Dichloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
2-Butanone	ug/L	NS	NS	5 U	NS	NS	5 U
Bromochloromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Chloroform	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1,1-Trichloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Carbon Tetrachloride	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloropropene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Benzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Trichloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Dibromomethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Bromodichloromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
cis-1,3-Dichloropropene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
4-Methyl-2-Pentanone	ug/L	NS	NS	5 U	NS	NS	5 U
Toluene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
trans-1,3-Dichloropropene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1,2-Trichloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Tetrachloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,3-Dichloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
2-Hexanone	ug/L	NS	NS	5 U	NS	NS	5 U
Dibromochloromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dibromoethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Chlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Ethylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Styrene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Bromoform	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Isopropylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Bromobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2,3-Trichloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
n-Propylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
2-Chlorotoluene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
4-Chlorotoluene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,3,5-Trimethylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
tert-Butylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2,4-Trimethylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
sec-Butylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,3-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,4-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
p-Isopropyltoluene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
n-Butylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2,4-Trichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Hexachlorobutadiene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Naphthalene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2,3-Trichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Xylene (total)	ug/L	NS	NS	0.5 U	NS	NS	0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-38D	MW-38D	MW38D	MW-39	MW-39	MW39
WORKSHEET B	DATE	01/08/92	01/08/92	07/03/93	01/14/92	01/14/92	06/23/93
	ES ID	MW-38D	MW-38DFiltered	MW38D	MW-39	MW-39Filtered	MW39
	LAB ID	152154	152197	188259	152505	152510	187232
COMPOUND	UNITS						
SEMIVOLATILES							
Phenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
bis(2-Chloroethyl) ether	ug/L	12 U	NS	10 U	11 U	NS	10 U
2-Chlorophenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
1,3-Dichlorobenzene	ug/L	12 U	NS	10 U	11 U	NS	10 U
1,4-Dichlorobenzene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Benzyl Alcohol	ug/L	12 U	NS	NA	11 U	NS	NA
1,2-Dichlorobenzene	ug/L	12 U	NS	10 U	11 U	NS	10 U
2-Methylphenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
bis(2-Chloroisopropyl) ether	ug/L	12 U	NS	10 U	11 U	NS	10 U
4-Methylphenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
N-Nitroso-di-n-propylamine	ug/L	12 U	NS	10 U	11 U	NS	10 U
Hexachloroethane	ug/L	12 U	NS	10 U	11 U	NS	10 U
Nitrobenzene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Isophorone	ug/L	12 U	NS	10 U	11 U	NS	10 U
2-Nitrophenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
2,4-Dimethylphenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
Benzoic acid	ug/L	60 U	NS	NA	56 U	NS	NA
bis(2-Chloroethoxy) methane	ug/L	12 U	NS	10 U	11 U	NS	10 U
2,4-Dichlorophenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
1,2,4-Trichlorobenzene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Naphthalene	ug/L	12 U	NS	10 U	11 U	NS	10 U
4-Chloroaniline	ug/L	12 U	NS	10 U	11 U	NS	10 U
Hexachlorobutadiene	ug/L	12 U	NS	10 U	11 U	NS	10 U
4-Chloro-3-methylphenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
2-Methylnaphthalene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Hexachlorocyclopentadiene	ug/L	12 U	NS	10 U	11 U	NS	10 U
2,4,6-Trichlorophenol	ug/L	12 U	NS	10 U	11 U	NS	10 U
2,4,5-Trichlorophenol	ug/L	60 U	NS	25 U	56 U	NS	25 U
2-Chloronaphthalene	ug/L	12 U	NS	10 U	11 U	NS	10 U
2-Nitroaniline	ug/L	60 U	NS	25 U	56 U	NS	25 U
Dimethylphthalate	ug/L	12 U	NS	10 U	11 U	NS	10 U
Acenaphthylene	ug/L	12 U	NS	10 U	11 U	NS	10 U
2,6-Dinitrotoluene	ug/L	12 U	NS	10 U	11 U	NS	10 U
3-Nitroaniline	ug/L	60 U	NS	25 U	56 U	NS	25 U
Acenaphthene	ug/L	12 U	NS	10 U	11 U	NS	10 U
2,4-Dinitrophenol	ug/L	60 U	NS	25 U	56 U	NS	25 U
4-Nitrophenol	ug/L	60 U	NS	25 U	56 U	NS	25 U
Dibenzofuran	ug/L	12 U	NS	10 U	11 U	NS	10 U
2,4-Dinitrotoluene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Diethylphthalate	ug/L	12 U	NS	10 U	11 U	NS	10 U
4-Chlorophenyl-phenylether	ug/L	12 U	NS	10 U	11 U	NS	10 U
Fluorene	ug/L	12 U	NS	10 U	11 U	NS	10 U
4-Nitroaniline	ug/L	60 U	NS	25 U	56 U	NS	25 U
4,6-Dinitro-2-methylphenol	ug/L	60 U	NS	25 U	56 U	NS	25 U
N-Nitrosodiphenylamine (1)	ug/L	12 U	NS	10 U	11 U	NS	10 U
4-Bromophenyl-phenylether	ug/L	12 U	NS	10 U	11 U	NS	10 U
Hexachlorobenzene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Pentachlorophenol	ug/L	60 U	NS	25 U	56 U	NS	25 U
Phenanthrene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Anthracene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Carbazole	ug/L	NA	NS	10 U	NA	NS	10 U
Di-n-butylphthalate	ug/L	12 U	NS	10 U	11 U	NS	6 J
Fluoranthene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Pyrene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Butylbenzylphthalate	ug/L	12 U	NS	10 U	11 U	NS	10 U
3,3'-Dichlorobenzidine	ug/L	24 U	NS	10 U	22 U	NS	10 U
Benzo(a)anthracene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Chrysene	ug/L	12 U	NS	10 U	11 U	NS	10 U
bis(2-Ethylhexyl)phthalate	ug/L	12 U	NS	10 U	11 U	NS	10 U
Di-n-octylphthalate	ug/L	12 U	NS	10 U	11 U	NS	10 U
Benzo(b)fluoranthene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Benzo(k)fluoranthene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Benzo(a)pyrene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Indeno(1,2,3-cd)pyrene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Dibenz(a,h)anthracene	ug/L	12 U	NS	10 U	11 U	NS	10 U
Benzo(g,h,i)perylene	ug/L	12 U	NS	10 U	11 U	NS	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B		PHASE I	PHASE I	PHASE II	PHASE I	PHASE I	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-38D	MW-38D	MW38D	MW-39	MW-39	MW39
WORKSHEET B	DATE	01/08/92	01/08/92	07/03/93	01/14/92	01/14/92	06/23/93
	ES ID	MW-38D	MW-38DFiltered	MW38D	MW-39	MW-39Filtered	MW39
	LAB ID	152154	152197	188259	152505	152510	187232
COMPOUND	UNITS						
PESTICIDES/PCBS							
alpha-BHC	ug/L	0.05 U	NS	0.05 U	0.056 U	NS	0.05 U
beta-BHC	ug/L	0.05 U	NS	0.05 U	0.056 U	NS	0.05 U
delta-BHC	ug/L	0.05 U	NS	0.05 U	0.056 U	NS	0.05 U
gamma-BHC (Lindane)	ug/L	0.05 U	NS	0.05 U	0.056 U	NS	0.05 U
Heptachlor	ug/L	0.05 U	NS	0.05 U	0.056 U	NS	0.05 U
Aldrin	ug/L	0.05 U	NS	0.05 U	0.056 U	NS	0.05 U
Heptachlor epoxide	ug/L	0.05 U	NS	0.05 U	0.056 U	NS	0.05 U
Endosulfan I	ug/L	0.05 U	NS	0.05 U	0.056 U	NS	0.05 U
Dieldrin	ug/L	0.1 U	NS	0.1 U	0.11 U	NS	0.1 U
4,4'-DDE	ug/L	0.1 U	NS	0.1 U	0.11 U	NS	0.1 U
Endrin	ug/L	0.1 U	NS	0.1 U	0.11 U	NS	0.1 U
Endosulfan II	ug/L	0.1 U	NS	0.1 U	0.11 U	NS	0.1 U
4,4'-DDD	ug/L	0.1 U	NS	0.1 U	0.11 U	NS	0.1 U
Endosulfan sulfate	ug/L	0.1 U	NS	0.1 U	0.11 U	NS	0.1 U
4,4'-DDT	ug/L	0.1 U	NS	0.1 U	0.11 U	NS	0.1 U
Methoxychlor	ug/L	0.5 U	NS	0.5 U	0.56 U	NS	0.5 U
Endrin ketone	ug/L	0.1 U	NS	0.1 U	0.11 U	NS	0.1 U
Endrin aldehyde	ug/L	NA	NS	0.1 U	NA	NS	0.1 U
alpha-Chlordane	ug/L	0.5 U	NS	0.05 U	0.56 U	NS	0.05 U
gamma-Chlordane	ug/L	0.5 U	NS	0.05 U	0.56 U	NS	0.05 U
Toxaphene	ug/L	1 U	NS	5 U	1.1 U	NS	5 U
Aroclor-1016	ug/L	0.5 U	NS	1 U	0.56 U	NS	1 U
Aroclor-1221	ug/L	0.5 U	NS	2 U	0.56 U	NS	2 U
Aroclor-1232	ug/L	0.5 U	NS	1 U	0.56 U	NS	1 U
Aroclor-1242	ug/L	0.5 U	NS	1 U	0.56 U	NS	1 U
Aroclor-1248	ug/L	0.5 U	NS	1 U	0.56 U	NS	1 U
Aroclor-1254	ug/L	1 U	NS	1 U	1.1 U	NS	1 U
Aroclor-1260	ug/L	1 U	NS	1 U	1.1 U	NS	1 U
HERBICIDES							
2,4-D	ug/L	1.1 U	NS	1 U	1 U	NS	1 U
2,4-DB	ug/L	1.1 U	NS	1 U	1 U	NS	1 U
2,4,5-T	ug/L	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Dalapon	ug/L	2.5 U	NS	2.3 U	2.4 U	NS	2.3 U
Dicamba	ug/L	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Dichloroprop	ug/L	1.1 U	NS	1 U	1 U	NS	1 U
Dinoseb	ug/L	0.5 U	NS	0.5 U	0.5 U	NS	0.5 U
MCPA	ug/L	110 U	NS	100 U	100 U	NS	100 U
MCPP	ug/L	110 U	NS	100 U	100 U	NS	100 U
METALS							
Aluminum	ug/L	2110	24.4 U	72.5 U	7930	24.5 U	72.6 U
Antimony	ug/L	55.6 U J	52.9 U	49.9 UJ	53.3 U	53.1 U	49.9 UJ
Arsenic	ug/L	3.5 U	3.5 U	1.4 UJ	3.5 U	3.5 U	1.4 UJ
Barium	ug/L	187 J	105 J	115 J	80.9 J	33.8 R	40 J
Beryllium	ug/L	2.1 R	2.6 R	0.9 U	2.6 R	1.3 R	0.9 U
Cadmium	ug/L	2.9 U	3 U	2.8 U	3.1 J	3 U	2.8 U
Calcium	ug/L	123000 J	93500	93500	97900	83500	102000
Chromium	ug/L	6.6 J	6.1 U	2.7 UJ	12.5	6.2 U	2.7 UJ
Cobalt	ug/L	19.9 U	20.3 U	5.5 U	20.4 U	20.4 U	5.5 U
Copper	ug/L	14.4 U	10.1 U	4.7 U	33.3	10.2 U	4.7 U
Iron	ug/L	3630	6.9 U	214	11400	7 U	28.2 U
Lead	ug/L	4.1	1.2 U	0.79 U	2.3 J	1.2 U	0.8 U
Magnesium	ug/L	16700 J	18400	16800	15800	12400	14100
Manganese	ug/L	508	130	174	229	21	29.6
Mercury	ug/L	0.15 R	0.11 R	0.09 UJ	0.1 R	0.09 R	0.09 UJ
Nickel	ug/L	15.9 U	14.7 U	7.5 UJ	21.1 J	14.7 U	7.5 UJ
Potassium	ug/L	4960 J	4830 J	3220 J	3720 J	1770 J	2420 J
Selenium	ug/L	1 U	1 J	1.5 UJ	1.3 U	1 U	1 UJ
Silver	ug/L	9 U	3.4 U	5.5 U	3.4 U	3.6 R	5.5 U
Sodium	ug/L	5480 J	5540	3750 J	15100	14000	10600
Thallium	ug/L	3.2 U	3.2 U	2.6 U	3.2 U	3.2 U	2.6 U
Vanadium	ug/L	30.4 U	9.4 U	6.8 UJ	13.3 J	9.5 U	6.8 UJ
Zinc	ug/L	17.7 R	8.4 U	3.4 J	39.8 R	8.5 U	7 J
Cyanide	ug/L	10 U J	NS	10 UJ	10 U	NS	10 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

	MATRIX	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
SUMGW.WK3	LOCATION	MW-40	MW-40	MW40	MW-41D	MW-41D	MW41D
WORKSHEET B	DATE	01/09/92	01/09/92	07/01/93	01/13/92	01/13/92	06/22/93
	ES ID	MW-40	MW-40Filtered	MW40	MW-41D	MW-41DR	MW41D
	LAB ID	152155	152198	188126	152409	152409	187084
COMPOUND	UNITS						
VOC's							
Chloromethane	ug/L	10 U	NS	NS	10 U	NS	NS
Bromomethane	ug/L	10 U	NS	NS	10 U	NS	NS
Vinyl Chloride	ug/L	10 U	NS	NS	10 U	NS	NS
Chloroethane	ug/L	10 U	NS	NS	10 U	NS	NS
Methylene Chloride	ug/L	5 U	NS	NS	5 U	NS	NS
Acetone	ug/L	10 U	NS	NS	10 U	NS	NS
Carbon Disulfide	ug/L	5 U	NS	NS	5 U	NS	NS
1,1-Dichloroethene	ug/L	5 U	NS	NS	5 U	NS	NS
1,1-Dichloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
1,2-Dichloroethene (total)	ug/L	5 U	NS	NS	5 U	NS	NS
Chloroform	ug/L	5 U	NS	NS	5 U	NS	NS
1,2-Dichloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
2-Butanone	ug/L	10 U	NS	NS	10 U	NS	NS
1,1,1-Trichloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
Carbon Tetrachloride	ug/L	5 U	NS	NS	5 U	NS	NS
Vinyl Acetate	ug/L	10 U	NS	NS	10 U	NS	NS
Bromodichloromethane	ug/L	5 U	NS	NS	5 U	NS	NS
1,2-Dichloropropane	ug/L	5 U	NS	NS	5 U	NS	NS
cis-1,3-Dichloropropene	ug/L	5 U	NS	NS	5 U	NS	NS
Trichloroethene	ug/L	5 U	NS	NS	5 U	NS	NS
Dibromochloromethane	ug/L	5 U	NS	NS	5 U	NS	NS
1,1,2-Trichloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
Benzene	ug/L	5 U	NS	NS	5 U	NS	NS
trans-1,3-Dichloropropene	ug/L	5 U	NS	NS	5 U	NS	NS
Bromoform	ug/L	5 U	NS	NS	5 U	NS	NS
4-Methyl-2-Pentanone	ug/L	10 U	NS	NS	10 U	NS	NS
2-Hexanone	ug/L	10 U	NS	NS	10 U	NS	NS
Tetrachloroethene	ug/L	5 U	NS	NS	5 U	NS	NS
1,1,2,2-Tetrachloroethane	ug/L	5 U	NS	NS	5 U	NS	NS
Toluene	ug/L	5 U	NS	NS	5 U	NS	NS
Chlorobenzene	ug/L	5 U	NS	NS	5 U	NS	NS
Ethylbenzene	ug/L	5 U	NS	NS	5 U	NS	NS
Styrene	ug/L	5 U	NS	NS	5 U	NS	NS
Xylene (total)	ug/L	5 U	NS	NS	5 U	NS	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B	MATRIX	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW-40	MW-40	MW40	MW-41D	MW-41D	MW41D
	DATE	01/09/92	01/09/92	07/01/93	01/13/92	01/13/92	06/22/93
	ES ID	MW-40	MW-40Filtered	MW40	MW-41D	MW-41DR	MW41D
	LAB ID	152155	152198	188126	152409	152409	187064
COMPOUND	UNITS						
VOC's (524.2)							
Dichlorodifluoromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Chloromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Vinyl Chloride	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Bromomethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Chloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Trichlorofluoromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Acetone	ug/L	NS	NS	5 U	NS	NS	5 U
Carbon Disulfide	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Methylene Chloride	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
trans-1,2-Dichloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
2,2-Dichloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
cis-1,2-Dichloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
2-Butanone	ug/L	NS	NS	5 U	NS	NS	5 U
Bromochloromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Chloroform	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1,1-Trichloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Carbon Tetrachloride	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1-Dichloropropene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Benzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Trichloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Dibromomethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Bromodichloromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
cis-1,3-Dichloropropene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
4-Methyl-2-Pentanone	ug/L	NS	NS	5 U	NS	NS	5 U
Toluene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
trans-1,3-Dichloropropene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1,2-Trichloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Tetrachloroethene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,3-Dichloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
2-Hexanone	ug/L	NS	NS	5 U	NS	NS	5 U
Dibromochloromethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dibromoethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Chlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Ethylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Styrene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Bromoform	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Isopropylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Bromobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2,3-Trichloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
n-Propylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
2-Chlorotoluene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
4-Chlorotoluene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,3,5-Trimethylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
tert-Butylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2,4-Trimethylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
sec-Butylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,3-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,4-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
p-Isopropyltoluene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
n-Butylbenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2,4-Trichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Hexachlorobutadiene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Naphthalene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
1,2,3-Trichlorobenzene	ug/L	NS	NS	0.5 U	NS	NS	0.5 U
Xylene (total)	ug/L	NS	NS	0.5 U	NS	NS	0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B	MATRIX	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
	LOCATION	MW-40	MW-40	MW40	MW-41D	MW-41D	MW41D
	DATE	01/09/92	01/09/92	07/01/93	01/13/92	01/13/92	06/22/93
	ES ID	MW-40	MW-40Filtered	MW40	MW-41D	MW-41DR	MW41D
	LAB ID	152155	152198	188126	152409	152409	187084
COMPOUND	UNITS						
SEMIVOLATILES							
Phenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
bis(2-Chloroethyl) ether	ug/L	11 U	NS	10 U	10 U	NS	10 U
2-Chlorophenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
1,3-Dichlorobenzene	ug/L	11 U	NS	10 U	10 U	NS	10 U
1,4-Dichlorobenzene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Benzyl Alcohol	ug/L	11 U	NS	NA	10 U	NS	NA
1,2-Dichlorobenzene	ug/L	11 U	NS	10 U	10 U	NS	10 U
2-Methylphenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
bis(2-Chloroisopropyl) ether	ug/L	11 U	NS	10 U	10 U	NS	10 U
4-Methylphenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
N-Nitroso-di-n-propylamine	ug/L	11 U	NS	10 U	10 U	NS	10 U
Hexachloroethane	ug/L	11 U	NS	10 U	10 U	NS	10 U
Nitrobenzene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Isophorone	ug/L	11 U	NS	10 U	10 U	NS	10 U
2-Nitrophenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
2,4-Dimethylphenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
Benzoic acid	ug/L	56 U	NS	NA	52 U	NS	NA
bis(2-Chloroethoxy) methane	ug/L	11 U	NS	10 U	10 U	NS	10 U
2,4-Dichlorophenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
1,2,4-Trichlorobenzene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Naphthalene	ug/L	11 U	NS	10 U	10 U	NS	10 U
4-Chloroaniline	ug/L	11 U	NS	10 U	10 U	NS	10 U
Hexachlorobutadiene	ug/L	11 U	NS	10 U	10 U	NS	10 U
4-Chloro-3-methylphenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
2-Methylnaphthalene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Hexachlorocyclopentadiene	ug/L	11 U	NS	10 U	10 U	NS	10 U
2,4,6-Trichlorophenol	ug/L	11 U	NS	10 U	10 U	NS	10 U
2,4,5-Trichlorophenol	ug/L	56 U	NS	25 U	52 U	NS	25 U
2-Chloronaphthalene	ug/L	11 U	NS	10 U	10 U	NS	10 U
2-Nitroaniline	ug/L	56 U	NS	25 U	52 U	NS	25 U
Dimethylphthalate	ug/L	11 U	NS	10 U	10 U	NS	10 U
Acenaphthylene	ug/L	11 U	NS	10 U	10 U	NS	10 U
2,6-Dinitrotoluene	ug/L	11 U	NS	10 U	10 U	NS	10 U
3-Nitroaniline	ug/L	56 U	NS	25 U	52 U	NS	25 U
Acenaphthene	ug/L	11 U	NS	10 U	10 U	NS	10 U
2,4-Dinitrophenol	ug/L	56 U	NS	25 U	52 U	NS	25 U
4-Nitrophenol	ug/L	56 U	NS	25 U	52 U	NS	25 U
Dibenzofuran	ug/L	11 U	NS	10 U	10 U	NS	10 U
2,4-Dinitrotoluene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Diethylphthalate	ug/L	11 U	NS	10 U	10 U	NS	10 U
4-Chlorophenyl-phenylether	ug/L	11 U	NS	10 U	10 U	NS	10 U
Fluorene	ug/L	11 U	NS	10 U	10 U	NS	10 U
4-Nitroaniline	ug/L	56 U	NS	25 U	52 U	NS	25 U
4,6-Dinitro-2-methylphenol	ug/L	56 U	NS	25 U	52 U	NS	25 U
N-Nitrosodiphenylamine (1)	ug/L	11 U	NS	10 U	10 U	NS	10 U
4-Bromophenyl-phenylether	ug/L	11 U	NS	10 U	10 U	NS	10 U
Hexachlorobenzene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Pentachlorophenol	ug/L	56 U	NS	25 U	52 U	NS	25 U
Phenanthrene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Anthracene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Carbazole	ug/L	NA	NS	10 U	NA	NS	10 U
Di-n-butylphthalate	ug/L	11 U	NS	10 U	10 U	NS	4 J
Fluoranthene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Pyrene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Butylbenzylphthalate	ug/L	11 U	NS	10 U	10 U	NS	10 U
3,3'-Dichlorobenzidine	ug/L	22 U	NS	10 U	21 U	NS	10 U
Benzo(a)anthracene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Chrysene	ug/L	11 U	NS	10 U	10 U	NS	10 U
bis(2-Ethylhexyl)phthalate	ug/L	11 U	NS	11 U	10 U	NS	10 U
Di-n-octylphthalate	ug/L	11 U	NS	10 U	10 U	NS	10 U
Benzo(b)fluoranthene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Benzo(k)fluoranthene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Benzo(a)pyrene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Indeno(1,2,3-cd)pyrene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Dibenz(a,h)anthracene	ug/L	11 U	NS	10 U	10 U	NS	10 U
Benzo(g,h,i)perylene	ug/L	11 U	NS	10 U	10 U	NS	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

	MATRIX	PHASE I WATER	PHASE I WATER	PHASE II WATER	PHASE I WATER	PHASE I WATER	PHASE II WATER
SUMGW.WK3	LOCATION	MW-40	MW-40	MW40	MW-41D	MW-41D	MW41D
WORKSHEET B	DATE	01/09/92	01/09/92	07/01/93	01/13/92	01/13/92	06/22/93
	ES ID	MW-40	MW-40Filtered	MW40	MW-41D	MW-41DR	MW41D
	LAB ID	152155	152198	188126	152409	152409	187084
COMPOUND	UNITS						
PESTICIDES/PCBS							
alpha-BHC	ug/L	0.05 U	NS	0.05 U	0.057 U R	0.071 U J	0.05 U
beta-BHC	ug/L	0.05 U	NS	0.05 U	0.057 U R	0.071 U J	0.05 U
delta-BHC	ug/L	0.05 U	NS	0.05 U	0.057 U R	0.071 U J	0.05 U
gamma-BHC (Lindane)	ug/L	0.05 U	NS	0.05 U	0.057 U R	0.071 U J	0.05 U
Heptachlor	ug/L	0.05 U	NS	0.05 U	0.057 U R	0.071 U J	0.05 U
Aldrin	ug/L	0.05 U	NS	0.05 U	0.057 U R	0.071 U J	0.05 U
Heptachlor epoxide	ug/L	0.05 U	NS	0.05 U	0.057 U R	0.071 U J	0.05 U
Endosulfan I	ug/L	0.05 U	NS	0.05 U	0.057 U R	0.071 U J	0.05 U
Dieldrin	ug/L	0.1 U	NS	0.1 U	0.11 U R	0.14 U J	0.1 U
4,4'-DDE	ug/L	0.1 U	NS	0.1 U	0.11 U R	0.14 U J	0.1 U
Endrin	ug/L	0.1 U	NS	0.1 U	0.11 U R	0.14 U J	0.1 U
Endosulfan II	ug/L	0.1 U	NS	0.1 U	0.11 U R	0.14 U J	0.1 U
4,4'-DDD	ug/L	0.1 U	NS	0.1 U	0.11 U R	0.14 U J	0.1 U
Endosulfan sulfate	ug/L	0.1 U	NS	0.1 U	0.11 U R	0.14 U J	0.1 U
4,4'-DDT	ug/L	0.1 U	NS	0.1 U	0.11 U R	0.14 U J	0.1 U
Methoxychlor	ug/L	0.5 U	NS	0.5 U	0.57 U R	0.71 U J	0.5 U
Endrin ketone	ug/L	0.1 U	NS	0.1 U	0.11 U R	0.14 U J	0.1 U
Endrin aldehyde	ug/L	NA	NS	0.1 U	NA	NA	0.1 U
alpha-Chlordane	ug/L	0.5 U	NS	0.05 U	0.57 U R	0.71 U J	0.05 U
gamma-Chlordane	ug/L	0.5 U	NS	0.05 U	0.57 U R	0.71 U J	0.05 U
Toxaphene	ug/L	1 U	NS	5 U	1.1 U R	1.4 U J	5 U
Aroclor-1016	ug/L	0.5 U	NS	1 U	0.57 U R	0.71 U J	1 U
Aroclor-1221	ug/L	0.5 U	NS	2 U	0.57 U R	0.71 U J	2 U
Aroclor-1232	ug/L	0.5 U	NS	1 U	0.57 U R	0.71 U J	1 U
Aroclor-1242	ug/L	0.5 U	NS	1 U	0.57 U R	0.71 U J	1 U
Aroclor-1248	ug/L	0.5 U	NS	1 U	0.57 U R	0.71 U J	1 U
Aroclor-1254	ug/L	1 U	NS	1 U	1.1 U R	1.4 U J	1 U
Aroclor-1260	ug/L	1 U	NS	1 U	1.1 U R	1.4 U J	1 U
HERBICIDES							
2,4-D	ug/L	1 U	NS	1 U	1 U	NS	1 U
2,4-DB	ug/L	1 U	NS	1 U	1 U	NS	1 U
2,4,5-T	ug/L	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
2,4,5-TP (Silvex)	ug/L	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Dalapon	ug/L	2.3 U	NS	2.3 U	2.4 U	NS	2.3 U
Dicamba	ug/L	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Dichloroprop	ug/L	1 U	NS	1 U	1 U	NS	1 U
Dinoseb	ug/L	0.5 U	NS	0.5 U	0.5 U	NS	0.5 U
MCPA	ug/L	100 U	NS	100 U	100 U	NS	100 U
MCPP	ug/L	100 U	NS	100 U	100 U	NS	100 U
METALS							
Aluminum	ug/L	2730	24.6 U	972	146 J	NS	72 U
Antimony	ug/L	56 U J	53.4 U	49.9 UJ	77.3 R	NS	49.5 UJ
Arsenic	ug/L	3.5 U	3.5 U	1.4 UJ	3.5 U	NS	1.4 UJ
Barium	ug/L	77.8 J	32.4 R	68 J	97 J	NS	67.9 J
Beryllium	ug/L	2.1 R	2.6 R	0.9 U	1.9 R	NS	0.89 U
Cadmium	ug/L	2.9 U	3 U	3.3 J	2.9 U	NS	2.8 U
Calcium	ug/L	154000 J	101000	115000	45800 J	NS	39200
Chromium	ug/L	19.7	6.2 U	4.2 J	6.2 U	NS	2.7 UJ
Cobalt	ug/L	20 U	20.5 U	5.5 U	19.9 U	NS	5.4 U
Copper	ug/L	14.5 U	10.2 U	4.7 U	14.4 U	NS	4.7 U
Iron	ug/L	6040	7 U	1390	398 R	NS	128
Lead	ug/L	2.1 J	1.2 U	0.8 U	1.2 U	NS	0.8 U
Magnesium	ug/L	14300	13800	13000	17300 R	NS	14700
Manganese	ug/L	931	454	77.9	113	NS	43.7
Mercury	ug/L	0.14 R	0.1 R	0.09 UJ	0.12 R	NS	0.09 UJ
Nickel	ug/L	16 U	14.8 U	7.5 UJ	15.9 U	NS	7.4 UJ
Potassium	ug/L	2810 J	2610 J	2250 J	2530 J	NS	2210 J
Selenium	ug/L	1 U	1 U	1.6 J	1 U	NS	1 UJ
Silver	ug/L	9.1 U	3.4 U	5.5 U	9.1 U	NS	5.4 U
Sodium	ug/L	7540 J	7270	16600	77600 J	NS	91000
Thallium	ug/L	3.2 U	3.2 U	2.6 U	3.2 U	NS	2.6 U
Vanadium	ug/L	30.6 U	9.5 U	6.8 UJ	30.5 U	NS	6.7 UJ
Zinc	ug/L	34.1 R	8.5 U	15.7 J	13.4 U	NS	13.9 J
Cyanide	ug/L	10 U J	NS	10 UJ	10 U J	NS	10 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
WORKSHEET B	LOCATION	MW-42D	MW-42D	MW-42D	MW42D	MW-43	ASH	MW44	ASH
	DATE	01/13/92	01/13/92	01/13/92	06/23/93	06/30/93	11/06/93	07/15/93	11/06/93
	ES ID	MW-42D	MW-42DRE(4)	MW-42DFiltered	MW42D	MW-43	MW43	MW44	MW44
	LAB ID	152410	152410	152430	187233	187932	203608	189106	203609
COMPOUND	UNITS								
VOC's									
Chloromethane	ug/L	10 U	NS	NS	NS	10 U	NS	710 U	4200 U
Bromomethane	ug/L	10 U	NS	NS	NS	10 U	NS	710 U	4200 U
Vinyl Chloride	ug/L	10 U	NS	NS	NS	10 U	NS	22000	23000
Chloroethane	ug/L	10 U	NS	NS	NS	10 U	NS	710 U	4200 U
Methylene Chloride	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Acetone	ug/L	10 U	NS	NS	NS	10 U	NS	710 U	4200 U
Carbon Disulfide	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
1,1-Dichloroethene	ug/L	5 U	NS	NS	NS	10 U	NS	200 J	4200 U
1,1-Dichloroethane	ug/L	5 U	NS	NS	NS	10 U	NS	160 J	4200 U
1,2-Dichloroethene (total)	ug/L	5 U	NS	NS	NS	10 U	NS	73000	130000
Chloroform	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
1,2-Dichloroethane	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
2-Butanone	ug/L	10 U	NS	NS	NS	10 U	NS	710 U	4200 U
1,1,1-Trichloroethane	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Carbon Tetrachloride	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Vinyl Acetate	ug/L	10 U	NS	NS	NS	NA	NS	NA	NA
Bromodichloromethane	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
1,2-Dichloropropane	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
cis-1,3-Dichloropropene	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Trichloroethene	ug/L	5 U	NS	NS	NS	10 U	NS	37000	51000
Dibromochloromethane	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
1,1,2-Trichloroethane	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Benzene	ug/L	5 U	NS	NS	NS	10 U	NS	170 J	4200 U
trans-1,3-Dichloropropene	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Bromoform	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
4-Methyl-2-Pentanone	ug/L	10 U	NS	NS	NS	10 U	NS	710 U	4200 U
2-Hexanone	ug/L	10 U	NS	NS	NS	10 U	NS	710 U	4200 U
Tetrachloroethene	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
1,1,2,2-Tetrachloroethane	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Toluene	ug/L	5 U	NS	NS	NS	10 U	NS	880	4200 U
Chlorobenzene	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Ethylbenzene	ug/L	5 U	NS	NS	NS	10 U	NS	130 J	4200 U
Styrene	ug/L	5 U	NS	NS	NS	10 U	NS	710 U	4200 U
Xylene (total)	ug/L	5 U	NS	NS	NS	10 U	NS	590 J	4200 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-42D	MW-42D	MW-42D	MW42D	MW-43	ASH	MW44	ASH
WORKSHEET B	DATE	01/13/92	01/13/92	01/13/92	06/23/93	06/30/93	11/06/93	07/15/93	11/06/93
	ES ID	MW-42D	MW-42DRE(4)	MW-42DFiltered	MW42D	MW-43	MW43	MW44	MW44
	LAB ID	152410	152410	152430	187233	187932	203608	189106	203609
COMPOUND	UNITS								
VOC's (524.2)									
Dichlorodifluoromethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 UJ	NS	NS
Chloromethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Vinyl Chloride	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Bromomethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Chloroethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Trichlorofluoromethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,1-Dichloroethene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Acetone	ug/L	NS	NS	NS	5 U	NS	5 U	NS	NS
Carbon Disulfide	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Methylene Chloride	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
trans-1,2-Dichloroethene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,1-Dichloroethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
2,2-Dichloropropane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
cis-1,2-Dichloroethene	ug/L	NS	NS	NS	0.5 U	NS	1	NS	NS
2-Butanone	ug/L	NS	NS	NS	5 U	NS	5 U	NS	NS
Bromochloromethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Chloroform	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,1,1-Trichloroethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Carbon Tetrachloride	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,1-Dichloropropene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Benzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,2-Dichloroethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Trichloroethene	ug/L	NS	NS	NS	0.5 U	NS	5	NS	NS
1,2-Dichloropropane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Dibromomethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Bromodichloromethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
cis-1,3-Dichloropropene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
4-Methyl-2-Pentanone	ug/L	NS	NS	NS	5 U	NS	5 U	NS	NS
Toluene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
trans-1,3-Dichloropropene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,1,2-Trichloroethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Tetrachloroethene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,3-Dichloropropane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
2-Hexanone	ug/L	NS	NS	NS	5 U	NS	5 U	NS	NS
Dibromochloromethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,2-Dibromoethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Chlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,1,1,2-Tetrachloroethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Ethylbenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Styrene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Bromoform	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Isopropylbenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Bromobenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,1,2,2-Tetrachloroethane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,2,3-Trichloropropane	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
n-Propylbenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
2-Chlorotoluene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
4-Chlorotoluene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,3,5-Trimethylbenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
tert-Butylbenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,2,4-Trimethylbenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
sec-Butylbenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,3-Dichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,4-Dichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
p-Isopropyltoluene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,2-Dichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
n-Butylbenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
1,2-Dibromo-3-Chloropropane	ug/L	NS	NS	NS	0.5 U	NS	0.5 UJ	NS	NS
1,2,4-Trichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Hexachlorobutadiene	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS
Naphthalene	ug/L	NS	NS	NS	0.5 U	NS	0.6 U	NS	NS
1,2,3-Trichlorobenzene	ug/L	NS	NS	NS	0.5 U	NS	0.7 U	NS	NS
Xylene (total)	ug/L	NS	NS	NS	0.5 U	NS	0.5 U	NS	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-42D	MW-42D	MW-42D	MW42D	MW-43	ASH	MW44	ASH
WORKSHEET B	DATE	01/13/92	01/13/92	01/13/92	06/23/93	06/30/93	11/06/93	07/15/93	11/06/93
	ES ID	MW-42D	MW-42DRE(4)	MW-42DFiltered	MW42D	MW-43	MW43	MW44	MW44
	LAB ID	152410	152410	152430	187233	187932	203608	189106	203609
COMPOUND	UNITS								
SEMIVOLATILES									
Phenol	ug/L	10 U	NS	NS	10 U	10 U	NS	5 J	NS
bis(2-Chloroethyl) ether	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2-Chlorophenol	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
1,3-Dichlorobenzene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
1,4-Dichlorobenzene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Benzyl Alcohol	ug/L	10 U	NS	NS	NA	NA	NS	NA	NS
1,2-Dichlorobenzene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2-Methylphenol	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
bis(2-Chloroisopropyl) ether	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
4-Methylphenol	ug/L	10 U	NS	NS	10 U	10 U	NS	4 J	NS
N-Nitroso-di-n-propylamine	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Hexachloroethane	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Nitrobenzene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Isophorone	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2-Nitrophenol	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2,4-Dimethylphenol	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Benzoic acid	ug/L	52 U	NS	NS	NA	NA	NS	NA	NS
bis(2-Chloroethoxy) methane	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2,4-Dichlorophenol	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
1,2,4-Trichlorobenzene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Naphthalene	ug/L	10 U	NS	NS	10 U	10 U	NS	66 J	NS
4-Chloroaniline	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Hexachlorobutadiene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
4-Chloro-3-methylphenol	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2-Methylnaphthalene	ug/L	10 U	NS	NS	10 U	10 U	NS	12 J	NS
Hexachlorocyclopentadiene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2,4,6-Trichlorophenol	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2,4,5-Trichlorophenol	ug/L	52 U	NS	NS	25 U	25 U	NS	25 U	NS
2-Chloronaphthalene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2-Nitroaniline	ug/L	52 U	NS	NS	25 U	25 U	NS	25 U	NS
Dimethylphthalate	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Acenaphthylene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2,6-Dinitrotoluene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
3-Nitroaniline	ug/L	52 U	NS	NS	25 U	25 U	NS	25 U	NS
Acenaphthene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2,4-Dinitrophenol	ug/L	52 U	NS	NS	25 U	25 U	NS	25 U	NS
4-Nitrophenol	ug/L	52 U	NS	NS	25 U	25 U	NS	25 U	NS
Dibenzofuran	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
2,4-Dinitrotoluene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Diethylphthalate	ug/L	10 U	NS	NS	10 U	10 U	NS	1 J	NS
4-Chlorophenyl-phenylether	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Fluorene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
4-Nitroaniline	ug/L	52 U	NS	NS	25 U	25 U	NS	25 U	NS
4,6-Dinitro-2-methylphenol	ug/L	52 U	NS	NS	25 U	25 U	NS	25 U	NS
N-Nitrosodiphenylamine (1)	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
4-Bromophenyl-phenylether	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Hexachlorobenzene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Pentachlorophenol	ug/L	52 U	NS	NS	25 U	25 U	NS	54 J	NS
Phenanthrene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Anthracene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Carbazole	ug/L	NA	NS	NS	10 U	10 U	NS	10 U	NS
Di-n-butylphthalate	ug/L	10 U	NS	NS	10	10 U	NS	2 J	NS
Fluoranthene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Pyrene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Butylbenzylphthalate	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
3,3'-Dichlorobenzidine	ug/L	21 U	NS	NS	10 U	10 U	NS	10 U	NS
Benzo(a)anthracene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Chrysene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
bis(2-Ethylhexyl)phthalate	ug/L	10 U	NS	NS	14 U	13 U	NS	10 U	NS
Di-n-octylphthalate	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Benzo(b)fluoranthene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Benzo(k)fluoranthene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Benzo(a)pyrene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Indeno(1,2,3-cd)pyrene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Dibenz(a,h)anthracene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS
Benzo(g,h,i)perylene	ug/L	10 U	NS	NS	10 U	10 U	NS	10 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX	PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW-42D	MW-42D	MW-42D	MW42D	MW-43	ASH	MW44	ASH
WORKSHEET B	DATE	01/13/92	01/13/92	01/13/92	06/23/93	06/30/93	11/06/93	07/15/93	11/06/93
	ES ID	MW-42D	MW-42DRE(4)	MW-42DFiltered	MW42D	MW-43	MW43	MW44	MW44
	LAB ID	152410	152410	152430	187233	187932	203608	189106	203609
COMPOUND	UNITS								
PESTICIDES/PCBS									
alpha-BHC	ug/L	0.053 U R	0.052 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
beta-BHC	ug/L	0.053 U R	0.052 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
delta-BHC	ug/L	0.053 U R	0.052 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
gamma-BHC (Lindane)	ug/L	0.053 U R	0.052 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
Heptachlor	ug/L	0.053 U R	0.052 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
Aldrin	ug/L	0.053 U R	0.052 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
Heptachlor epoxide	ug/L	0.053 U R	0.052 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
Endosulfan I	ug/L	0.053 U R	0.052 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
Dieldrin	ug/L	0.11 U R	0.1 U J	NS	0.1 U	0.1 U	NS	0.11 U	NS
4,4'-DDE	ug/L	0.11 U R	0.1 U J	NS	0.1 U	0.1 U	NS	0.11 U	NS
Endrin	ug/L	0.11 U R	0.1 U J	NS	0.1 U	0.1 U	NS	0.11 U	NS
Endosulfan II	ug/L	0.11 U R	0.1 U J	NS	0.1 U	0.1 U	NS	0.11 U	NS
4,4'-DDD	ug/L	0.11 U R	0.1 U J	NS	0.1 U	0.1 U	NS	0.11 U	NS
Endosulfan sulfate	ug/L	0.11 U R	0.1 U J	NS	0.1 U	0.1 U	NS	0.11 U	NS
4,4'-DDT	ug/L	0.11 U R	0.1 U J	NS	0.1 U	0.1 U	NS	0.11 U	NS
Methoxychlor	ug/L	0.53 U R	0.52 U J	NS	0.5 U	0.5 U	NS	0.56 U	NS
Endrin ketone	ug/L	0.11 U R	0.1 U J	NS	0.1 U	0.1 U	NS	0.11 U	NS
Endrin aldehyde	ug/L	NA	NA	NS	0.1 U	0.1 U	NS	0.11 U	NS
alpha-Chlordane	ug/L	0.53 U R	0.52 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
gamma-Chlordane	ug/L	0.53 U R	0.52 U J	NS	0.05 U	0.05 U	NS	0.056 U	NS
Toxaphene	ug/L	1.1 U R	1 U J	NS	5 U	5 U	NS	5.6 U	NS
Aroclor-1016	ug/L	0.53 U R	0.52 U J	NS	1 U	1 U	NS	1.1 U	NS
Aroclor-1221	ug/L	0.53 U R	0.52 U J	NS	2 U	2 U	NS	2.3 U	NS
Aroclor-1232	ug/L	0.53 U R	0.52 U J	NS	1 U	1 U	NS	1.1 U	NS
Aroclor-1242	ug/L	0.53 U R	0.52 U J	NS	1 U	1 U	NS	1.1 U	NS
Aroclor-1248	ug/L	0.53 U R	0.52 U J	NS	1 U	1 U	NS	1.1 U	NS
Aroclor-1254	ug/L	1.1 U R	1 U J	NS	1 U	1 U	NS	1.1 U	NS
Aroclor-1260	ug/L	1.1 U R	1 U J	NS	1 U	1 U	NS	1.1 U	NS
HERBICIDES									
2,4-D	ug/L	1.2 U	NS	NS	1 U	1 U	NS	1.2 U	NS
2,4-DB	ug/L	1.2 U	NS	NS	1 U	1 U	NS	1.2 U	NS
2,4,5-T	ug/L	0.1 U	NS	NS	0.1 U	0.1 U	NS	0.12 U	NS
2,4,5-TP (Silvex)	ug/L	0.1 U	NS	NS	0.1 U	0.1 U	NS	0.12 U	NS
Dalapon	ug/L	2.7 U	NS	NS	2.3 U	2.3 U	NS	2.7 U	NS
Dicamba	ug/L	0.1 U	NS	NS	0.1 U	0.1 U	NS	0.12 U	NS
Dichloroprop	ug/L	1.2 U	NS	NS	1 U	1 U	NS	1.2 U	NS
Dinoseb	ug/L	0.6 U	NS	NS	0.5 U	0.5 U	NS	0.58 U	NS
MCPA	ug/L	120 U	NS	NS	100 U	100 U	NS	120 U	NS
MCPP	ug/L	120 U	NS	NS	100 U	100 U	NS	120 U	NS
METALS									
Aluminum	ug/L	209	NS	24.5 U	72.5 U	52700	NS	12300 J	NS
Antimony	ug/L	55.5 U J	NS	53.2 U	49.9 UJ	49.8 UJ	NS	49.7 U	NS
Arsenic	ug/L	3.5 U	NS	3.5 U	1.4 UJ	1.4 UJ	NS	7.8 J	NS
Barium	ug/L	112 J	NS	96.3 J	98 J	358	NS	317	NS
Beryllium	ug/L	2.1 R	NS	2.5 R	0.9 U	2.5 J	NS	1.5 J	NS
Cadmium	ug/L	2.9 U	NS	3 U	2.8 U	2.8 U	NS	2.8 U	NS
Calcium	ug/L	67300 J	NS	58000	59200	403000	NS	370000	NS
Chromium	ug/L	8.7 J	NS	6.2 U	2.7 UJ	86.2 J	NS	18.2 J	NS
Cobalt	ug/L	19.8 U	NS	20.4 U	5.5 U	36.1 J	NS	22.5 J	NS
Copper	ug/L	14.4 U	NS	10.2 U	4.7 U	61.4	NS	12.9 J	NS
Iron	ug/L	683 R	NS	7 U	106	86500	NS	18500 J	NS
Lead	ug/L	1.2 U	NS	1.2 U	0.79 U	21.9	NS	147	NS
Magnesium	ug/L	28200 J	NS	32600	30100	36100	NS	41100	NS
Manganese	ug/L	169	NS	112	56	2260	NS	7120	NS
Mercury	ug/L	0.15 R	NS	0.12 R	0.09 UJ	0.35 J	NS	0.38	NS
Nickel	ug/L	15.8 U	NS	14.6 U	7.5 UJ	107 J	NS	30.5 J	NS
Potassium	ug/L	9470	NS	11200	2950 J	10300	NS	6680	NS
Selenium	ug/L	1 U	NS	1 U	0.99 UJ	5 UJ	NS	10 UJ	NS
Silver	ug/L	9 U	NS	4.4 R	5.5 U	5.5 U	NS	5.5 U	NS
Sodium	ug/L	18700 J	NS	19700	17200	11900	NS	37600	NS
Thallium	ug/L	3.2 U	NS	3.2 U	2.6 U	2.6 U	NS	25.9 U	NS
Vanadium	ug/L	30.3 U	NS	9.5 U	6.8 UJ	73.4 J	NS	13.3 J	NS
Zinc	ug/L	13.4 U	NS	8.5 U	4.9 J	223	NS	117 J	NS
Cyanide	ug/L	10 U J	NS	NS	10 UJ	10 UJ	NS	4.3 J	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW45	ASH	MW46	ASH	MW47	MW47RE	ASH	MW48	ASH
WORKSHEET B	DATE	07/15/93	11/06/93	07/14/93	11/06/93	07/10/93	07/10/93	11/07/93	07/15/93	11/05/93
	ES ID	MW45	MW45	MW46	MW46	MW47	MW47RE	MW47	MW48	MW48
	LAB ID	189108	203612	189023	203613	188722	188722	203695	189109	203597
COMPOUND	UNITS									
VOC's										
Chloromethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Bromomethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Vinyl Chloride	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Chloroethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Methylene Chloride	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Acetone	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Carbon Disulfide	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
1,1-Dichloroethene	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
1,1-Dichloroethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
1,2-Dichloroethene (total)	ug/L	10 U	NS	120	82	10 U	NS	NS	10 U	NS
Chloroform	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
1,2-Dichloroethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
2-Butanone	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
1,1,1-Trichloroethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Carbon Tetrachloride	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Vinyl Acetate	ug/L	NA	NS	NA	NA	NA	NS	NS	NA	NS
Bromodichloromethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
1,2-Dichloropropane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
cis-1,3-Dichloropropene	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Trichloroethene	ug/L	10 U	NS	47	120	10 U	NS	NS	10 U	NS
Dibromochloromethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
1,1,2-Trichloroethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Benzene	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
trans-1,3-Dichloropropene	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Bromoform	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
4-Methyl-2-Pentanone	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
2-Hexanone	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Tetrachloroethene	ug/L	10 U	NS	10 U	1 J	10 U	NS	NS	10 U	NS
1,1,2,2-Tetrachloroethane	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Toluene	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Chlorobenzene	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Ethylbenzene	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Styrene	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS
Xylene (total)	ug/L	10 U	NS	10 U	10 U	10 U	NS	NS	10 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B		PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW45	ASH	MW46	ASH	MW47	MW47RE	ASH	MW48	ASH
	DATE	07/15/93	11/06/93	07/14/93	11/06/93	07/10/93	07/10/93	11/07/93	07/15/93	11/05/93
	ES ID	MW45	MW45	MW46	MW46	MW47	MW47RE	MW47	MW48	MW48
	LAB ID	189108	203612	189023	203613	188722	188722	203695	189109	203597
COMPOUND	UNITS									
VOC's (524.2)										
Dichlorodifluoromethane	ug/L	NS	0.5 UJ	NS	NS	NS	NS	0.5 U	NS	0.5 UJ
Chloromethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Vinyl Chloride	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Bromomethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Chloroethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Trichlorofluoromethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,1-Dichloroethene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Acetone	ug/L	NS	5 U	NS	NS	NS	NS	5 U	NS	5 U
Carbon Disulfide	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Methylene Chloride	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
trans-1,2-Dichloroethene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,1-Dichloroethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
2,2-Dichloropropane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
cis-1,2-Dichloroethene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
2-Butanone	ug/L	NS	5 U	NS	NS	NS	NS	5 U	NS	5 U
Bromochloromethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Chloroform	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,1,1-Trichloroethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Carbon Tetrachloride	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,1-Dichloropropene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Benzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,2-Dichloroethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Trichloroethene	ug/L	NS	0.5 J	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,2-Dichloropropane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Dibromomethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Bromodichloromethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
cis-1,3-Dichloropropene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
4-Methyl-2-Pentanone	ug/L	NS	5 U	NS	NS	NS	NS	5 U	NS	5 U
Toluene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
trans-1,3-Dichloropropene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,1,2-Trichloroethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Tetrachloroethene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,3-Dichloropropane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
2-Hexanone	ug/L	NS	5 U	NS	NS	NS	NS	5 U	NS	5 U
Dibromochloromethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,2-Dibromoethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Chlorobenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Ethylbenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Styrene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Bromoform	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Isopropylbenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Bromobenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,2,3-Trichloropropane	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
n-Propylbenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
2-Chlorotoluene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
4-Chlorotoluene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,3,5-Trimethylbenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
tert-Butylbenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,2,4-Trimethylbenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
sec-Butylbenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,3-Dichlorobenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,4-Dichlorobenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
p-Isopropyltoluene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,2-Dichlorobenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
n-Butylbenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	NS	0.5 UJ	NS	NS	NS	NS	0.5 U R	NS	0.5 UJ
1,2,4-Trichlorobenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Hexachlorobutadiene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Naphthalene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.6 U
1,2,3-Trichlorobenzene	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U
Xylene (total)	ug/L	NS	0.5 U	NS	NS	NS	NS	0.5 U	NS	0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX / LOCATION / DATE / ES ID / LAB ID	PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW45	ASH	MW46	ASH	MW47	MW47RE	ASH	MW48	ASH
WORKSHEET B	DATE	07/15/93	11/06/93	07/14/93	11/06/93	07/10/93	07/10/93	11/07/93	07/15/93	11/05/93
	ES ID	MW45	MW45	MW46	MW46	MW47	MW47RE	MW47	MW48	MW48
	LAB ID	189108	203612	189023	203613	188722	188722	203695	189109	203597
COMPOUND	UNITS									
SEMIVOLATILES										
Phenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
bis(2-Chloroethyl) ether	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2-Chlorophenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
1,3-Dichlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
1,4-Dichlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Benzyl Alcohol	ug/L	NA	NS	NA	NS	NA	NA	NS	NA	NS
1,2-Dichlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2-Methylphenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
bis(2-Chloroisopropyl) ether	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
4-Methylphenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
N-Nitroso-di-n-propylamine	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Hexachloroethane	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Nitrobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Isophorone	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2-Nitrophenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2,4-Dimethylphenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Benzoic acid	ug/L	NA	NS	NA	NS	NA	NA	NS	NA	NS
bis(2-Chloroethoxy) methane	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2,4-Dichlorophenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
1,2,4-Trichlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Naphthalene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
4-Chloroaniline	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Hexachlorobutadiene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
4-Chloro-3-methylphenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2-Methylnaphthalene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Hexachlorocyclopentadiene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2,4,6-Trichlorophenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2,4,5-Trichlorophenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	25 U	NS
2-Chloronaphthalene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2-Nitroaniline	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	25 U	NS
Dimethylphthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Acenaphthylene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2,6-Dinitrotoluene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
3-Nitroaniline	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	25 U	NS
Acenaphthene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2,4-Dinitrophenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	25 U	NS
4-Nitrophenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	25 U	NS
Dibenzofuran	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
2,4-Dinitrotoluene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Diethylphthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
4-Chlorophenyl-phenylether	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Fluorene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
4-Nitroaniline	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	25 U	NS
4,6-Dinitro-2-methylphenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	25 U	NS
N-Nitrosodiphenylamine (1)	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
4-Bromophenyl-phenylether	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Hexachlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Pentachlorophenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	25 U	NS
Phenanthrene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Anthracene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Carbazole	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Di-n-butylphthalate	ug/L	2 J	NS	0.5 J	NS	10 U	10 U	NS	2 J	NS
Fluoranthene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Pyrene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Butylbenzylphthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
3,3'-Dichlorobenzidine	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Benzo(a)anthracene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Chrysene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
bis(2-Ethylhexyl)phthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Di-n-octylphthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Benzo(b)fluoranthene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Benzo(k)fluoranthene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Benzo(a)pyrene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Indeno(1,2,3-cd)pyrene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Dibenz(a,h)anthracene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS
Benzo(g,h,i)perylene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	10 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW45	ASH	MW46	ASH	MW47	MW47RE	ASH	MW48	ASH
WORKSHEET B	DATE	07/15/93	11/06/93	07/14/93	11/06/93	07/10/93	07/10/93	11/07/93	07/15/93	11/05/93
	ES ID	MW45	MW45	MW46	MW46	MW47	MW47RE	MW47	MW48	MW48
	LAB ID	189108	203612	189023	203613	188722	188722	203695	189109	203597
COMPOUND	UNITS									
PESTICIDES/PCBS										
alpha-BHC	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
beta-BHC	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
delta-BHC	ug/L	0.05 U	NS	0.05 U	NS	0.026 JP	NS	NS	0.05 U	NS
gamma-BHC (Lindane)	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
Heptachlor	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
Aldrin	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
Heptachlor epoxide	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
Endosulfan I	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
Dieldrin	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
4,4'-DDE	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Endrin	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Endosulfan II	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
4,4'-DDD	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Endosulfan sulfate	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
4,4'-DDT	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Methoxychlor	ug/L	0.5 U	NS	0.5 U	NS	0.52 U	NS	NS	0.5 U	NS
Endrin ketone	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Endrin aldehyde	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
alpha-Chlordane	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
gamma-Chlordane	ug/L	0.05 U	NS	0.05 U	NS	0.052 U	NS	NS	0.05 U	NS
Toxaphene	ug/L	5 U	NS	5 U	NS	5.2 U	NS	NS	5 U	NS
Aroclor-1016	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
Aroclor-1221	ug/L	2 U	NS	2 U	NS	2.1 U	NS	NS	2 U	NS
Aroclor-1232	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
Aroclor-1242	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
Aroclor-1248	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
Aroclor-1254	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
Aroclor-1260	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
HERBICIDES										
2,4-D	ug/L	1.1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
2,4-DB	ug/L	1.1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
2,4,5-T	ug/L	0.11 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
2,4,5-TP (Silvex)	ug/L	0.11 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Dalapon	ug/L	2.4 U	NS	2.3 U	NS	2.3 U	NS	NS	2.3 U	NS
Dicamba	ug/L	0.11 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Dichloroprop	ug/L	1.1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
Dinoseb	ug/L	0.51 U	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS
MCPA	ug/L	110 U	NS	100 U	NS	100 U	NS	NS	100 U	NS
MCPP	ug/L	110 U	NS	100 U	NS	100 U	NS	NS	100 U	NS
METALS										
Aluminum	ug/L	21300 J	NS	55300	NS	17900	NS	NS	22700 J	NS
Antimony	ug/L	49.6 U	NS	49.7 U	NS	49.6 UJ	NS	NS	49.5 U	NS
Arsenic	ug/L	2.7 J	NS	3.1 J	NS	1.7 J	NS	NS	3.9 J	NS
Barium	ug/L	243	NS	813	NS	214	NS	NS	259	NS
Beryllium	ug/L	1.6 J	NS	2.5 J	NS	0.89 U	NS	NS	1.8 J	NS
Cadmium	ug/L	2.8 U	NS	2.8 U	NS	2.8 U	NS	NS	2.8 U	NS
Calcium	ug/L	181000	NS	459000	NS	153000	NS	NS	202000	NS
Chromium	ug/L	29.1 J	NS	88.4	NS	27.5 J	NS	NS	36.2 J	NS
Cobalt	ug/L	28.3 J	NS	36.7 J	NS	11.2 J	NS	NS	27.8 J	NS
Copper	ug/L	8.7 J	NS	49.6	NS	18 J	NS	NS	14.4 J	NS
Iron	ug/L	30100 J	NS	85600 J	NS	23400	NS	NS	34700 J	NS
Lead	ug/L	5.8	NS	23	NS	8.3	NS	NS	22	NS
Magnesium	ug/L	22100	NS	43600	NS	18700	NS	NS	25800	NS
Manganese	ug/L	1010	NS	2770	NS	614	NS	NS	1230	NS
Mercury	ug/L	0.18 J	NS	0.41 J	NS	0.09 UJ	NS	NS	2.3	NS
Nickel	ug/L	45.3 J	NS	101	NS	30 J	NS	NS	50 J	NS
Potassium	ug/L	6220	NS	11600	NS	4730 J	NS	NS	5520	NS
Selenium	ug/L	0.99 UJ	NS	2.9 J	NS	1.5 UJ	NS	NS	10 UJ	NS
Silver	ug/L	5.5 U	NS	7.2 J	NS	5.5 U	NS	NS	5.5 U	NS
Sodium	ug/L	8420	NS	11700	NS	11000	NS	NS	10400	NS
Thallium	ug/L	2.6 U	NS	2.6 U	NS	2.6 U	NS	NS	2.6 U	NS
Vanadium	ug/L	26.2 J	NS	81.9	NS	27.3 J	NS	NS	29.4 J	NS
Zinc	ug/L	116 J	NS	240	NS	59.2 R	NS	NS	149 J	NS
Cyanide	ug/L	1.3 J	NS	1.2 U	NS	4.4 UJ	NS	NS	1.2 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX / LOCATION / DATE / ES ID / LAB ID	PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW49D	ASH	MW50D	ASH	MW51D	MW51DRE	ASH	MW52D	ASH
	DATE	07/14/93	11/06/93	07/14/93	11/06/93	07/10/93	07/10/93	11/07/93	07/02/93	11/07/93
	ES ID	MW49D	MW49D	MW50D	MW50D	MW51D	MW51DRE	MW51D	MW52D	MW52D
	LAB ID	189025	203614	189026	203615	188723	188723	203696	188152	203697
COMPOUND	UNITS									
VOC's										
Chloromethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Bromomethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Vinyl Chloride	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Chloroethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Methylene Chloride	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Acetone	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Carbon Disulfide	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
1,1-Dichloroethene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
1,1-Dichloroethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
1,2-Dichloroethene (total)	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Chloroform	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
1,2-Dichloroethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
2-Butanone	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
1,1,1-Trichloroethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Carbon Tetrachloride	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Vinyl Acetate	ug/L	NA	NS	NA	NS	NA	NS	NS	NA	NS
Bromodichloromethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
1,2-Dichloropropane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
cis-1,3-Dichloropropene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Trichloroethene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Dibromochloromethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
1,1,2-Trichloroethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Benzene	ug/L	10 U	NS	10 U	NS	5 J	NS	NS	10 U	NS
trans-1,3-Dichloropropene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Bromoform	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
4-Methyl-2-Pentanone	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
2-Hexanone	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Tetrachloroethene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
1,1,2,2-Tetrachloroethane	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Toluene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Chlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Ethylbenzene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Styrene	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS
Xylene (total)	ug/L	10 U	NS	10 U	NS	10 U	NS	NS	10 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW49D	ASH	MW50D	ASH	MW51D	MW51DRE	ASH	MW52D	ASH
WORKSHEET B	DATE	07/14/93	11/06/93	07/14/93	11/06/93	07/10/93	07/10/93	11/07/93	07/02/93	11/07/93
	ES ID	MW49D	MW49D	MW50D	MW50D	MW51D	MW51DRE	MW51D	MW52D	MW52D
	LAB ID	189025	203614	189026	203615	188723	188723	203696	188152	203697
COMPOUND	UNITS									
VOC's (524.2)										
Dichlorodifluoromethane	ug/L	NS	0.5 UJ	NS	0.5 UJ	NS	NS	0.5 U	NS	0.5 U
Chloromethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Vinyl Chloride	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Bromomethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Chloroethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Trichlorofluoromethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,1-Dichloroethene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Acetone	ug/L	NS	5 U	NS	5 U	NS	NS	5 U	NS	5 U
Carbon Disulfide	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Methylene Chloride	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
trans-1,2-Dichloroethene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,1-Dichloroethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
2,2-Dichloropropane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
cis-1,2-Dichloroethene	ug/L	NS	2	NS	0.3 J	NS	NS	0.5 U	NS	0.5 U
2-Butanone	ug/L	NS	5 U	NS	5 U	NS	NS	5 U	NS	5 U
Bromochloromethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Chloroform	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,1,1-Trichloroethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Carbon Tetrachloride	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,1-Dichloropropene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Benzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,2-Dichloroethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Trichloroethene	ug/L	NS	0.4 J	NS	0.6	NS	NS	0.4 J	NS	0.5 U
1,2-Dichloropropane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Dibromomethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Bromodichloromethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
cis-1,3-Dichloropropene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
4-Methyl-2-Pentanone	ug/L	NS	5 U	NS	5 U	NS	NS	5 U	NS	5 U
Toluene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
trans-1,3-Dichloropropene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,1,2-Trichloroethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Tetrachloroethene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,3-Dichloropropane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
2-Hexanone	ug/L	NS	5 U	NS	5 U	NS	NS	5 U	NS	5 U
Dibromochloromethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,2-Dibromoethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Chlorobenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Ethylbenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Styrene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Bromoform	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Isopropylbenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Bromobenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,2,3-Trichloropropane	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
n-Propylbenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
2-Chlorotoluene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
4-Chlorotoluene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,3,5-Trimethylbenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
tert-Butylbenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,2,4-Trimethylbenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
sec-Butylbenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,3-Dichlorobenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,4-Dichlorobenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
p-Isopropyltoluene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,2-Dichlorobenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
n-Butylbenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	NS	0.5 UJ	NS	0.5 UJ	NS	NS	0.5 U R	NS	0.5 U R
1,2,4-Trichlorobenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Hexachlorobutadiene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Naphthalene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
1,2,3-Trichlorobenzene	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U
Xylene (total)	ug/L	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS	0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX / LOCATION / DATE / ES ID / LAB ID	PHASE II WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE II WATER	PHASE II WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER
	LOCATION	MW49D	ASH	MW50D	ASH	MW51D	MW51DRE	ASH	MW52D	ASH
	DATE	07/14/93	11/06/93	07/14/93	11/06/93	07/10/93	07/10/93	11/07/93	07/02/93	11/07/93
	ES ID	MW49D	MW49D	MW50D	MW50D	MW51D	MW51DRE	MW51D	MW52D	MW52D
	LAB ID	189025	203614	189026	203615	188723	188723	203696	188152	203697
COMPOUND	UNITS									
SEMIVOLATILES										
Phenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
bis(2-Chloroethyl) ether	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2-Chlorophenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
1,3-Dichlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
1,4-Dichlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Benzyl Alcohol	ug/L	NA	NS	NA	NS	NA	NA	NS	NA	NS
1,2-Dichlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2-Methylphenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
bis(2-Chloroisopropyl) ether	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
4-Methylphenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
N-Nitroso-di-n-propylamine	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Hexachloroethane	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Nitrobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Isophorone	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2-Nitrophenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2,4-Dimethylphenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Benzoic acid	ug/L	NA	NS	NA	NS	NA	NA	NS	NA	NS
bis(2-Chloroethoxy) methane	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2,4-Dichlorophenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
1,2,4-Trichlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Naphthalene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
4-Chloroaniline	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Hexachlorobutadiene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
4-Chloro-3-methylphenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2-Methylnaphthalene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Hexachlorocyclopentadiene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2,4,6-Trichlorophenol	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2,4,5-Trichlorophenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	27 U	NS
2-Chloronaphthalene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2-Nitroaniline	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	27 U	NS
Dimethylphthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Acenaphthylene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2,6-Dinitrotoluene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
3-Nitroaniline	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	27 U	NS
Acenaphthene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2,4-Dinitrophenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	27 U	NS
4-Nitrophenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	27 U	NS
Dibenzofuran	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
2,4-Dinitrotoluene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Diethylphthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
4-Chlorophenyl-phenylether	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Fluorene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
4-Nitroaniline	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	27 U	NS
4,6-Dinitro-2-methylphenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	27 U	NS
N-Nitrosodiphenylamine (1)	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
4-Bromophenyl-phenylether	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Hexachlorobenzene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Pentachlorophenol	ug/L	25 U	NS	25 U	NS	25 U	25 U	NS	27 U	NS
Phenanthrene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Anthracene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Carbazole	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Di-n-butylphthalate	ug/L	1 J	NS	10	NS	10 U	10 U	NS	9 J	NS
Fluoranthene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Pyrene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Butylbenzylphthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
3,3'-Dichlorobenzidine	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Benzo(a)anthracene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Chrysene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
bis(2-Ethylhexyl)phthalate	ug/L	10 U	NS	15 U	NS	15 U	10 U	NS	17 U	NS
Di-n-octylphthalate	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Benzo(b)fluoranthene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Benzo(k)fluoranthene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Benzo(a)pyrene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Indeno(1,2,3-cd)pyrene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Dibenz(a,h)anthracene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS
Benzo(g,h,i)perylene	ug/L	10 U	NS	10 U	NS	10 U	10 U	NS	11 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B	MATRIX LOCATION DATE ES ID LAB ID	PHASE II WATER MW49D 07/14/93 MW49D 189025	PHASE IIA WATER ASH 11/06/93 MW49D 203614	PHASE II WATER MW50D 07/14/93 MW50D 189026	PHASE IIA WATER ASH 11/06/93 MW50D 203615	PHASE II WATER MW51D 07/10/93 MW51D 188723	PHASE II WATER MW51DRE 07/10/93 MW51DRE 188723	PHASE IIA WATER ASH 11/07/93 MW51D 203696	PHASE II WATER MW52D 07/02/93 MW52D 188152	PHASE IIA WATER ASH 11/07/93 MW52D 203697
COMPOUND	UNITS									
PESTICIDES/PCBS										
alpha-BHC	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
beta-BHC	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
delta-BHC	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
gamma-BHC (Lindane)	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
Heptachlor	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
Aldrin	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
Heptachlor epoxide	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
Endosulfan I	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
Dieldrin	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
4,4'-DDE	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
Endrin	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
Endosulfan II	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
4,4'-DDD	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
Endosulfan sulfate	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
4,4'-DDT	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
Methoxychlor	ug/L	0.5 U	NS	0.5 U	NS	0.5 U	NS	NS	0.5 UJ	NS
Endrin ketone	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
Endrin aldehyde	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 UJ	NS
alpha-Chlordane	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
gamma-Chlordane	ug/L	0.05 U	NS	0.05 U	NS	0.05 U	NS	NS	0.05 UJ	NS
Toxaphene	ug/L	5 U	NS	5 U	NS	5 U	NS	NS	5 UJ	NS
Aroclor-1016	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 UJ	NS
Aroclor-1221	ug/L	2 U	NS	2 U	NS	2 U	NS	NS	2 UJ	NS
Aroclor-1232	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 UJ	NS
Aroclor-1242	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 UJ	NS
Aroclor-1248	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 UJ	NS
Aroclor-1254	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 UJ	NS
Aroclor-1260	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 UJ	NS
HERBICIDES										
2,4-D	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
2,4-DB	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
2,4,5-T	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
2,4,5-TP (Silvex)	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Dalapon	ug/L	2.3 U	NS	2.3 U	NS	2.3 U	NS	NS	2.3 U	NS
Dicamba	ug/L	0.1 U	NS	0.1 U	NS	0.1 U	NS	NS	0.1 U	NS
Dichloroprop	ug/L	1 U	NS	1 U	NS	1 U	NS	NS	1 U	NS
Dinoseb	ug/L	0.5 U	NS	0.5 U	NS	0.5 U	NS	NS	0.5 U	NS
MCPA	ug/L	100 U	NS	100 U	NS	100 U	NS	NS	100 U	NS
MCPP	ug/L	100 U	NS	100 U	NS	100 U	NS	NS	100 U	NS
METALS										
Aluminum	ug/L	82.9 J	NS	81.6 J	NS	113 J	NS	NS	31200	NS
Antimony	ug/L	53.6 R	NS	49.7 R	NS	49.8 UJ	NS	NS	49.7 UJ	NS
Arsenic	ug/L	1.4 U	NS	1.4 U	NS	1.4 UJ	NS	NS	2.8 J	NS
Barium	ug/L	95 J	NS	65.9 J	NS	81.2 J	NS	NS	271	NS
Beryllium	ug/L	0.9 U	NS	0.89 U	NS	0.9 U	NS	NS	2.2 J	NS
Cadmium	ug/L	2.8 U	NS	2.8 U	NS	2.8 U	NS	NS	2.8 U	NS
Calcium	ug/L	86600	NS	45900	NS	103000	NS	NS	23700 R	NS
Chromium	ug/L	2.7 U	NS	2.7 U	NS	2.7 UJ	NS	NS	23.8 J	NS
Cobalt	ug/L	5.5 U	NS	5.5 U	NS	5.5 U	NS	NS	8.3 J	NS
Copper	ug/L	5 J	NS	7 J	NS	4.7 U	NS	NS	13.9 J	NS
Iron	ug/L	719 J	NS	112 J	NS	121	NS	NS	24800	NS
Lead	ug/L	0.59 U	NS	0.6 U	NS	0.59 U	NS	NS	14	NS
Magnesium	ug/L	20500	NS	20800	NS	15400	NS	NS	11700	NS
Manganese	ug/L	98.9	NS	72.2	NS	81.7	NS	NS	340	NS
Mercury	ug/L	0.09 UJ	NS	0.09 UJ	NS	0.09 UJ	NS	NS	0.09 UJ	NS
Nickel	ug/L	7.5 U	NS	7.4 U	NS	7.5 UJ	NS	NS	33.4 J	NS
Potassium	ug/L	2520 J	NS	2800 J	NS	774 J	NS	NS	5020	NS
Selenium	ug/L	1.5 U	NS	1.5 U	NS	1.5 UJ	NS	NS	1.5 UJ	NS
Silver	ug/L	5.5 U	NS	5.6 J	NS	5.5 U	NS	NS	5.5 U	NS
Sodium	ug/L	12200	NS	21100	NS	12100	NS	NS	126000	NS
Thallium	ug/L	2.6 U	NS	2.6 U	NS	2.6 U	NS	NS	2.6 U	NS
Vanadium	ug/L	6.8 U	NS	6.7 U	NS	6.8 UJ	NS	NS	28.1 J	NS
Zinc	ug/L	22.3	NS	23.4	NS	14.4 R	NS	NS	111	NS
Cyanide	ug/L	1.7 J	NS	1.4 J	NS	5.3 UJ	NS	NS	10 UJ	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B		PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	MW53	MW53 RE	ASH	MW54D	ASH	MW55D	ASH
	DATE	07/13/93	07/11/93	11/05/93	07/13/93	11/05/93	07/15/93	11/05/93
	ES ID	MW53	MW53 RE	MW53	MW54D	MW54D	MW55D	MW55D
	LAB ID	188802	188802R1	203598	188803	203599	189110	203600
COMPOUND	UNITS							
VOC's								
Chloromethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Bromomethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Vinyl Chloride	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Chloroethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Methylene Chloride	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Acetone	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Carbon Disulfide	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,1-Dichloroethene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,1-Dichloroethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,2-Dichloroethene (total)	ug/L	51	NS	NS	10 U	NS	10 U	NS
Chloroform	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,2-Dichloroethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2-Butanone	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,1,1-Trichloroethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Carbon Tetrachloride	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Vinyl Acetate	ug/L	NA	NS	NS	NA	NS	NA	NS
Bromodichloromethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,2-Dichloropropane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
cis-1,3-Dichloropropene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Trichloroethene	ug/L	4 J	NS	NS	10 U	NS	10 U	NS
Dibromochloromethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,1,2-Trichloroethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Benzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
trans-1,3-Dichloropropene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Bromoform	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
4-Methyl-2-Pentanone	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2-Hexanone	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Tetrachloroethene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,1,2,2-Tetrachloroethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Toluene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Chlorobenzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Ethylbenzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Styrene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Xylene (total)	ug/L	10 U	NS	NS	10 U	NS	10 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 WORKSHEET B	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	LOCATION	MW53	MW53 RE	ASH	MW54D	ASH	MW55D	ASH
	DATE	07/13/93	07/11/93	11/05/93	07/13/93	11/05/93	07/15/93	11/05/93
	ES ID	MW53	MW53 RE	MW53	MW54D	MW54D	MW55D	MW55D
	LAB ID	188802	188802R1	203598	188803	203599	189110	203600
COMPOUND	UNITS							
VOC's (524.2)								
Dichlorodifluoromethane	ug/L	NS	NS	0.5 UJ	NS	0.5 UJ	NS	0.5 UJ
Chloromethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Vinyl Chloride	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Bromomethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Chloroethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Trichlorofluoromethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,1-Dichloroethene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Acetone	ug/L	NS	NS	5 U	NS	5 U	NS	5 U
Carbon Disulfide	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Methylene Chloride	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
trans-1,2-Dichloroethene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,1-Dichloroethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
2,2-Dichloropropane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
cis-1,2-Dichloroethene	ug/L	NS	NS	16	NS	0.5 U	NS	0.5 U
2-Butanone	ug/L	NS	NS	5 U	NS	5 U	NS	5 U
Bromochloromethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Chloroform	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,1,1-Trichloroethane	ug/L	NS	NS	0.3 J	NS	0.5 U	NS	0.5 U
Carbon Tetrachloride	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,1-Dichloropropene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Benzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,2-Dichloroethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Trichloroethene	ug/L	NS	NS	1	NS	0.5 U	NS	0.5 U
1,2-Dichloropropane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Dibromomethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Bromodichloromethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
cis-1,3-Dichloropropene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
4-Methyl-2-Pentanone	ug/L	NS	NS	5 U	NS	5 U	NS	5 U
Toluene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
trans-1,3-Dichloropropene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,1,2-Trichloroethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Tetrachloroethene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,3-Dichloropropane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
2-Hexanone	ug/L	NS	NS	5 U	NS	5 U	NS	5 U
Dibromochloromethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,2-Dibromoethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Chlorobenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Ethylbenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Styrene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Bromoform	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Isopropylbenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Bromobenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,2,3-Trichloropropane	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
n-Propylbenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
2-Chlorotoluene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
4-Chlorotoluene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,3,5-Trimethylbenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
tert-Butylbenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,2,4-Trimethylbenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
sec-Butylbenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,3-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,4-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
p-Isopropyltoluene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,2-Dichlorobenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
n-Butylbenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	NS	NS	0.5 UJ	NS	0.5 UJ	NS	0.5 UJ
1,2,4-Trichlorobenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Hexachlorobutadiene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Naphthalene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
1,2,3-Trichlorobenzene	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U
Xylene (total)	ug/L	NS	NS	0.5 U	NS	0.5 U	NS	0.5 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE II	PHASE II	PHASE IIA	PHASE II	PHASE IIA	PHASE II	PHASE IIA
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW53	MW53 RE	ASH	MW54D	ASH	MW55D	ASH
WORKSHEET B	DATE	07/13/93	07/11/93	11/05/93	07/13/93	11/05/93	07/15/93	11/05/93
	ES ID	MW53	MW53 RE	MW53	MW54D	MW54D	MW55D	MW55D
	LAB ID	188802	188802R1	203598	188803	203599	189110	203600
COMPOUND	UNITS							
SEMIVOLATILES								
Phenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
bis(2-Chloroethyl) ether	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2-Chlorophenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,3-Dichlorobenzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,4-Dichlorobenzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Benzyl Alcohol	ug/L	NA	NS	NS	NA	NS	NA	NS
1,2-Dichlorobenzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2-Methylphenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
bis(2-Chloroisopropyl) ether	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
4-Methylphenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
N-Nitroso-di-n-propylamine	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Hexachloroethane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Nitrobenzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Isophorone	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2-Nitrophenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2,4-Dimethylphenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Benzoic acid	ug/L	NA	NS	NS	NA	NS	NA	NS
bis(2-Chloroethoxy) methane	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2,4-Dichlorophenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
1,2,4-Trichlorobenzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Naphthalene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
4-Chloroaniline	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Hexachlorobutadiene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
4-Chloro-3-methylphenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2-Methylnaphthalene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Hexachlorocyclopentadiene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2,4,6-Trichlorophenol	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2,4,5-Trichlorophenol	ug/L	25 U	NS	NS	25 U	NS	25 U	NS
2-Chloronaphthalene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2-Nitroaniline	ug/L	25 U	NS	NS	25 U	NS	25 U	NS
Dimethylphthalate	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Acenaphthylene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2,6-Dinitrotoluene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
3-Nitroaniline	ug/L	25 U	NS	NS	25 U	NS	25 U	NS
Acenaphthene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2,4-Dinitrophenol	ug/L	25 U	NS	NS	25 U	NS	25 U	NS
4-Nitrophenol	ug/L	25 U	NS	NS	25 U	NS	25 U	NS
Dibenzofuran	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
2,4-Dinitrotoluene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Diethylphthalate	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
4-Chlorophenyl-phenylether	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Fluorene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
4-Nitroaniline	ug/L	25 U	NS	NS	25 U	NS	25 U	NS
4,6-Dinitro-2-methylphenol	ug/L	25 U	NS	NS	25 U	NS	25 U	NS
N-Nitrosodiphenylamine (1)	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
4-Bromophenyl-phenylether	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Hexachlorobenzene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Pentachlorophenol	ug/L	25 U	NS	NS	25 U	NS	25 U	NS
Phenanthrene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Anthracene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Carbazole	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Di-n-butylphthalate	ug/L	1 J	NS	NS	1 J	NS	9 J	NS
Fluoranthene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Pyrene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Butylbenzylphthalate	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
3,3'-Dichlorobenzidine	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Benzo(a)anthracene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Chrysene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
bis(2-Ethylhexyl)phthalate	ug/L	10 U	NS	NS	10 U	NS	13 U	NS
Di-n-octylphthalate	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Benzo(b)fluoranthene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Benzo(k)fluoranthene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Benzo(a)pyrene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Indeno(1,2,3-cd)pyrene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Dibenz(a,h)anthracene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS
Benzo(g,h,i)perylene	ug/L	10 U	NS	NS	10 U	NS	10 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX	PHASE II WATER	PHASE II WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER
	LOCATION	MW53	MW53 RE	ASH	MW54D	ASH	MW55D	ASH
	DATE	07/13/93	07/11/93	11/05/93	07/13/93	11/05/93	07/15/93	11/05/93
	ES ID	MW53	MW53 RE	MW53	MW54D	MW54D	MW55D	MW55D
	LAB ID	188802	188802R1	203598	188803	203599	189110	203600
COMPOUND	UNITS							
PESTICIDES/PCBS								
alpha-BHC	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
beta-BHC	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
delta-BHC	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
gamma-BHC (Lindane)	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
Heptachlor	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
Aldrin	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
Heptachlor epoxide	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
Endosulfan I	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
Dieldrin	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
4,4'-DDE	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
Endrin	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
Endosulfan II	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
4,4'-DDD	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
Endosulfan sulfate	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
4,4'-DDT	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
Methoxychlor	ug/L	0.5 U	NS	NS	0.5 U	NS	0.5 UJ	NS
Endrin ketone	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
Endrin aldehyde	ug/L	0.1 U	NS	NS	0.1 U	NS	0.1 UJ	NS
alpha-Chlordane	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
gamma-Chlordane	ug/L	0.05 U	NS	NS	0.05 U	NS	0.05 UJ	NS
Toxaphene	ug/L	5 U	NS	NS	5 U	NS	5 UJ	NS
Aroclor-1016	ug/L	1 U	NS	NS	1 U	NS	1 UJ	NS
Aroclor-1221	ug/L	2 U	NS	NS	2 U	NS	2 UJ	NS
Aroclor-1232	ug/L	1 U	NS	NS	1 U	NS	1 UJ	NS
Aroclor-1242	ug/L	1 U	NS	NS	1 U	NS	1 UJ	NS
Aroclor-1248	ug/L	1 U	NS	NS	1 U	NS	1 UJ	NS
Aroclor-1254	ug/L	1 U	NS	NS	1 U	NS	1 UJ	NS
Aroclor-1260	ug/L	1 U	NS	NS	1 U	NS	1 UJ	NS
HERBICIDES								
2,4-D	ug/L	1 R	1 R	NS	1 U	NS	1 U	NS
2,4-DB	ug/L	1 R	1 R	NS	1 U	NS	1 U	NS
2,4,5-T	ug/L	0.1 R	0.1 R	NS	0.1 U	NS	0.1 U	NS
2,4,5-TP (Silvex)	ug/L	0.1 R	0.1 R	NS	0.1 U	NS	0.1 U	NS
Dalapon	ug/L	2.3 R	2.7 J	NS	2.3 U	NS	2.3 U	NS
Dicamba	ug/L	0.1 R	0.1 R	NS	0.1 U	NS	0.1 U	NS
Dichloroprop	ug/L	1 R	1 R	NS	1 U	NS	1 U	NS
Dinoseb	ug/L	0.5 R	0.51 R	NS	0.5 U	NS	0.5 U	NS
MCPA	ug/L	100 R	100 R	NS	100 U	NS	100 U	NS
MCPP	ug/L	100 R	100 R	NS	100 U	NS	100 U	NS
METALS								
Aluminum	ug/L	47700	NS	NS	246	NS	4140 J	NS
Antimony	ug/L	56.1 R	NS	NS	54.2 R	NS	49.5 U	NS
Arsenic	ug/L	5.3 J	NS	NS	1.4 U	NS	1.9 U	NS
Barium	ug/L	325	NS	NS	151 J	NS	117 J	NS
Beryllium	ug/L	2.5 J	NS	NS	0.9 U	NS	0.89 U	NS
Cadmium	ug/L	2.8 U	NS	NS	2.8 U	NS	2.8 U	NS
Calcium	ug/L	166000	NS	NS	64600	NS	8580	NS
Chromium	ug/L	76.2	NS	NS	2.7 U	NS	7.1 J	NS
Cobalt	ug/L	54.5	NS	NS	5.5 U	NS	5.4 U	NS
Copper	ug/L	70.5	NS	NS	5.5 J	NS	4.7 UJ	NS
Iron	ug/L	80900 J	NS	NS	507 J	NS	5310 J	NS
Lead	ug/L	25.8	NS	NS	0.59 U	NS	1.3 J	NS
Magnesium	ug/L	34400	NS	NS	20700	NS	2950 J	NS
Manganese	ug/L	2930	NS	NS	145	NS	86.2	NS
Mercury	ug/L	0.09 UJ	NS	NS	0.09 UJ	NS	0.09 U	NS
Nickel	ug/L	107	NS	NS	7.5 U	NS	7.4 UJ	NS
Potassium	ug/L	9280	NS	NS	2910 J	NS	2670 J	NS
Selenium	ug/L	1.5 U	NS	NS	1.5 U	NS	1 UJ	NS
Silver	ug/L	5.5 U	NS	NS	5.5 U	NS	5.4 U	NS
Sodium	ug/L	33000	NS	NS	29500	NS	114000	NS
Thallium	ug/L	2.6 U	NS	NS	2.6 U	NS	2.6 U	NS
Vanadium	ug/L	71.2	NS	NS	6.8 U	NS	6.7 UJ	NS
Zinc	ug/L	284	NS	NS	8 J	NS	57.9 R	NS
Cyanide	ug/L	1.8 J	NS	NS	2.1 J	NS	1.2 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

	MATRIX	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER
SUMGW.WK3	LOCATION	MW56	ASH	ASH	MW57D	ASH	ASH	MW58D	ASH	ASH
WORKSHEET B	DATE	07/02/93	11/07/93	11/07/93	07/02/93	11/07/93	11/07/93	07/10/93	11/07/93	11/07/93
	ES ID	MW56	MW56	MW56RE	MW57D	MW57D	MW57DRE	MW58D	MW58D	MW58DRE
	LAB ID	188153	203698	203698	188154	203699	203699	188724	203700	203700
COMPOUND	UNITS									
VOC's										
Chloromethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Bromomethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Vinyl Chloride	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Chloroethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Methylene Chloride	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Acetone	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Carbon Disulfide	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,1-Dichloroethene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,1-Dichloroethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,2-Dichloroethene (total)	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Chloroform	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,2-Dichloroethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2-Butanone	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,1,1-Trichloroethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Carbon Tetrachloride	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Vinyl Acetate	ug/L	NA	NS	NS	NA	NS	NS	NA	NS	NS
Bromodichloromethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,2-Dichloropropane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
cis-1,3-Dichloropropene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Trichloroethene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Dibromochloromethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,1,2-Trichloroethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Benzene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
trans-1,3-Dichloropropene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Bromoform	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
4-Methyl-2-Pentanone	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2-Hexanone	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Tetrachloroethene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,1,2,2-Tetrachloroethane	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Toluene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Chlorobenzene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Ethylbenzene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Styrene	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Xylene (total)	ug/L	10 U	NS	NS	10 U	NS	NS	10 U	NS	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER
	LOCATION	MW56	ASH	ASH	MW57D	ASH	ASH	MW58D	ASH	ASH
	DATE	07/02/93	11/07/93	11/07/93	07/02/93	11/07/93	11/07/93	07/10/93	11/07/93	11/07/93
	ES ID	MW56	MW56	MW56RE	MW57D	MW57D	MW57DRE	MW58D	MW58D	MW58DRE
	LAB ID	188153	203698	203698	188154	203699	203699	188724	203700	203700
COMPOUND	UNITS									
VOC's (524.2)										
Dichlorodifluoromethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Chloromethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Vinyl Chloride	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Bromomethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Chloroethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Trichlorofluoromethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,1-Dichloroethene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Acetone	ug/L	NS	5 U	5 U	NS	5 UJ	5 U	NS	5 UJ	5 UJ
Carbon Disulfide	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Methylene Chloride	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
trans-1,2-Dichloroethene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,1-Dichloroethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
2,2-Dichloropropane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
cis-1,2-Dichloroethene	ug/L	NS	0.2 J	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
2-Butanone	ug/L	NS	5 U	5 U	NS	5 UJ	5 U	NS	5 UJ	5 UJ
Bromochloromethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Chloroform	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,1,1-Trichloroethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Carbon Tetrachloride	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,1-Dichloropropene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Benzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,2-Dichloroethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Trichloroethene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,2-Dichloropropane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Dibromomethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Bromodichloromethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
cis-1,3-Dichloropropene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
4-Methyl-2-Pentanone	ug/L	NS	5 U	5 U	NS	5 UJ	5 U	NS	5 UJ	5 UJ
Toluene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
trans-1,3-Dichloropropene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,1,2-Trichloroethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Tetrachloroethene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,3-Dichloropropane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
2-Hexanone	ug/L	NS	5 U	5 U	NS	5 UJ	5 U	NS	5 UJ	5 UJ
Dibromochloromethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,2-Dibromoethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Chlorobenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,1,1,2-Tetrachloroethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Ethylbenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Styrene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Bromoform	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Isopropylbenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Bromobenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,1,2,2-Tetrachloroethane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,2,3-Trichloropropane	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
n-Propylbenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
2-Chlorotoluene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
4-Chlorotoluene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,3,5-Trimethylbenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
tert-Butylbenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,2,4-Trimethylbenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
sec-Butylbenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,3-Dichlorobenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,4-Dichlorobenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
p-Isopropyltoluene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,2-Dichlorobenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
n-Butylbenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,2-Dibromo-3-Chloropropane	ug/L	NS	0.5 U R	0.5 U R	NS	0.5 U R	0.5 U R	NS	0.5 U R	0.5 U R
1,2,4-Trichlorobenzene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Hexachlorobutadiene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Naphthalene	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
1,2,3-Trichlorobenzene	ug/L	NS	0.7 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ
Xylene (total)	ug/L	NS	0.5 U	0.5 U	NS	0.5 UJ	0.5 U	NS	0.5 UJ	0.5 UJ

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER
	LOCATION	MW56	ASH	ASH	MW57D	ASH	ASH	MW58D	ASH	ASH
	DATE	07/02/93	11/07/93	11/07/93	07/02/93	11/07/93	11/07/93	07/10/93	11/07/93	11/07/93
	ES ID	MW56	MW56	MW56RE	MW57D	MW57D	MW57DRE	MW58D	MW58D	MW58DRE
	LAB ID	188153	203698	203698	188154	203699	203699	188724	203700	203700
COMPOUND	UNITS									
SEMIVOLATILES										
Phenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
bis(2-Chloroethyl) ether	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2-Chlorophenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,3-Dichlorobenzene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,4-Dichlorobenzene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Benzyl Alcohol	ug/L	NA	NS	NS	NA	NS	NS	NA	NS	NS
1,2-Dichlorobenzene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2-Methylphenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
bis(2-Chloroisopropyl) ether	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
4-Methylphenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
N-Nitroso-di-n-propylamine	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Hexachloroethane	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Nitrobenzene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Isophorone	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2-Nitrophenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2,4-Dimethylphenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Benzoic acid	ug/L	NA	NS	NS	NA	NS	NS	NA	NS	NS
bis(2-Chloroethoxy) methane	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2,4-Dichlorophenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
1,2,4-Trichlorobenzene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Naphthalene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
4-Chloroaniline	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Hexachlorobutadiene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
4-Chloro-3-methylphenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2-Methylnaphthalene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Hexachlorocyclopentadiene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2,4,6-Trichlorophenol	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2,4,5-Trichlorophenol	ug/L	33 U	NS	NS	25 U	NS	NS	25 U	NS	NS
2-Chloronaphthalene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2-Nitroaniline	ug/L	33 U	NS	NS	25 U	NS	NS	25 U	NS	NS
Dimethylphthalate	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Acenaphthylene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2,6-Dinitrotoluene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
3-Nitroaniline	ug/L	33 U	NS	NS	25 U	NS	NS	25 U	NS	NS
Acenaphthene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2,4-Dinitrophenol	ug/L	33 U	NS	NS	25 U	NS	NS	25 U	NS	NS
4-Nitrophenol	ug/L	33 U	NS	NS	25 U	NS	NS	25 U	NS	NS
Dibenzofuran	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
2,4-Dinitrotoluene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Diethylphthalate	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
4-Chlorophenyl-phenylether	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Fluorene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
4-Nitroaniline	ug/L	33 U	NS	NS	25 U	NS	NS	25 U	NS	NS
4,6-Dinitro-2-methylphenol	ug/L	33 U	NS	NS	25 U	NS	NS	25 U	NS	NS
N-Nitrosodiphenylamine (1)	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
4-Bromophenyl-phenylether	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Hexachlorobenzene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Pentachlorophenol	ug/L	33 U	NS	NS	25 U	NS	NS	25 U	NS	NS
Phenanthrene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Anthracene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Carbazole	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Di-n-butylphthalate	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Fluoranthene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Pyrene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Butylbenzylphthalate	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
3,3'-Dichlorobenzidine	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Benzo(a)anthracene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Chrysene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
bis(2-Ethylhexyl)phthalate	ug/L	78 U	NS	NS	44 U	NS	NS	10 U	NS	NS
Di-n-octylphthalate	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Benzo(b)fluoranthene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Benzo(k)fluoranthene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Benzo(a)pyrene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Indeno(1,2,3-cd)pyrene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Dibenz(a,h)anthracene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS
Benzo(g,h,i)perylene	ug/L	13 U	NS	NS	10 U	NS	NS	10 U	NS	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER	PHASE II WATER	PHASE IIA WATER	PHASE IIA WATER
	LOCATION	MW56	ASH	ASH	MW57D	ASH	ASH	MW58D	ASH	ASH
WORKSHEET B	DATE	07/02/93	11/07/93	11/07/93	07/02/93	11/07/93	11/07/93	07/10/93	11/07/93	11/07/93
	ES ID	MW56	MW56	MW56RE	MW57D	MW57D	MW57DRE	MW58D	MW58D	MW58DRE
	LAB ID	188153	203698	203698	188154	203699	203699	188724	203700	203700
COMPOUND	UNITS									
PESTICIDES/PCBS										
alpha-BHC	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
beta-BHC	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
delta-BHC	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
gamma-BHC (Lindane)	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
Heptachlor	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
Aldrin	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
Heptachlor epoxide	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
Endosulfan I	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
Dieldrin	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
4,4'-DDE	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
Endrin	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
Endosulfan II	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
4,4'-DDD	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
Endosulfan sulfate	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
4,4'-DDT	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
Methoxychlor	ug/L	0.51 U	NS	NS	0.52 UJ	NS	NS	0.5 UJ	NS	NS
Endrin ketone	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
Endrin aldehyde	ug/L	0.1 U	NS	NS	0.1 UJ	NS	NS	0.1 UJ	NS	NS
alpha-Chlordane	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
gamma-Chlordane	ug/L	0.051 U	NS	NS	0.052 UJ	NS	NS	0.05 UJ	NS	NS
Toxaphene	ug/L	5.1 U	NS	NS	5.2 UJ	NS	NS	5 UJ	NS	NS
Aroclor-1016	ug/L	1 U	NS	NS	1 UJ	NS	NS	1 UJ	NS	NS
Aroclor-1221	ug/L	2 U	NS	NS	2.1 UJ	NS	NS	2 UJ	NS	NS
Aroclor-1232	ug/L	1 U	NS	NS	1 UJ	NS	NS	1 UJ	NS	NS
Aroclor-1242	ug/L	1 U	NS	NS	1 UJ	NS	NS	1 UJ	NS	NS
Aroclor-1248	ug/L	1 U	NS	NS	1 UJ	NS	NS	1 UJ	NS	NS
Aroclor-1254	ug/L	1 U	NS	NS	1 UJ	NS	NS	1 UJ	NS	NS
Aroclor-1260	ug/L	1 U	NS	NS	1 UJ	NS	NS	1 UJ	NS	NS
HERBICIDES										
2,4-D	ug/L	1 U	NS	NS	1 U	NS	NS	1 U	NS	NS
2,4-DB	ug/L	1 U	NS	NS	1 U	NS	NS	1 U	NS	NS
2,4,5-T	ug/L	0.1 U	NS	NS	0.1 U	NS	NS	0.1 U	NS	NS
2,4,5-TP (Silvex)	ug/L	0.1 U	NS	NS	0.1 U	NS	NS	0.1 U	NS	NS
Dalapon	ug/L	2.3 U	NS	NS	2.3 U	NS	NS	2.3 U	NS	NS
Dicamba	ug/L	0.1 U	NS	NS	0.1 U	NS	NS	0.1 U	NS	NS
Dichloroprop	ug/L	1 U	NS	NS	1 U	NS	NS	1 U	NS	NS
Dinoseb	ug/L	0.51 U	NS	NS	0.5 U	NS	NS	0.5 U	NS	NS
MCPA	ug/L	100 U	NS	NS	100 U	NS	NS	100 U	NS	NS
MCPP	ug/L	100 U	NS	NS	100 U	NS	NS	100 U	NS	NS
METALS										
Aluminum	ug/L	228000	NS	NS	18500	NS	NS	40100	NS	NS
Antimony	ug/L	191 J	NS	NS	49.6 UJ	NS	NS	49.6 UJ	NS	NS
Arsenic	ug/L	1.4 UJ	NS	NS	2.8 J	NS	NS	3.3 J	NS	NS
Barium	ug/L	1460	NS	NS	617	NS	NS	705	NS	NS
Beryllium	ug/L	11.7	NS	NS	1.2 J	NS	NS	3.5 J	NS	NS
Cadmium	ug/L	2.8 U	NS	NS	2.8 U	NS	NS	2.8 U	NS	NS
Calcium	ug/L	287000	NS	NS	61800	NS	NS	71400	NS	NS
Chromium	ug/L	351 J	NS	NS	32.2 J	NS	NS	59.2 J	NS	NS
Cobalt	ug/L	201	NS	NS	11.3 J	NS	NS	19.8 J	NS	NS
Copper	ug/L	272	NS	NS	18.1 J	NS	NS	32.3	NS	NS
Iron	ug/L	379000	NS	NS	31000	NS	NS	50200	NS	NS
Lead	ug/L	44.3	NS	NS	6.7	NS	NS	13.5	NS	NS
Magnesium	ug/L	100000	NS	NS	12300	NS	NS	19100	NS	NS
Manganese	ug/L	10600	NS	NS	791	NS	NS	1100	NS	NS
Mercury	ug/L	0.13 J	NS	NS	0.09 UJ	NS	NS	0.09 UJ	NS	NS
Nickel	ug/L	533 J	NS	NS	37.3 J	NS	NS	65.8 J	NS	NS
Potassium	ug/L	24800	NS	NS	4830 J	NS	NS	11200	NS	NS
Selenium	ug/L	1.5 UJ	NS	NS	1.5 UJ	NS	NS	1.5 UJ	NS	NS
Silver	ug/L	5.4 U	NS	NS	5.5 U	NS	NS	5.5 U	NS	NS
Sodium	ug/L	19500	NS	NS	148000	NS	NS	147000	NS	NS
Thallium	ug/L	2.6 U	NS	NS	2.6 U	NS	NS	2.6 U	NS	NS
Vanadium	ug/L	317 J	NS	NS	28.8 J	NS	NS	67.1 J	NS	NS
Zinc	ug/L	1100	NS	NS	67.2	NS	NS	122	NS	NS
Cyanide	ug/L	10 UJ	NS	NS	10 UJ	NS	NS	3.8 UJ	NS	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3	MATRIX	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER
WORKSHEET B	LOCATION	MW80	MW82	MW84	MW86	MW88	MW88RE
	DATE	07/13/93	07/10/93	07/15/93	07/14/93	07/10/93	07/10/93
	ES ID	MW80	MW82	MW84	MW86	MW88	MW88RE
	LAB ID	188804	188726	189111	189027	188727	188727
COMPOUND	UNITS						
VOC's							
Chloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Bromomethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Vinyl Chloride	ug/L	10 U	10 U	23000	10 U	10 U	NS
Chloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Methylene Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Acetone	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Carbon Disulfide	ug/L	10 U	10 U	10 U	10 U	10 U	NS
1,1-Dichloroethene	ug/L	10 U	10 U	170	10 U	10 U	NS
1,1-Dichloroethane	ug/L	10 U	10 U	150	10 U	10 U	NS
1,2-Dichloroethene (total)	ug/L	47	80	74000	120	10 U	NS
Chloroform	ug/L	10 U	10 U	5 J	10 U	10 U	NS
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
2-Butanone	ug/L	10 U	10 U	10 U	10 U	10 U	NS
1,1,1-Trichloroethane	ug/L	10 U	10 U	72	10 U	10 U	NS
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Vinyl Acetate	ug/L	NA	NA	NA	NA	NA	NS
Bromodichloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Trichloroethene	ug/L	200	5 J	37000	46	10 U	NS
Dibromochloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Benzene	ug/L	10 U	10 U	150	10 U	10 U	NS
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Bromoform	ug/L	10 U	10 U	10 U	10 U	10 U	NS
4-Methyl-2-Pentanone	ug/L	10 U	10 U	77	10 U	10 U	NS
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Tetrachloroethene	ug/L	10 U	10 U	2 J	10 U	10 U	NS
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Toluene	ug/L	10 U	10 U	900 J	10 U	10 U	NS
Chlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Ethylbenzene	ug/L	10 U	10 U	100	10 U	10 U	NS
Styrene	ug/L	10 U	10 U	10 U	10 U	10 U	NS
Xylene (total)	ug/L	10 U	10 U	540	10 U	10 U	NS

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

	MATRIX	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER
SUMGW.WK3	LOCATION	MW80	MW82	MW84	MW86	MW88	MW88RE
WORKSHEET B	DATE	07/13/93	07/10/93	07/15/93	07/14/93	07/10/93	07/10/93
	ES ID	MW80	MW82	MW84	MW86	MW88	MW88RE
	LAB ID	188804	188726	189111	189027	188727	188727
COMPOUND	UNITS						
VOC's (524.2)							
Dichlorodifluoromethane	ug/L	NS	NS	NS	NS	NS	NS
Chloromethane	ug/L	NS	NS	NS	NS	NS	NS
Vinyl Chloride	ug/L	NS	NS	NS	NS	NS	NS
Bromomethane	ug/L	NS	NS	NS	NS	NS	NS
Chloroethane	ug/L	NS	NS	NS	NS	NS	NS
Trichlorofluoromethane	ug/L	NS	NS	NS	NS	NS	NS
1,1-Dichloroethene	ug/L	NS	NS	NS	NS	NS	NS
Acetone	ug/L	NS	NS	NS	NS	NS	NS
Carbon Disulfide	ug/L	NS	NS	NS	NS	NS	NS
Methylene Chloride	ug/L	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	ug/L	NS	NS	NS	NS	NS	NS
1,1-Dichloroethane	ug/L	NS	NS	NS	NS	NS	NS
2,2-Dichloropropane	ug/L	NS	NS	NS	NS	NS	NS
cis-1,2-Dichloroethene	ug/L	NS	NS	NS	NS	NS	NS
2-Butanone	ug/L	NS	NS	NS	NS	NS	NS
Bromochloromethane	ug/L	NS	NS	NS	NS	NS	NS
Chloroform	ug/L	NS	NS	NS	NS	NS	NS
1,1,1-Trichloroethane	ug/L	NS	NS	NS	NS	NS	NS
Carbon Tetrachloride	ug/L	NS	NS	NS	NS	NS	NS
1,1-Dichloropropene	ug/L	NS	NS	NS	NS	NS	NS
Benzene	ug/L	NS	NS	NS	NS	NS	NS
1,2-Dichloroethane	ug/L	NS	NS	NS	NS	NS	NS
Trichloroethene	ug/L	NS	NS	NS	NS	NS	NS
1,2-Dichloropropane	ug/L	NS	NS	NS	NS	NS	NS
Dibromomethane	ug/L	NS	NS	NS	NS	NS	NS
Bromodichloromethane	ug/L	NS	NS	NS	NS	NS	NS
cis-1,3-Dichloropropene	ug/L	NS	NS	NS	NS	NS	NS
4-Methyl-2-Pentanone	ug/L	NS	NS	NS	NS	NS	NS
Toluene	ug/L	NS	NS	NS	NS	NS	NS
trans-1,3-Dichloropropene	ug/L	NS	NS	NS	NS	NS	NS
1,1,2-Trichloroethane	ug/L	NS	NS	NS	NS	NS	NS
Tetrachloroethene	ug/L	NS	NS	NS	NS	NS	NS
1,3-Dichloropropane	ug/L	NS	NS	NS	NS	NS	NS
2-Hexanone	ug/L	NS	NS	NS	NS	NS	NS
Dibromochloromethane	ug/L	NS	NS	NS	NS	NS	NS
1,2-Dibromoethane	ug/L	NS	NS	NS	NS	NS	NS
Chlorobenzene	ug/L	NS	NS	NS	NS	NS	NS
1,1,1,2-Tetrachloroethane	ug/L	NS	NS	NS	NS	NS	NS
Ethylbenzene	ug/L	NS	NS	NS	NS	NS	NS
Styrene	ug/L	NS	NS	NS	NS	NS	NS
Bromoform	ug/L	NS	NS	NS	NS	NS	NS
Isopropylbenzene	ug/L	NS	NS	NS	NS	NS	NS
Bromobenzene	ug/L	NS	NS	NS	NS	NS	NS
1,1,2,2-Tetrachloroethane	ug/L	NS	NS	NS	NS	NS	NS
1,2,3-Trichloropropane	ug/L	NS	NS	NS	NS	NS	NS
n-Propylbenzene	ug/L	NS	NS	NS	NS	NS	NS
2-Chlorotoluene	ug/L	NS	NS	NS	NS	NS	NS
4-Chlorotoluene	ug/L	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	ug/L	NS	NS	NS	NS	NS	NS
tert-Butylbenzene	ug/L	NS	NS	NS	NS	NS	NS
1,2,4-Trimethylbenzene	ug/L	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	ug/L	NS	NS	NS	NS	NS	NS
1,3-Dichlorobenzene	ug/L	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	ug/L	NS	NS	NS	NS	NS	NS
p-Isopropyltoluene	ug/L	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene	ug/L	NS	NS	NS	NS	NS	NS
n-Butylbenzene	ug/L	NS	NS	NS	NS	NS	NS
1,2-Dibromo-3-Chloropropane	ug/L	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	ug/L	NS	NS	NS	NS	NS	NS
Hexachlorobutadiene	ug/L	NS	NS	NS	NS	NS	NS
Naphthalene	ug/L	NS	NS	NS	NS	NS	NS
1,2,3-Trichlorobenzene	ug/L	NS	NS	NS	NS	NS	NS
Xylene (total)	ug/L	NS	NS	NS	NS	NS	

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

		PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
SUMGW.WK3	LOCATION	MW80	MW82	MW84	MW86	MW88	MW88RE
WORKSHEET B	DATE	07/13/93	07/10/93	07/15/93	07/14/93	07/10/93	07/10/93
	ES ID	MW80	MW82	MW84	MW86	MW88	MW88RE
	LAB ID	188804	188726	189111	189027	188727	188727
COMPOUND	UNITS						
SEMIVOLATILES							
Phenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl) ether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol	ug/L	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl) ether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	ug/L	10 U	10 U	6 J	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	ug/L	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy) methane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	ug/L	10 U	10 U	65 J	10 U	10 U	10 U
4-Chloroaniline	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	ug/L	10 U	10 U	13 J	10 U	10 U	10 U
Hexachlorocyclopentadiene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U
Dimethylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U
Acenaphthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitrophenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U
Dibenzofuran	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	ug/L	10 U	10 U	2 J	10 U	10 U	10 U
4-Chlorophenyl-phenylether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	ug/L	25 U	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	25 U	25 U	25 U	25 U	25 U
N-Nitrosodiphenylamine (1)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	ug/L	25 U	25 U	74 J	25 U	25 U	25 U
Phenanthrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	ug/L	2 J	10 U	2 J	0.6 J	9 J	10 U
Fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	12 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U

SENECA ARMY DEPOT, ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS
VALIDATED DATA (PHASES I, II, & IIA)

SUMGW.WK3 / WORKSHEET B	MATRIX	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER	PHASE II WATER
	LOCATION	MW80	MW82	MW84	MW86	MW88	MW88RE
	DATE	07/13/93	07/10/93	07/15/93	07/14/93	07/10/93	07/10/93
	ES ID	MW80	MW82	MW84	MW86	MW88	MW88RE
	LAB ID	188804	188726	189111	189027	188727	188727
COMPOUND	UNITS						
PESTICIDES/PCBS							
alpha-BHC	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
beta-BHC	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
delta-BHC	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
gamma-BHC (Lindane)	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
Heptachlor	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
Aldrin	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
Heptachlor epoxide	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
Endosulfan I	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
Dieldrin	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
4,4'-DDE	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
Endrin	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
Endosulfan II	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
4,4'-DDD	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
Endosulfan sulfate	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
4,4'-DDT	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
Methoxychlor	ug/L	0.5 U	0.5 U	0.55 U	0.52 U	0.5 UJ	NS
Endrin ketone	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
Endrin aldehyde	ug/L	0.1 U	0.1 U	0.11 U	0.1 U	0.1 UJ	NS
alpha-Chlordane	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
gamma-Chlordane	ug/L	0.05 U	0.05 U	0.055 U	0.052 U	0.05 UJ	NS
Toxaphene	ug/L	5 U	5 U	5.5 U	5.2 U	5 UJ	NS
Aroclor-1016	ug/L	1 U	1 U	1.1 U	1 U	1 UJ	NS
Aroclor-1221	ug/L	2 U	2 U	2.2 U	2.1 U	2 UJ	NS
Aroclor-1232	ug/L	1 U	1 U	1.1 U	1 U	1 UJ	NS
Aroclor-1242	ug/L	1 U	1 U	1.1 U	1 U	1 UJ	NS
Aroclor-1248	ug/L	1 U	1 U	1.1 U	1 U	1 UJ	NS
Aroclor-1254	ug/L	1 U	1 U	1.1 U	1 U	1 UJ	NS
Aroclor-1260	ug/L	1 U	1 U	1.1 U	1 U	1 UJ	NS
HERBICIDES							
2,4-D	ug/L	1 U	1 U	1.2 U	1 U	1 U	NS
2,4-DB	ug/L	1 U	1 U	1.2 U	1 U	1 U	NS
2,4,5-T	ug/L	0.1 U	0.1 U	0.12 U	0.1 U	0.1 U	NS
2,4,5-TP (Silvex)	ug/L	0.1 U	0.1 U	0.12 U	0.1 U	0.1 U	NS
Dalapon	ug/L	2.3 U	2.3 U	2.7 U	2.3 U	2.3 U	NS
Dicamba	ug/L	0.1 U	0.1 U	0.18	0.1 U	0.1 U	NS
Dichloroprop	ug/L	1 U	1 U	1.2 U	1 U	1 U	NS
Dinoseb	ug/L	0.5 U	0.5 U	0.58 U	0.5 U	0.5 U	NS
MCPA	ug/L	100 U	100 U	120 U	100 U	100 U	NS
MCPP	ug/L	100 U	100 U	120 U	100 U	100 U	NS
METALS							
Aluminum	ug/L	84.7 J	142 J	45600 J	91200	76500	NS
Antimony	ug/L	77.2 R	50 UJ	77.7	84.6 R	50 UJ	NS
Arsenic	ug/L	1.4 U	1.4 UJ	6.3 J	2.3 J	4.3 J	NS
Barium	ug/L	54.2 J	46.8 J	408	1190	1060	NS
Beryllium	ug/L	0.89 U	0.9 U	2.4 J	4 J	5.4	NS
Cadmium	ug/L	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	NS
Calcium	ug/L	116000	113000	385000	481000	75100	NS
Chromium	ug/L	2.7 U	2.7 UJ	77.8 J	143	111 J	NS
Cobalt	ug/L	5.5 U	5.5 U	40.3 J	57.4	36.7 J	NS
Copper	ug/L	5.8 J	4.7 U	49.2 J	75.4	53.2	NS
Iron	ug/L	93.8 J	162	75700 J	141000 J	91100	NS
Lead	ug/L	0.6 U	0.6 U	132	20.1	16.3	NS
Magnesium	ug/L	11400	12700	54700	57800	31300	NS
Manganese	ug/L	6.4 J	32.3	7560	3290	1410	NS
Mercury	ug/L	0.09 UJ	0.09 UJ	0.18 J	0.25 J	0.09 UJ	NS
Nickel	ug/L	7.4 U	7.5 UJ	99 J	169	118 J	NS
Potassium	ug/L	1560 J	1260 J	11600	16400	21700	NS
Selenium	ug/L	1.5 U	1.5 UJ	9.9 UJ	1.5 U	1.5 UJ	NS
Silver	ug/L	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	NS
Sodium	ug/L	28600	14800	38400	11900	149000	NS
Thallium	ug/L	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	NS
Vanadium	ug/L	6.8 U	6.8 UJ	64.6 J	128	123 J	NS
Zinc	ug/L	3.1 J	7.2 R	257 J	383	186	NS
Cyanide	ug/L	4 J	1.2 UJ	3.4 J	1.2 U	3.5 UJ	NS

SENECA ARMY DEPOT
ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS

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ASH694.WK3

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	ASH	ASH	ASH	ASH	ASH	ASH
	SAMPLE DATE	4/11/94	4/11/94	4/11/94	4/18/94	4/18/94	4/18/94
	ES ID	MW-59	MW-60	TB-411	PT-11	PT-11RE	TB-418
	LAB ID	217012	217013	217014	218293	218293R1	218297
COMPOUND	UNITS						
VOLATILE ORGANICS							
Dichlorodifluoromethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Chloromethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Vinyl Chloride	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Bromomethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Chloroethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Trichlorofluoromethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,1-Dichloroethene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Freon TF	ug/L	NA	NA	NA	0.5 UJ	1 UJ	0.5 U
Acetone	ug/L	5 U	5 U	5 U	5 UJ	10 UJ	5 U
Carbon Disulfide	ug/L	0.2 J	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Methylene Chloride	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	2 UJ	0.5 U
trans-1,2-Dichloroethene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,1-Dichloroethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
2,2-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
cis-1,2-Dichloroethene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
2-Butanone	ug/L	5 U	5 U	5 U	5 UJ	10 UJ	5 U
Bromochloromethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Chloroform	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,1,1-Trichloroethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Carbon Tetrachloride	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,1-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Benzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,2-Dichloroethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Trichloroethene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,2-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Dibromomethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Bromodichloromethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
cis-1,3-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
4-Methyl-2-Pentanone	ug/L	5 U	5 U	5 U	5 UJ	10 UJ	5 U
Toluene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
trans-1,3-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,1,2-Trichloroethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Tetrachloroethene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,3-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
2-Hexanone	ug/L	5 U	5 U	5 U	5 UJ	10 UJ	5 U
Dibromochloromethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Butyl acetate	ug/L	NA	NA	NA	0.5 UJ	1 UJ	0.5 U
1,2-Dibromoethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Chlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Ethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
m- & p-Xylene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
o-Xylene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Styrene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Bromoform	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Isopropylbenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Bromobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,1,2,2-Tetrachloroethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,2,3-Trichloropropane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
n-Propylbenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
2-Chlorotoluene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
4-Chlorotoluene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,3,5-Trimethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
tert-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,2,4-Trimethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
sec-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,3-Dichlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,4-Dichlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
p-Isopropyltoluene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,2-Dichlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
n-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,2-Dibromo-3-Chloropropane	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,2,4-Trichlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.3 BJ
Hexachlorobutadiene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.2 BJ
Naphthalene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
1,2,3-Trichlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U
Xylene (total)	ug/L	0.5 U	0.5 U	0.5 U	0.5 UJ	1 UJ	0.5 U

NOTES:
NA stands for Not Analyzed

SENECA ARMY DEPOT
ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS

h:\eng\seneca\ashri\newdata ASH694.WK3	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	ASH	ASH	ASH	ASH	ASH	ASH
	SAMPLE DATE	4/11/94	4/11/94	4/11/94	4/18/94	4/18/94	4/18/94
	ES ID	MW-59	MW-60	TB-411	PT-11	PT-11RE	TB-418
	LAB ID	217012	217013	217014	218293	218293R1	218297
COMPOUND	UNITS						
SEMIVOLATILE ORGANICS							
Phenol	ug/L	10 U	10 U	NS	10 U	NS	NS
bis(2-Chloroethyl) ether	ug/L	10 U	10 U	NS	10 U	NS	NS
2-Chlorophenol	ug/L	10 U	10 U	NS	10 U	NS	NS
1,3-Dichlorobenzene	ug/L	10 U	10 U	NS	10 U	NS	NS
1,4-Dichlorobenzene	ug/L	10 U	10 U	NS	10 U	NS	NS
1,2-Dichlorobenzene	ug/L	10 U	10 U	NS	10 U	NS	NS
2-Methylphenol	ug/L	10 U	10 U	NS	10 U	NS	NS
2,2'-oxybis(1-Chloropropane)	ug/L	10 U	10 U	NS	10 U	NS	NS
4-Methylphenol	ug/L	10 U	10 U	NS	10 U	NS	NS
N-Nitroso-di-n-propylamine	ug/L	10 U	10 U	NS	10 U	NS	NS
Hexachloroethane	ug/L	10 U	10 U	NS	10 U	NS	NS
Nitrobenzene	ug/L	10 U	10 U	NS	10 U	NS	NS
Isophorone	ug/L	10 U	10 U	NS	10 U	NS	NS
2-Nitrophenol	ug/L	10 U	10 U	NS	10 U	NS	NS
2,4-Dimethylphenol	ug/L	10 U	10 U	NS	10 U	NS	NS
bis(2-Chloroethoxy) methane	ug/L	10 U	10 U	NS	10 U	NS	NS
2,4-Dichlorophenol	ug/L	10 U	10 U	NS	10 U	NS	NS
1,2,4-Trichlorobenzene	ug/L	10 U	10 U	NS	10 U	NS	NS
Naphthalene	ug/L	10 U	10 U	NS	10 U	NS	NS
4-Chloroaniline	ug/L	10 U	10 U	NS	10 U	NS	NS
Hexachlorobutadiene	ug/L	10 U	10 U	NS	10 U	NS	NS
4-Chloro-3-methylphenol	ug/L	10 U	10 U	NS	10 U	NS	NS
2-Methylnaphthalene	ug/L	10 U	10 U	NS	10 U	NS	NS
Hexachlorocyclopentadiene	ug/L	10 U	10 U	NS	10 U	NS	NS
2,4,6-Trichlorophenol	ug/L	10 U	10 U	NS	10 U	NS	NS
2,4,5-Trichlorophenol	ug/L	26 U	26 U	NS	26 U	NS	NS
2-Chloronaphthalene	ug/L	10 U	10 U	NS	10 U	NS	NS
2-Nitroaniline	ug/L	26 U	26 U	NS	26 U	NS	NS
Dimethylphthalate	ug/L	10 U	10 U	NS	10 U	NS	NS
Acenaphthylene	ug/L	10 U	10 U	NS	10 U	NS	NS
2,6-Dinitrotoluene	ug/L	10 U	10 U	NS	10 U	NS	NS
3-Nitroaniline	ug/L	26 U	26 U	NS	26 U	NS	NS
Acenaphthene	ug/L	10 U	10 U	NS	10 U	NS	NS
2,4-Dinitrophenol	ug/L	26 U	26 U	NS	26 U	NS	NS
4-Nitrophenol	ug/L	26 U	26 U	NS	26 U	NS	NS
Dibenzofuran	ug/L	10 U	10 U	NS	10 U	NS	NS
2,4-Dinitrotoluene	ug/L	10 U	10 U	NS	10 U	NS	NS
Diethylphthalate	ug/L	10 U	10 U	NS	10 U	NS	NS
4-Chlorophenyl-phenylether	ug/L	10 U	10 U	NS	10 U	NS	NS
Fluorene	ug/L	10 U	10 U	NS	10 U	NS	NS
4-Nitroaniline	ug/L	26 U	26 U	NS	26 U	NS	NS
4,6-Dinitro-2-methylphenol	ug/L	26 U	26 U	NS	26 U	NS	NS
N-Nitrosodiphenylamine	ug/L	10 U	10 U	NS	10 U	NS	NS
4-Bromophenyl-phenylether	ug/L	10 U	10 U	NS	10 U	NS	NS
Hexachlorobenzene	ug/L	10 U	10 U	NS	10 U	NS	NS
Pentachlorophenol	ug/L	26 U	26 U	NS	26 U	NS	NS
Phenanthrene	ug/L	10 U	10 U	NS	10 U	NS	NS
Anthracene	ug/L	10 U	10 U	NS	10 U	NS	NS
Carbazole	ug/L	10 U	10 U	NS	10 U	NS	NS
Di-n-butylphthalate	ug/L	10 U	10 U	NS	10 U	NS	NS
Fluoranthene	ug/L	10 U	10 U	NS	10 U	NS	NS
Pyrene	ug/L	10 U	10 U	NS	10 U	NS	NS
Butylbenzylphthalate	ug/L	10 U	10 U	NS	10 U	NS	NS
3,3'-Dichlorobenzidine	ug/L	10 U	10 U	NS	10 U	NS	NS
Benzo(a)anthracene	ug/L	10 U	10 U	NS	10 U	NS	NS
Chrysene	ug/L	10 U	10 U	NS	10 U	NS	NS
bis(2-Ethylhexyl)phthalate	ug/L	10 U	10 U	NS	13 U	NS	NS
Di-n-octylphthalate	ug/L	10 U	10 U	NS	10 U	NS	NS
Benzo(b)fluoranthene	ug/L	10 U	10 U	NS	10 U	NS	NS
Benzo(k)fluoranthene	ug/L	10 U	10 U	NS	10 U	NS	NS
Benzo(a)pyrene	ug/L	10 U	10 U	NS	10 U	NS	NS
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	NS	10 U	NS	NS
Dibenz(a,h)anthracene	ug/L	10 U	10 U	NS	10 U	NS	NS
Benzo(g,h,i)perylene	ug/L	10 U	10 U	NS	10 U	NS	NS

SENECA ARMY DEPOT
ASH LANDFILL
GROUNDWATER ANALYSIS RESULTS

h:\eng\seneca\ashri\newdata	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
ASH694.WK3	LOCATION	ASH	ASH	ASH	ASH	ASH	ASH
	SAMPLE DATE	4/11/94	4/11/94	4/11/94	4/18/94	4/18/94	4/18/94
	ES ID	MW-59	MW-60	TB-411	PT-11	PT-11RE	TB-418
	LAB ID	217012	217013	217014	218293	218293R1	218297
COMPOUND	UNITS						
PESTICIDES/PCB							
alpha-BHC	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
beta-BHC	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
delta-BHC	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
gamma-BHC (Lindane)	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
Heptachlor	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
Aldrin	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
Heptachlor epoxide	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
Endosulfan I	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
Dieldrin	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
4,4'-DDE	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
Endrin	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
Endosulfan II	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
4,4'-DDD	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
Endosulfan sulfate	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
4,4'-DDT	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
Methoxychlor	ug/L	0.53 U	0.55 U	NS	0.54 U	NS	NS
Endrin ketone	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
Endrin aldehyde	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
alpha-Chlordane	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
gamma-Chlordane	ug/L	0.053 U	0.055 U	NS	0.054 U	NS	NS
Toxaphene	ug/L	5.3 U	5.5 U	NS	5.4 U	NS	NS
Aroclor-1016	ug/L	1.1 U	1.1 U	NS	1.1 U	NS	NS
Aroclor-1221	ug/L	2.1 U	2.2 U	NS	2.2 U	NS	NS
Aroclor-1232	ug/L	1.1 U	1.1 U	NS	1.1 U	NS	NS
Aroclor-1242	ug/L	1.1 U	1.1 U	NS	1.1 U	NS	NS
Aroclor-1248	ug/L	1.1 U	1.1 U	NS	1.1 U	NS	NS
Aroclor-1254	ug/L	1.1 U	1.1 U	NS	1.1 U	NS	NS
Aroclor-1260	ug/L	1.1 U	1.1 U	NS	1.1 U	NS	NS
HERBICIDES							
2,4-D	ug/L	1.1 U	1.1 U	NS	1.1 U	NS	NS
2,4-DB	ug/L	1.1 U	1.1 U	NS	1.1 U	NS	NS
2,4,5-T	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
2,4,5-TP (Silvex)	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
Dalapon	ug/L	2.5 U	2.5 U	NS	2.4 U	NS	NS
Dicamba	ug/L	0.11 U	0.11 U	NS	0.11 U	NS	NS
Dichloroprop	ug/L	1.1 U	1.1 U	NS	0.11 U	NS	NS
Dinoseb	ug/L	0.54 U	0.53 U	NS	0.51 U	NS	NS
MCPA	ug/L	110 U	110 U	NS	110 U	NS	NS
MCPP	ug/L	110 U	110 U	NS	110 U	NS	NS
METALS							
Aluminum	ug/L	247	75.4 J	NS	1010	NS	NS
Antimony	ug/L	1 U	0.99 U	NS	1 U	NS	NS
Arsenic	ug/L	1.5 U	1.5 U	NS	2 J	NS	NS
Barium	ug/L	101 J	30.6 J	NS	62 J	NS	NS
Beryllium	ug/L	0.06 U	0.06 U	NS	0.11 J	NS	NS
Cadmium	ug/L	0.1 U	0.12 J	NS	0.26 J	NS	NS
Calcium	ug/L	208000	97400	NS	143000	NS	NS
Chromium	ug/L	0.5 J	0.4 U	NS	2.5 J	NS	NS
Cobalt	ug/L	0.87 J	0.6 J	NS	2 J	NS	NS
Copper	ug/L	1.5 J	1.2 J	NS	4 J	NS	NS
Iron	ug/L	505	120	NS	2020	NS	NS
Lead	ug/L	0.8 U	0.8 U	NS	0.8 U	NS	NS
Magnesium	ug/L	43300	13400	NS	31200	NS	NS
Manganese	ug/L	79.1	17.7	NS	102	NS	NS
Mercury	ug/L	0.03 U	0.03 U	NS	0.03 U	NS	NS
Nickel	ug/L	2.1 J	1.1 J	NS	3.5 J	NS	NS
Potassium	ug/L	1570 J	490 J	NS	2050 J	NS	NS
Selenium	ug/L	1.7 U	1.7 U	NS	1.7 U	NS	NS
Silver	ug/L	0.7 U	0.7 U	NS	0.7 U	NS	NS
Sodium	ug/L	38300	8180	NS	38700	NS	NS
Thallium	ug/L	1.6 U	1.6 U	NS	1.6 U	NS	NS
Vanadium	ug/L	0.86 J	0.81 J	NS	2 J	NS	NS
Zinc	ug/L	2.8 J	1.8 J	NS	16.3 J	NS	NS
Cyanide	ug/L	5 U	5 U	NS	5 UJ	NS	NS

FARMHOUSE WELLS

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	11/15/93	01/21/93	04/16/93	07/23/93	11/15/93
	ES ID	FH-S	FH-S	FH-S	FH-S	FH-D	FH-D	FH-D	FH-D
	LAB ID	177590	35763-043	36929-106	204589		35763-044	36929-105	204588
COMPOUND	UNITS								
VOLATILE ORGANIC COMPOUNDS									
Chloromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,1,1,2-Tetrachloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Bromomethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,1,2,2-Tetrachloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Dichlorodifluoromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2,3-Trichloropropane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Vinyl chloride	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Tetrachloroethene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Chloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2-Dibromo-3-chloropropane	ug/L	0.5 U	2 U	2 U	1 U	NS	2 U	2 U	1 U
Methylene chloride	ug/L	0.5 U	1 U	1 U	1 U	NS	1 U	1 U	1 U
Hexachlorobutadiene	ug/L	0.5 U	1 U	1 U	1 U	NS	1 U	1 U	1 U
Trichlorofluoromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Benzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,1-Dichloroethene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Toluene	ug/L	0.5 U	2 U	0.5 U	1 U	NS	1 U	0.5 U	1 U
Bromochloromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Chlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,1-Dichloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Ethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2-Dichloroethene (cis)	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Bromobenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2-Dichloroethene (trans)	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Isopropylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Chloroform	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Xylene (total)	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Dibromomethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Styrene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2-Dichloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
n-Propylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
2,2-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
tert-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,1,1-Trichloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
2-Chlorotoluene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Carbon Tetrachloride	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
4-Chlorotoluene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Bromodichloromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
sec-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,3-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	1 U	NS	1 U	1 U	1 U
1,1-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	1 U	NS	1 U	1 U	1 U
cis-1,3-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,4-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	1 U	NS	1 U	1 U	1 U
trans-1,3-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
p-Isopropyltoluene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Trichloroethene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,3,5-Trimethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Dibromochloromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
n-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,1,2-Trichloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2,4-Trimethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,3-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2,4-Trichlorobenzene	ug/L	0.5 U	2 U	2 U	1 U	NS	2 U	2 U	1 U
1,2-Dibromoethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
1,2,3-Trichlorobenzene	ug/L	0.5 U	2 U	2 U	1 U	NS	2 U	2 U	1 U
Bromoform	ug/L	0.5 U	0.5 U	0.5 U	1 U	NS	0.5 U	0.5 U	1 U
Naphthalene	ug/L	0.5 U	2 U	2 U	1 U	NS	2 U	2 U	1 U
Acetone	ug/L	NA	NA	NA	5 U	NA	NA	NA	5 U
2-Butanone	ug/L	NA	NA	NA	5 U	NA	NA	NA	5 U
4-Methyl-2-Pentanone	ug/L	NA	NA	NA	5 U	NA	NA	NA	5 U
2-Hexanone	ug/L	NA	NA	NA	5 U	NA	NA	NA	5 U

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	11/15/93	01/21/93	04/16/93	07/23/93	11/15/93
	ES ID	FH-S	FH-S	FH-S	FH-S	FH-D	FH-D	FH-D	FH-D
	LAB ID	177590	35763-043	36929-106	204589		35763-044	36929-105	204588
	UNITS								
SEMI-VOLATILE ORGANIC COMPOUNDS									
Phenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
bis(2-Chloroethyl) ether	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2-Chlorophenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
1,3-Dichlorobenzene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
1,4-Dichlorobenzene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
1,2-Dichlorobenzene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2-Methylphenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2,2'-oxybis(1-Chloropropane)	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
4-Methylphenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
N-Nitroso-di-n-propylamine	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Hexachloroethane	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Nitrobenzene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Isophorone	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2-Nitrophenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2,4-Dimethylphenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
bis(2-Chloroethoxy) methane	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2,4-Dichlorophenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
1,2,4-Trichlorobenzene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Naphthalene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
4-Chloroaniline	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Hexachlorobutadiene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
4-Chloro-3-methylphenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2-Methylnaphthalene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Hexachlorocyclopentadiene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	25 U	NA	NA	NA	25 U
2-Chloronaphthalene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2-Nitroaniline	ug/L	NA	NA	NA	25 U	NA	NA	NA	25 U
Dimethylphthalate	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Acenaphthylene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2,6-Dinitrotoluene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
3-Nitroaniline	ug/L	NA	NA	NA	25 U	NA	NA	NA	25 U
Acenaphthene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2,4-Dinitrophenol	ug/L	NA	NA	NA	25 U	NA	NA	NA	25 U
4-Nitrophenol	ug/L	NA	NA	NA	25 U	NA	NA	NA	25 U
Dibenzofuran	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
2,4-Dinitrotoluene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Diethylphthalate	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
4-Chlorophenyl-phenylether	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Fluorene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
4-Nitroaniline	ug/L	NA	NA	NA	25 U	NA	NA	NA	25 U
4,6-Dinitro-2-methylphenol	ug/L	NA	NA	NA	25 U	NA	NA	NA	25 U
N-Nitrosodiphenylamine	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
4-Bromophenyl-phenylether	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Hexachlorobenzene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Pentachlorophenol	ug/L	NA	NA	NA	25 U	NA	NA	NA	25 U
Phenanthrene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Anthracene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Carbazole	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Di-n-butylphthalate	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Fluoranthene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Pyrene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Butylbenzylphthalate	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
3,3'-Dichlorobenzidine	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Benzo(a)anthracene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Chrysene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
bis(2-Ethylhexyl)phthalate	ug/L	NA	NA	NA	10 U	NA	NA	NA	16 U
Di-n-octylphthalate	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Benzo(b)fluoranthene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Benzo(k)fluoranthene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Benzo(a)pyrene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Indeno(1,2,3-cd)pyrene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Dibenz(a,h)anthracene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U
Benzo(g,h,i)perylene	ug/L	NA	NA	NA	10 U	NA	NA	NA	10 U

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	11/15/93	01/21/93	04/16/93	07/23/93	11/15/93
	ES ID	FH-S	FH-S	FH-S	FH-S	FH-D	FH-D	FH-D	FH-D
	LAB ID	177590	35763-043	36929-106	204589		35763-044	36929-105	204588
	UNITS								
METALS									
Aluminum	ug/l	62.6 U	NS	14.6 U	44.6 U	NS	NS	648	206
Antimony	ug/l	54.1 U	NS	16.8 U	52.4 U	NS	NS	16.8 U	52.4 U
Arsenic	ug/l	1.2 U	NS	0.8 U	1.2 U	NS	NS	0.8 U	1.2 U
Barium	ug/l	112 B	NS	98.4 J	101 J	NS	NS	558	611
Beryllium	ug/l	0.3 U	NS	0.3 J	0.3 U	NS	NS	0.3 U	0.3 U
Cadmium	ug/l	3.1 U	NS	2.4 U	3.3 U	NS	NS	2.4 U	3.3 U
Calcium	ug/l	96900	NS	94000	92600	NS	NS	14200	10700
Chromium	ug/l	2 U	NS	3.3 U	2.5 U	NS	NS	3.3 U	2.5 U
Cobalt	ug/l	5 U	NS	2.8 J	4.9 U	NS	NS	2.7 U	4.9 U
Copper	ug/l	1.9 U	NS	9 R	15.6 J	NS	NS	3.1 R	3.7 U
Iron	ug/l	36.5 B	NS	11.6 U	31.6 R	NS	NS	723	200
Lead	ug/l	0.89 U	NS	1.4 J	0.6 U	NS	NS	1.4 J	0.6 U
Magnesium	ug/l	20500	NS	20600	19400	NS	NS	5910	4960
Manganese	ug/l	1.1 B	NS	11.2 J	29	NS	NS	7.8 R	2.3 J
Mercury	ug/l	0.06 U	NS	0.1 U	0.07 U	NS	NS	0.1 U	0.07 U
Nickel	ug/l	3.5 U	NS	8.3 U	5.9 J	NS	NS	8.3 U	4.1 U
Potassium	ug/l	12000	NS	9240	9670	NS	NS	1800 J	1360 J
Selenium	ug/l	1.4 B	NS	1.1 UJ	1.1 U	NS	NS	1.1 UJ	1.1 U
Silver	ug/l	3.2 U	NS	2.6 U	6.6 U	NS	NS	2.6 U	6.6 U
Sodium	ug/l	30600	NS	36000	39300	NS	NS	162000	177000
Thallium	ug/l	2.6 U	NS	1.2 U	1.2 U	NS	NS	1.2 U	1.2 U
Vanadium	ug/l	2.1 U	NS	3 U	3.3 U	NS	NS	3.9 J	3.3 U
Zinc	ug/l	360	NS	501	319	NS	NS	5 R	3.1 U
Cyanide	ug/l	10 U	NS	1.8 U	–	NS	NS	1.8 U	–
PESTICIDE/PCB ORGANIC COMPOUNDS									
alpha-BHC	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
beta-BHC	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
delta-BHC	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
gamma-BHC (Lindane)	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
Heptachlor	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
Aldrin	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
Heptachlor epoxide	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
Endosulfan I	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
Dieldrin	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
4,4'-DDE	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
Endrin	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
Endosulfan II	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
4,4'-DDD	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
Endosulfan sulfate	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
4,4'-DDT	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
Methoxychlor	ug/L	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U
Endrin ketone	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
Endrin aldehyde	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
alpha-Chlordane	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
gamma-Chlordane	ug/L	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
Toxaphene	ug/L	NA	NA	NA	5 U	NA	NA	NA	5 U
Aroclor-1016	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U
Aroclor-1221	ug/L	NA	NA	NA	2 U	NA	NA	NA	2 U
Aroclor-1232	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U
Aroclor-1242	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U
Aroclor-1248	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U
Aroclor-1254	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U
Aroclor-1260	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	11/15/93	01/21/93	04/16/93	07/23/93	11/15/93
	ES ID	FH-S	FH-S	FH-S	FH-S	FH-D	FH-D	FH-D	FH-D
	LAB ID	177590	35763-043	36929-106	204589		35763-044	36929-105	204588
	UNITS								
HERBICIDES									
2,4-D	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U
2,4-DB	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U
2,4,5-T	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
2,4,5-TP (Silvex)	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
Dalapon	ug/L	NA	NA	NA	2.3 U	NA	NA	NA	2.3 U
Dicamba	ug/L	NA	NA	NA	0.1 U	NA	NA	NA	0.1 U
Dichloroprop	ug/L	NA	NA	NA	1 U	NA	NA	NA	1 U
Dinoseb	ug/L	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U
MCPA	ug/L	NA	NA	NA	100 U	NA	NA	NA	100 U
MCPP	ug/L	NA	NA	NA	100 U	NA	NA	NA	100 U
MISCELLANEOUS COMPOUNDS									
Chloride	mg/l	5.2	8	8	NA	NS	18	13	NA
sulfate	mg/l	52	49	34	NA	NS	62	29	NA
Nitrate/Nitrate Nitrogen	mg/l	3.3	NA	NA	NA	NS	NA	NA	NA
Nitrite Nitrogen	mg/l	<0.002	NA	NA	NA	NS	NA	NA	NA
Nitrate as N - Calculation	mg/l	3.3	2.5	1.3	NA	NS	0.05	0.05 U	NA
Organic Halides, Total	mg/l	<0.02	0.02	0.02 U	NA	NS	0.02	0.02 U	NA
Conductivity	umhos/cm	746	770	760	NA	NS	820	800	NA
pH	std. units	7.30	7.16	7.21	NA	NS	8.16	8.67	NA
Organic Carbon, Total	mg/l	2.9	2	3	NA	NS	2	2	NA

NOTES:

NS = NOT SAMPLED
NA = NOT ANALYZED

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	11/15/93	04/16/93	07/23/93	11/15/93
	ES ID	BRN-S	BRN-S	BRN-S	BRN-S	TB 135	FB723	TB
	LAB ID	177589	35763-045	36929-107	204587	35763-046	36929-108	204590
COMPOUND	UNITS							
VOLATILE ORGANIC COMPOUNDS								
Chloromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,1,1,2-Tetrachloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Bromomethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,1,2,2-Tetrachloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Dichlorodifluoromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2,3-Trichloropropane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Vinyl chloride	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Tetrachloroethene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Chloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2-Dibromo-3-chloropropane	ug/L	0.5 U	2 U	2 U	1 U	2 U	2 U	1 U
Methylene chloride	ug/L	0.5 U	1 U	1 U	1 U	1 U	2 U	1 U
Hexachlorobutadiene	ug/L	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Benzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,1-Dichloroethene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Toluene	ug/L	0.5 U	1 U	0.5 U	1 U	0.5 U	TRACE J	1 U
Bromochloromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Chlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,1-Dichloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Ethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2-Dichloroethene (cis)	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Bromobenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2-Dichloroethene (trans)	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Isopropylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Chloroform	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Xylene (total)	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Dibromomethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Styrene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2-Dichloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
n-Propylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
2,2-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
tert-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,1,1-Trichloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
2-Chlorotoluene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Carbon Tetrachloride	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
4-Chlorotoluene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Bromodichloromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
sec-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,3-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,4-Dichlorobenzene	ug/L	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
p-Isopropyltoluene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Trichloroethene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,3,5-Trimethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Dibromochloromethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
n-Butylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,1,2-Trichloroethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2,4-Trimethylbenzene	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,3-Dichloropropane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2,4-Trichlorobenzene	ug/L	0.5 U	2 U	2 U	1 U	2 U	2 U	1 U
1,2-Dibromoethane	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
1,2,3-Trichlorobenzene	ug/L	0.5 U	2 U	2 U	1 U	2 U	2 U	1 U
Bromoform	ug/L	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U
Naphthalene	ug/L	0.5 U	2 U	2 U	1 U	2 U	2 U	1 U
Acetone	ug/L	NA	NA	NA	5 U	NA	NA	5 U
2-Butanone	ug/L	NA	NA	NA	5 U	NA	NA	5 U
4-Methyl-2-Pentanone	ug/L	NA	NA	NA	5 U	NA	NA	5 U
2-Hexanone	ug/L	NA	NA	NA	5 U	NA	NA	5 U

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

COMPOUND	MATRIX / SITE / DATE REC'D / ES ID / LAB ID / UNITS	WATER ASH 01/21/93 BRN-S 177589	WATER ASH 04/16/93 BRN-S 35763-045	WATER ASH 07/23/93 BRN-S 36929-107	WATER ASH 11/15/93 BRN-S 204587	WATER ASH 04/16/93 TB 135 35763-046	WATER ASH 07/23/93 FB723 36929-106	WATER ASH 11/15/93 TB 204590
SEMI-VOLATILE ORGANIC COMPOUNDS								
Phenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
bis(2-Chloroethyl) ether	ug/L	NA	NA	NA	50 U	NA	NA	NA
2-Chlorophenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
1,3-Dichlorobenzene	ug/L	NA	NA	NA	50 U	NA	NA	NA
1,4-Dichlorobenzene	ug/L	NA	NA	NA	50 U	NA	NA	NA
1,2-Dichlorobenzene	ug/L	NA	NA	NA	50 U	NA	NA	NA
2-Methylphenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
2,2'-oxybis(1-Chloropropane)	ug/L	NA	NA	NA	50 U	NA	NA	NA
4-Methylphenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
N-Nitroso-di-n-propylamine	ug/L	NA	NA	NA	50 U	NA	NA	NA
Hexachloroethane	ug/L	NA	NA	NA	50 U	NA	NA	NA
Nitrobenzene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Isophorone	ug/L	NA	NA	NA	50 U	NA	NA	NA
2-Nitrophenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
2,4-Dimethylphenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
bis(2-Chloroethoxy) methane	ug/L	NA	NA	NA	50 U	NA	NA	NA
2,4-Dichlorophenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
1,2,4-Trichlorobenzene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Naphthalene	ug/L	NA	NA	NA	50 U	NA	NA	NA
4-Chloroaniline	ug/L	NA	NA	NA	50 U	NA	NA	NA
Hexachlorobutadiene	ug/L	NA	NA	NA	50 U	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
2-Methylnaphthalene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	NA	NA	NA	50 U	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	50 U	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	120 U	NA	NA	NA
2-Chloronaphthalene	ug/L	NA	NA	NA	50 U	NA	NA	NA
2-Nitroaniline	ug/L	NA	NA	NA	120 U	NA	NA	NA
Dimethylphthalate	ug/L	NA	NA	NA	50 U	NA	NA	NA
Acenaphthylene	ug/L	NA	NA	NA	50 U	NA	NA	NA
2,6-Dinitrotoluene	ug/L	NA	NA	NA	50 U	NA	NA	NA
3-Nitroaniline	ug/L	NA	NA	NA	120 U	NA	NA	NA
Acenaphthene	ug/L	NA	NA	NA	50 U	NA	NA	NA
2,4-Dinitrophenol	ug/L	NA	NA	NA	120 U	NA	NA	NA
4-Nitrophenol	ug/L	NA	NA	NA	120 U	NA	NA	NA
Dibenzofuran	ug/L	NA	NA	NA	50 U	NA	NA	NA
2,4-Dinitrotoluene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Diethylphthalate	ug/L	NA	NA	NA	50 U	NA	NA	NA
4-Chlorophenyl-phenylether	ug/L	NA	NA	NA	50 U	NA	NA	NA
Fluorene	ug/L	NA	NA	NA	50 U	NA	NA	NA
4-Nitroaniline	ug/L	NA	NA	NA	120 U	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	NA	NA	NA	120 U	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	NA	NA	NA	50 U	NA	NA	NA
4-Bromophenyl-phenylether	ug/L	NA	NA	NA	50 U	NA	NA	NA
Hexachlorobenzene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Pentachlorophenol	ug/L	NA	NA	NA	120 U	NA	NA	NA
Phenanthrene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Anthracene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Carbazole	ug/L	NA	NA	NA	50 U	NA	NA	NA
Di-n-butylphthalate	ug/L	NA	NA	NA	50 U	NA	NA	NA
Fluoranthene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Pyrene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Butylbenzylphthalate	ug/L	NA	NA	NA	50 U	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	NA	NA	NA	50 U	NA	NA	NA
Benzo(a)anthracene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Chrysene	ug/L	NA	NA	NA	50 U	NA	NA	NA
bis(2-Ethylhexyl)phthalate	ug/L	NA	NA	NA	50 U	NA	NA	NA
Di-n-octylphthalate	ug/L	NA	NA	NA	50 U	NA	NA	NA
Benzo(b)fluoranthene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Benzo(k)fluoranthene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Benzo(a)pyrene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	NA	NA	NA	50 U	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	NA	NA	NA	50 U	NA	NA	NA

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	11/15/93	04/16/93	07/23/93	11/15/93
	ES ID	BRN-S	BRN-S	BRN-S	BRN-S	TB 135	FB723	TB
	LAB ID	177589	35763-045	36929-107	204587	35763-046	36929-108	204590
COMPOUND	UNITS							
METALS								
Aluminum	ug/l	170 B	NS	28.1 J	44.6 U			
Antimony	ug/l	53.6 U	NS	16.8 U	52.4 U			
Arsenic	ug/l	1.2 U	NS	0.8 U	1.2 U			
Barium	ug/l	79.6 B	NS	81.2 J	92 J			
Beryllium	ug/l	0.39 B	NS	0.3 U	0.3 U			
Cadmium	ug/l	3.1 U	NS	2.4 U	3.3 U			
Calcium	ug/l	131000	NS	131000	142000			
Chromium	ug/l	2 U	NS	3.3 U	2.5 U			
Cobalt	ug/l	5 U	NS	2.7 U	4.9 U			
Copper	ug/l	1.9 U	NS	2.1 U	3.7 U			
Iron	ug/l	250	NS	94.2 J	18 R			
Lead	ug/l	0.89 U	NS	4 J	0.6 U			
Magnesium	ug/l	24700	NS	24800	29100			
Manganese	ug/l	3.8 B	NS	3.4 R	0.6 U			
Mercury	ug/l	0.06 U	NS	0.1 U	0.07 U			
Nickel	ug/l	3.5 U	NS	8.3 U	4.1 U			
Potassium	ug/l	5720	NS	6480	4900 J			
Selenium	ug/l	1.1 U	NS	1.1 UJ	1.1 U			
Silver	ug/l	3.2 U	NS	2.6 U	6.7 U			
Sodium	ug/l	3570 B	NS	3900 J	5180			
Thallium	ug/l	2.6 U	NS	1.2 U	1.2 U			
Vanadium	ug/l	2.1 U	NS	3.3 J	3.3 U			
Zinc	ug/l	45.8	NS	34.8 R	23.8			
Cyanide	ug/l	10 U	NS	2.2 J	–			
PESTICIDE/PCB ORGANIC COMPOUNDS								
alpha-BHC	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
beta-BHC	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
delta-BHC	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
gamma-BHC (Lindane)	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
Heptachlor	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
Aldrin	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
Heptachlor epoxide	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
Endosulfan I	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
Dieldrin	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
4,4'-DDE	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
Endrin	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
Endosulfan II	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
4,4'-DDD	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
Endosulfan sulfate	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
4,4'-DDT	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
Methoxychlor	ug/L	NA	NA	NA	0.5 U	NA	NA	NA
Endrin ketone	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
Endrin aldehyde	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
alpha-Chlordane	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
gamma-Chlordane	ug/L	NA	NA	NA	0.05 U	NA	NA	NA
Toxaphene	ug/L	NA	NA	NA	5 U	NA	NA	NA
Aroclor-1016	ug/L	NA	NA	NA	1 U	NA	NA	NA
Aroclor-1221	ug/L	NA	NA	NA	2 U	NA	NA	NA
Aroclor-1232	ug/L	NA	NA	NA	1 U	NA	NA	NA
Aroclor-1242	ug/L	NA	NA	NA	1 U	NA	NA	NA
Aroclor-1248	ug/L	NA	NA	NA	1 U	NA	NA	NA
Aroclor-1254	ug/L	NA	NA	NA	1 U	NA	NA	NA
Aroclor-1260	ug/L	NA	NA	NA	1 U	NA	NA	NA

FARMHOUSE WELLS QUARTERLY MONITORING RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SITE	ASH	ASH	ASH	ASH	ASH	ASH	ASH
	DATE REC'D	01/21/93	04/16/93	07/23/93	11/15/93	04/16/93	07/23/93	11/15/93
	ES ID	BRN-S	BRN-S	BRN-S	BRN-S	TB 135	FB723	TB
	LAB ID	177589	35763-045	36929-107	204587	35763-046	36929-108	204590
COMPOUND	UNITS							
HERBICIDES								
2,4-D	ug/L	NA	NA	NA	1 U	NA	NA	NA
2,4-DB	ug/L	NA	NA	NA	1 U	NA	NA	NA
2,4,5-T	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
2,4,5-TP (Silvex)	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
Dalapon	ug/L	NA	NA	NA	2.3 U	NA	NA	NA
Dicamba	ug/L	NA	NA	NA	0.1 U	NA	NA	NA
Dichloroprop	ug/L	NA	NA	NA	1 U	NA	NA	NA
Dinoseb	ug/L	NA	NA	NA	0.5 U	NA	NA	NA
MCPA	ug/L	NA	NA	NA	100 U	NA	NA	NA
MCPP	ug/L	NA	NA	NA	100 U	NA	NA	NA
MISCELLANEOUS COMPOUNDS								
Chloride	mg/l	16.5	3	15	NA			
sulfate	mg/l	64	43	74	NA			
Nitrate/Nitrate Nitrogen	mg/l	8.0	NA	NA	NA			
Nitrite Nitrogen	mg/l	<0.002	NA	NA	NA			
Nitrate as N - Calculation	mg/l	8.0	4.1	6.3	NA			
Organic Halides, Total	mg/l	<0.02	0.02	1.6	NA			
Conductivity	umhos/cm	817	650	830	NA			
pH	std. units	7.38	7.18	7.25	NA			
Organic Carbon, Total	mg/l	NA	4	11	NA			

NOTES:

NS = NOT SAMPLED
NA = NOT ANALYZED

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TENTATIVELY IDENTIFIED COMPOUNDS

DATA QUALIFIERS

The following are data qualifiers that qualify the tentatively identified compounds (TICs) for the volatile and semi-volatile analyses.

J = Indicates an estimated value. This flag is used when estimating the concentration of a tentatively identified compound.

N = Indicates that the compound was operator identified.

X = The reported result was derived from instrument response outside the calibration range.

D = This flag identifies all compounds in an analysis at a secondary dilution factor.

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

A = Aldol condensation product.

METHOD CRQLs FROM WORKPLAN

Table 7.2-1. Limit of Detection for TRPH and Metals

Compound	Waters (μg/L)	Solids (mg/kg)
TRPH	0.165	21
<u>ICAP Method</u>		
Aluminum	117.5	12
Antimony	54.6	5.5
Arsenic	110.1*	11*
Barium	1.8	0.2
Beryllium	1.9	0.2
Boron	10.6*	1*
Cadmium	4.0	0.4
Calcium	23.7	2.4
Chromium	7.1	0.7
Cobalt	19.1	1.9
Copper	8.6	0.9
Iron	61.6	6.2
Lead	44.7*	4.5*
Magnesium	52.2	5.2
Manganese	2.1	0.2
Molybdenum	32.5*	3.3*
Nickel	26.0	2.6
Potassium	563.0	56
Selenium	159.0*	16*
Silver	8.8	0.9
Sodium	157.0	16
Thallium	160.0	16
Vanadium	13.4	1.3
Zinc	4.5	0.5
<u>GFAA Method</u>		
Arsenic	2.3	0.2
Lead	1.4	0.2
Selenium	1.8	0.2

Table 7.2-1. Limit of Detection for TRPH and Metals (Continued, Page 2 of 2)

Compound	Waters (μg/L)	Solids (mg/kg)
CVAA Method		
Mercury	0.2	0.02

*Detection limits determined using contractor's laboratory historical LOD, all others determined using EPA-CLP CRDL.

Source: ESE.

Table 7.2-2. Method Detection Limits for VOCs

Volatiles	CAS Number	Quantitation Limits** Water ug/L	Low Soil/Sediment[a] ug/Kg
1. Chloromethane	74-87-3	10	10
2. Bromomethane	74-83-9	10	10
3. Vinyl Chloride	75-01-4	10	10
4. Chloroethane	75-00-3	10	10
5. Methylene Chloride	75-09-2	5	5
6. Acetone	67-64-1	10	10
7. Carbon Disulfide	75-15-0	5	5
8. 1,1-Dichloroethene	75-35-4	5	5
9. 1,1-Dichloroethane	75-34-3	5	5
10. 1,2-Dichloroethene (total)	540-59-0	5	5
11. Chloroform	67-66-3	5	5
12. 1,2-Dichloroethane	107-06-2	5	5
13. 2-Butanone	78-93-3	10	10
14. 1,1,1-Trichloroethane	71-55-6	5	5
15. Carbon Tetrachloride	56-23-5	5	5
16. Vinyl Acetate	108-05-4	10	10
17. Bromodichloromethane	75-27-4	5	5
18. 1,2-Dichloropropane	78-87-5	5	5
19. cis-1,3-Dichloropropene	10061-01-5	5	5
20. Trichloroethene	79-01-6	5	5
21. Dibromochloromethane	124-48-1	5	5
22. 1,1,2-Trichloroethane	79-00-5	5	5
23. Benzene	71-43-2	5	5
24. trans-1,3-Dichloropropene	10061-02-6	5	5
25. Bromoform	75-25-2	5	5
26. 4-Methyl-2-pentanone	108-10-1	10	10
27. 2-Hexanone	591-78-6	10	10
28. Tetrachloroethene	127-18-4	5	5
29. Toluene	108-88-3	5	5
30. 1,1,2,2-Tetrachloroethane	79-34-5	5	5

Table 7.2-2. Method Detection Limits for VOCs (Continued, Page 2 of 2)

Volatiles	CAS Number	Quantitation Limits** Water ug/L	Low Soil/Sediment[a] ug/Kg
31. Chlorobenzene	108-90-7	5	5
32. Ethyl Benzene	100-41-4	5	5
33. Styrene	100-42-5	5	5
34. Xylenes (Total)	1330-20-7	5	5

[a] Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Volatile TCL Compounds are 125 times the individual Low Soil/Sediment CRQL.

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

** Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

Table 7.2-3. Detection Limits for Semivolatile Organic Compounds

		Quantitation Limits**	
Semivolatiles	CAS Number	Water ug/L	Low Soil/Sediment[b] ug/Kg
35. Phenol	108-95-2	10	330
36. bis(2-Chloroethyl) ether	111-44-4	10	330
37. 2-Chlorophenol	95-57-8	10	330
38. 1,3-Dichlorobenzene	541-73-1	10	330
39. 1,4-Dichlorobenzene	106-46-7	10	330
40. Benzyl alcohol	100-51-6	10	330
41. 1,2-Dichlorobenzene	95-50-1	10	330
42. 2-Methylphenol	95-48-7	10	330
43. bis(2-Chloroisopropyl) ether	108-60-1	10	330
44. 4-Methylphenol	106-44-5	10	330
45. N-Nitroso-di-n-dipropylamine	621-64-7	10	330
46. Hexachloroethane	67-72-1	10	330
47. Nitrobenzene	98-95-3	10	330
48. Isophorone	78-59-1	10	330
49. 2-Nitrophenol	88-75-5	10	330
50. 2,4-Dimethylphenol	105-67-9	10	330
51. Benzoic acid	65-85-0	50	1600
52. bis(2-Chloroethoxy) methane	111-91-1	10	330
53 2,4-Dichlorophenol	120-83-2	10	330
54. 1,2,4-Trichlorobenzene	120-82-1	10	330
55. Naphthalene	91-20-3	10	330
56. 4-Chloroaniline	106-47-8	10	330
57. Hexachlorobutadiene	87-68-3	10	330
58. 4-Chloro-3-methylphenol (para-chloro-meta-cresol)	59-50-7	10	330
59. 2-Methylnaphthalene	91-57-6	10	330
60. Hexachlorocyclopentadiene	77-47-4	10	330
61. 2,4,6-Trichlorophenol	88-06-2	10	330
62. 2,4,5-Trichlorophenol	95-95-4	50	1600
63. 2-Chloronaphthalene	91-58-7	10	330
64. 2-Nitroaniline	88-74-4	50	1600
65. Dimethylphthalate	131-11-3	10	330
66. Acenaphthylene	208-96-8	10	330
67. 2,6-Dinitrotoluene	606-20-2	10	330
68. 3-Nitroaniline	99-09-2	50	1600
69. Acenaphthene	83-32-9	10	330

Table 7.2-2. Method Detection Limits for VOCs (Continued, Page 2 of 2)

		Quantitation Limits**	
Volatiles	CAS Number	Water ug/L	Low Soil/Sediment[a] ug/Kg
31. Chlorobenzene	108-90-7	5	5
32. Ethyl Benzene	100-41-4	5	5
33. Styrene	100-42-5	5	5
34. Xylenes (Total)	1330-20-7	5	5

[a] Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Volatile TCL Compounds are 125 times the individual Low Soil/Sediment CRQL.

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

** Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

Table 7.2-3. Detection Limits for Semivolatile Organic Compounds (Continued, Page 2 of 2)

Semivolatiles	CAS Number	Quantitation Limits** Water ug/L	Low Soil/Sediment[b] ug/Kg
70. 2,4-Dinitrophenol	51-28-5	50	1600
71. 4-Nitrophenol	100-02-7	50	1600
72. Dibenzofuran	132-64-9	10	330
73. 2,4-Dinitrotoluene	121-14-2	10	330
74. Diethylphthalate	84-66-2	10	330
75. 4-Chlorophenyl-phenyl ether	7005-72-3	10	330
76. Fluorene	86-73-7	10	330
77. 4-Nitroaniline	100-01-6	50	1600
78. 4,6-Dinitro-2-methylphenol	534-52-1	50	1600
79. N-nitrosodiphenylamine	86-30-6	10	330
80. 4-Bromophenyl-phenylether	101-55-3	10	330
81. Hexachlorobenzene	118-74-1	10	330
82. Pentachlorophenol	87-86-5	50	1600
83. Phenanthrene	85-01-8	10	330
84. Anthracene	120-12-7	10	330
85. Di-n-butylphthalate	84-74-2	10	330
86. Fluoranthene	206-44-0	10	330
87. Pyrene	129-00-0	10	330
88. Butylbenzylphthalate	85-68-7	10	330
89. 3,3'-Dichlorobenzidine	91-94-1	20	660
90. Benzo(a)anthracene	56-55-3	10	330
91. Chrysene	218-01-9	10	330
92. bis(2-Ethylhexyl)phthalate	117-81-7	10	330
93. Di-n-octylphthalate	117-84-0	10	330
94. Benzo(b)fluoranthene	205-99-2	10	330
95. Benzo(k)fluoranthene	207-08-9	10	330
96. Benzo(a)pyrene	50-32-8	10	330
97. Indeno(1,2,3-cd)pyrene	193-39-5	10	330
98. Dibenz(a,h)anthracene	53-70-3	10	330
99. Benzo(g,h,i)perylene	191-24-2	10	330

[b] Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for SemiVolatile TCL Compounds are 60 times the individual Low Soil/Sediment CRQL.

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

** Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

Table 7.2-4. Detection Limits for Organochlorine Pesticides and PCBs

Pesticides/PCBs	CAS Number	Quantitation Limits** Water ug/L	Quantitation Limits** Low Soil/Sediment[c] ug/Kg
100. alpha-BHC	319-84-6	0.05	8.0
101. beta-BHC	319-85-7	0.05	8.0
102. delta-BHC	319-86-8	0.05	8.0
103. gamma-BHC (Lindane)	58-89-9	0.05	8.0
104. Heptachlor	76-44-8	0.05	8.0
105. Aldrin	309-00-2	0.05	8.0
106. Heptachlor epoxide	1024-57-3	0.05	8.0
107. Endosulfan I	959-98-8	0.05	8.0
108. Dieldrin	60-57-1	0.10	16.0
109. 4,4'-DDE	72-55-9	0.10	16.0
110. Endrin	72-20-8	0.10	16.0
111. Endosulfan II	33213-65-9	0.10	16.0
112. 4,4'-DDD	72-54-8	0.10	16.0
113. Endosulfan sulfate	1031-07-8	0.10	16.0
114. 4,4'-DDT	50-29-3	0.10	16.0
115. Methoxychlor	72-43-5	0.5	80.0
116. Endrin ketone	53494-70-5	0.10	16.0
117. alpha-Chlordane	5103-71-9	0.5	80.0
118. gamma-Chlordane	5103-74-2	0.5	80.0
119. Toxaphene	8001-35-2	1.0	160.0
120. Aroclor-1016	12674-11-2	0.5	80.0
121. Aroclor-1221	11104-28-2	0.5	80.0
122. Aroclor-1232	11141-16-5	0.5	80.0
123. Aroclor-1242	53469-21-9	0.5	80.0
124. Aroclor-1248	12672-29-6	0.5	80.0
125. Aroclor-1254	11097-69-1	1.0	160.0
126. Aroclor-1260	11096-82-5	1.0	160.0

[c] Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Pesticide/PCB TCL compounds are 15 times the individual Low Soil/Sediment CRQL.

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

** Quantitation limits listed for soil/sediment are based on wet weight. The quantitation Limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

APPENDIX K

RISK ASSESSMENT TOXICITY PROFILES

VOLATILE ORGANIC COMPOUNDS
TOXICITY PROFILES

ACETONE

CAS NUMBER

67-64-1

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Miscible [1]
Vapor Pressure: 231 mm Hg at 25°C [1]
Henry's Law Constant: 3.67×10^{-5} atm-m^3/mole [1]
Specific Gravity: 0.788 at 25/25°C [2]
Organic Carbon Partition Coefficient: 0.28 [3]

FATE DATA: HALF-LIVES

Soil: 1 - 7 days [4]
Air: 11.6 - 116 days [4]
Surface Water: 1 - 7 days [4]
Groundwater: 2 - 14 days [4]

NATURAL SOURCES

Plants, animals, automobile exhaust, volcanoes, forest fires [1].

ARTIFICIAL SOURCES

Chemical industry, wood pulping, air pollution breakdown product, wood-burning fireplaces, tobacco smoke [1].

FATE AND TRANSPORT

Acetone evaporates rapidly from solid surfaces, but the miscibility of it retards losses from water. It is highly mobile in the soil/groundwater system, and that which does not volatilize from soil, will be readily dispersed in groundwater and carried to any downgradient discharge zones. Biodegradation occurs in soil, surface water, and groundwater. Adsorption to sediment and bioconcentration should not be significant. Acetone will be washed out of the atmosphere with rain [1,3,4].

HUMAN TOXICITY

General. Acetone acts primarily as an irritant and as a central nervous system depressant. Acetone is not considered to be mutagenic. The USEPA has placed acetone in weight-of-evidence cancer Group D,indicating that it is not classifiable as to human carcinogenicity [5].

Oral Exposure. A chronic oral RfD of 0.1 mg/kg/day is based on a NOEL of 100 mg/kg/day for increased liver and kidney weights and nephrotoxicity in a subchronic oral study in rats [5]. Acetone is readily absorbed following oral exposure. Oral LD_{50} values in animals ranged from 3000 to 9750 mg/kg [3]. Fatal oral doses in humans have not been reported, but oral exposure to 200 ml (2860 mg/kg/day) acetone has resulted in gastroenteritis, narcosis and possible renal injury [3]. Information regarding the effects of acetone on human development are not available, but limited data in animals indicate that acetone is not a developmental toxicant [3]. There is no information regarding the carcinogenicity of acetone in humans or animals following oral exposure, therefore, an oral Slope Factor is not available [5].

Inhalation Exposure. A chronic inhalation RfC is not available for acetone [5]. Acetone is readily absorbed following inhalation exposure. Reported acute inhalation LC_{50} values are 110,000 mg/m^3 for 62 minutes in mice, and 50,100 mg/m^3 for 8 hours in rats [3]. Inhaled acetone has not been reported to be fatal to humans. Human exposure to concentrations of 250 to 1000 ppm acetone has resulted in irritation of the eyes, nose and throat. Exposure to higher levels may result in depression of the central nervous system and narcosis [3]. Long-term inhalation of acetone by humans has resulted in hyperemia (increase in blood) in the conjunctiva and pharynx), lung irritation, rough breathing, dizziness, headaches, insomnia and stomach pain [3]. Information regarding the effects of acetone on human development are not available, but limited data in animals indicate that acetone is not a developmental toxicant [3]. There is no information regarding the carcinogenicity of acetone in humans or animals following inhalation exposure, therefore, an inhalation Unit Risk factor is not available [5].

Dermal Exposure. An acute dermal LD_{50} value of 20,000 mg/kg has been reported in rabbits [3]. Dermal exposure to acetone has not been reported to be fatal to humans. Short-term (90 minutes) application of acetone to the skin of humans has resulted in mild edema and hyperemia of the skin [3]. Animal studies indicate that chronic dermal application of acetone may result in reversible cataracts in guinea pigs, but not rabbits [3].

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BENZENE

CAS NUMBER

71-43-2

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 1,791 mg/L [1]
Vapor Pressure: 95.19 mm Hg at 25°C [1]
Henry's Law Constant: 5.43×10^{-3} atm-m^3/mole [1]
Specific Gravity: 0.879 at 15/5°C [2]
Organic Carbon Partition Coefficient: 31 - 143 [1]

FATE DATA: HALF-LIVES

Soil: 5 - 16 days [3]
Air: 2.09 - 20.9 days [3]
Surface Water: 5 - 16 days [3]
Groundwater: 10 days to 2 years [3]

NATURAL SOURCES

Crude oil, volcanoes, forest fires, plants [1].

ARTIFICIAL SOURCES

Gasoline, fuel oils, chemical industry, coke ovens, mining, manufacturing, cigarette smoke [1].

FATE AND TRANSPORT

Benzene will rapidly volatilize from surface soil and water. That which does not volatilize from permeable surface and subsurface soils will be highly to very highly mobile, and can be expected to leach to nearby groundwater which is not protected by a confining layer. It is fairly soluble, and will be carried with the groundwater to discharge points. It may be subject to biodegradation in soils, shallow groundwater, and surface water. Benzene will not be expected to significantly adsorb to sediment, bioconcentrate in aquatic organisms, or hydrolyze. Photodegradation may be a significant removal mechanism in surface waters which are not conducive to microbial degradation. Benzene will undergo significant photodegradation in air, but may be washed out with rain [1].

HUMAN TOXICITY

General. Benzene is absorbed into the body following ingestion, inhalation, and dermal contact, and must undergo metabolic transformation to exert its toxic effects. Metabolism occurs primarily in the liver, and to a lesser extent in the bone marrow [4]. The primary targets of benzene toxicity are the central nervous system and the blood [4,5]. Benzene is genotoxic to humans and the USEPA has placed it in weight-of-evidence cancer Group A, indicating that it is a human carcinogen [6].

Oral Exposure. A chronic oral RfD for benzene is currently under review by the USEPA [6]. Benzene is readily absorbed following oral exposure. The lowest reported fatal dose in humans is 50 mg/kg [5]. Acute oral LD_{50} values in animals include 930 to 5600 mg/kg in rats, 2000 mg/kg in dogs and 4700 mg/kg in mice [4,5]. Data regarding the ingestion of benzene in humans are limited to acute overexposure. Ingestion of 2 ml (29 mg/kg) has resulted in depression of the central nervous system, while ingestion of 10 ml (143 mg/kg) has been fatal [5]. The cause of death was usually respiratory arrest, central nervous system depression or cardiac collapse [4]. In animals, longer-term oral exposure has resulted in toxic effects on the blood (cytopenia: decrease in various cellular elements of the blood) and the immunological system (decreased white blood cells) [4]. There is no evidence that oral exposure to benzene causes effects on reproduction and development, but studies in animals suggest that benzene may affect fetal development [4]. There is no information regarding carcinogenic effects in humans following oral exposure to benzene, but studies in animals indicate that benzene ingestion causes cancer in various regions of the body [4]. An oral Slope Factor of 0.029 $(mg/kg/day)^{-1}$ is based on an increase in the incidence of leukemia in occupationally-exposed workers [6]. The oral Slope Factor was extrapolated from the inhalation data.

Inhalation Exposure. A chronic inhalation RfC for benzene is currently under review by the USEPA [6]. Benzene is readily absorbed following inhalation exposure. The lowest reported fatal concentration in humans is 6380 mg/m^3 for a 5 minute exposure [5]. Acute inhalation LC_{50} values in rats ranged from 10,000 ppm for 7 hours to 13,700 ppm for 4 hours [4,5]. Most of the available data regarding benzene exposure involve workers exposed in the workplace. The acute effects of benzene exposure involve the central nervous system. Brief exposure to concentrations of 700 to 3000 ppm can cause drowsiness, dizziness, headaches and unconsciousness, and exposure to concentrations of 10,000 to 20,000 ppm can result in death [4]. In most cases, the effects will end when exposure ceases. The hematopoietic system is the primary target of toxicity following long-term exposure: exposure for several months to years results in pancytopenia (reduction in red blood cells, platelets and white blood cells), while continued exposure for many years results in anemia or leukemia. The lowest concentration resulting in the hematological effects is approximately 10 to 50 ppm [5]. Benzene has been shown to cause chromosomal aberrations in bone marrow and lymphocytes in workers exposed to concentrations > 100 ppm [5]. Chromosomal damage has been found in animals at concentrations as low as 1 ppm [5]. Benzene is not known to be teratogenic (cause birth defects) in humans, but has been found to cause various problems in the developing fetus of animals (low birth weight, delayed bone formation) [4,5]. Occupational exposure to benzene has resulted in leukemia in exposed workers [4,5]. An inhalation Unit Risk of 8.3 x 10^{-6} $(ug/m^3)^{-1}$ is based on the incidence of leukemia in occupationally-exposed workers [6].

Dermal Exposure. Dermal exposure to benzene may cause redness and dermatitis [4,5]. Systemic effects have not been reported following dermal exposure to benzene.

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2-BUTANONE

CAS NUMBER

78-93-3

COMMON SYNONYMS

Methyl ethyl ketone, MEK.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 239,000 mg/L [1]
Vapor Pressure: 90.6 mm Hg at 25°C [1]
Henry's Law Constant: 1.05×10^{-5} atm-m^3/mole [1]
Specific Gravity: 0.805 at 20/4°C [2]
Organic Carbon Partition Coefficient: 34 [1]

FATE DATA: HALF-LIVES

Soil: 1 to 7 days [3]
Air: 2.7 to 26.7 days [3]
Surface Water: 1 to 7 days [3]
Groundwater: 2 to 14 days [3]

NATURAL SOURCES

Volcanoes, forest fires, products of biological degradation, food [1].

ARTIFICIAL SOURCES

Chemical industry, coatings industry, manufacturing, combustion of gasoline, cigarette smoke. Present in smog as the result of natural photooxidation of olefinic hydrocarbons from automobiles and other sources [1].

FATE AND TRANSPORT

Some of the MEK released to soil will partially evaporate into the atmosphere, while some may leach to groundwater, where it may slowly biodegrade. It does not strongly adsorb to soils and sediments. If released to surface water, it will be lost slowly to evaporation or slowly biodegraded. It does not significantly bioconcentrate in aquatic organisms. It photodegrades in the atmosphere at a moderate rate, but may be removed by rainfall first [1].

HUMAN TOXICITY

General. MEK is considered to be of low toxicity. Moderate air concentrations of MEK may cause mild irritation of the nose, throat, eyes, and skin in humans. Serious health effects in animals have been observed only at very high concentrations [4]. The USEPA has placed MEK in weight-of-evidence Group D; that is, it is not classifiable as to human carcinogenicity [5].

Oral Exposure. The chronic RfD of 0.05 mg/kg/day is based on a NOAEL of 693 mg/m^3 determined for subchronic inhalation exposure of rats [6]. MEK is rapidly absorbed following oral exposure. The oral LD_{50} reported for rats was 2,737 mg/kg. Exposure of rats to 1,080 mg/kg caused minor kidney damage. A clinical report of human ingestion of an unknown quantity of MEK indicated some cardiopulmonary distress, but resulted in full recovery within less than a week [4].

Inhalation Exposure. The chronic RfC of 1 mg/m^3 is based on a NOAEL of 2978 mg/m^3 for decreased fetal birth weight in a developmental study in mice [6]. MEK is well absorbed during inhalation exposure. Uptake by humans ranged from 41% to 53% of the inspired quantity. The 4-hour LC_{50} in rats was 11,700 ppm. No rats died within 14 days of exposure to 92,239 ppm for 0.5 hours. Guinea pigs exposed to 10,000 ppm became unconscious within 5 hours. No information was found regarding human deaths following exposure to MEK. Humans exposed to 100 ppm MEK complained of slight nose and throat irritation which became objectionable at 300 ppm. Exposure of pregnant rats to 3,000 ppm during gestation resulted in only a slight increase in the number of malformed fetuses [4].

Dermal Exposure. No information was located regarding the rate or extent of absorption following dermal exposure in humans or animals. The dermal LD_{50} for MEK in rabbits was reported to be 10 mL/kg. Application of 0.1 ml MEK to the forearms of humans once daily for 18 days produced no adverse effects. Application of MEK to rabbits and guinea pigs caused minimal skin irritation, erythema, and/or increase in skin-fold thickness. MEK was found to be moderately irritating to the eyes of rabbits [4].

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CARBON DISULFIDE

CAS NUMBER

75-15-0

COMMON SYNONYMS

Carbon bisulfide, Dithiocarbonic anhydride. [1]

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 2100 mg/L at 20°C [2]
Vapor Pressure: 297 mm Hg at 20°C [2]
Henry's Law Constant: 1.4×10^{-3} atm-m^3/mole [2]
Specific Gravity: 1.2632 at 20/4°C [1]
Organic Carbon Partition Coefficient: 63 [2]

FATE DATA: HALF-LIVES

Soil: ND
Air: ND
Surface Water: ND
Groundwater: ND

NATURAL SOURCES

Oceanic biological activity; microbial reduction of sulfates in soils; volcanic emissions; marshland emissions; coal tar and crude petroleum. [1,2]

ARTIFICIAL SOURCES

Manufacture of viscose rayon, carbon tetrachloride, cellophane, rubber chemicals, and solvents; insecticides; fungicides; electronic vacuum tubes. [1,2]

FATE AND TRANSPORT

Carbon disulfide released to soils will be lost primarily due to volatilization. In addition, that which is not lost directly to volatilization may be expected to leach freely into groundwaters given the low sorptive tendencies (K_{oc} = 63) of this material. Carbon disulfide has been classified as difficult to degrade; experimentation, though, has demonstrated microbial utilization of carbon disulfide in moist, unsterilized soils. Releases of carbon disulfide into surface waters are also expected to volatilize readily, with little sorption to soils and/or sediments. This material is not expected to show significant bioconcentration in aquatic organisms (BCF = 7.9). In the atmosphere, the primary removal mechanism for carbon disulfide is expected to be reaction with atomic oxygen and/or photochemically-produced hydroxyl radicals. [2]

HUMAN TOXICITY

General. The major targets of carbon disulfide toxicity are the central nervous system, heart, liver and the developing fetus [3]. Carbon disulfide is considered to be nonmutagenic. Carbon disulfide has not been placed in a weight-of-evidence cancer group by the USEPA [4].

Oral Exposure. A chronic oral RfD of 0.1 mg/kg/day is based on the NOEL of 11 mg/kg/day for fetal toxicity and malformations in an inhalation developmental study in rabbits [4]. Carbon disulfide is readily absorbed following oral exposure [4]. An acute oral LD_{50} value of 3020 mg/kg over 24-hours was reported for mice [4]. Oral exposure to carbon disulfide is lethal to humans, but the lethal dose is not known. Information regarding the systemic effects of oral exposure of humans to carbon disulfide are not available. Limited animal studies suggest that the liver is the target of oral exposure to carbon disulfide, with enzymatic disruptions being the primary effect [4]. There is no evidence that the ingestion of carbon disulfide results in effects on reproduction or development or causes cancer in humans or animals. An oral Slope Factor for cancer is not available for carbon disulfide [5].

Inhalation Exposure. A chronic inhalation RfC of 0.01 mg/m^3 is based on a NOAEL of 10 mg/m^3 for fetotoxicity in rats [6]. Carbon disulfide is readily absorbed following inhalation exposure [4]. Inhaled carbon disulfide has not been reported to be fatal to humans or animals. In humans, the cardiovascular and nervous systems are the primary targets of inhaled carbon disulfide [4]. Vascular atherosclerotic changes, leading to coronary heart disease, are the most prevalent cardiac effects [4]. Neurological effects include behavioral changes (anxiety, introversion, depression), neurophysiological changes (decrease in intelligence scores, performance and memory), and neuropathy (cerebral atrophy, encephalopathy). Other effects observed following inhalation exposure of humans include gastrointestinal effects (stomach distress, impaired appetite), and ocular effects (microaneurysms of the retina). The lowest exposure concentration necessary to produce these effects is not known, but it is probably less than 20 ppm [4]. Similar effects have been reported in animals. There is no evidence that inhaled carbon disulfide causes effects on human development, but animal studies suggest that carbon disulfide is embryotoxic, but not teratogenic [4]. Carbon disulfide has been reported to affect reproduction in human males (decreased sperm count and decreased libido) and females (menstrual abnormalities), but the exposure concentrations resulting in these effects are not known [4].

There is no conclusive evidence that inhaled carbon disulfide causes cancer in humans or animals, therefore, an inhalation Unit Risk is not available [5].

Dermal Exposure. Carbon disulfide has not been reported to be lethal in humans or animals following dermal exposure. Dermal contact with carbon disulfide in the workplace may result in serious blisters which progress to hemorrhagic blisters covered by a thin membrane [4]. The blisters may appear in spite of the use of rubber gloves.

ECOLOGICAL TOXICITY

General. Extremely limited information was presented in the technical literatures that indicates carbon disulfide toxicity to vegetation and wildlife.

Vegetation. Released on soils, carbon disulfide will primarily be lost by volatilization. Because it has a low soil adsorptivity, it will readily leach into the groundwater, where there is some evidence that it may biodegrade [6]. Review of the technical literature did not produce information regarding the phytotoxic effects of carbon dissulfide.

Aquatic Life. Released into water, carbon disulfide will primarily be lost by volatilization. Adsorption to sediment is not significant. The half-life in a model river is 2.6 hours [6]. Sax [7] states the aquatic toxicity rating for carbon disulfide is 100 to 1000 ppm. The 1-hour LC_{100} for sunfish is 100 ppm and the 0.1-hour LC_{100} for trout is 5000 ppm [6]. There are no federal water quality criteria protecting aquatic life for carbon disulfide [8].

Wildlife. Carbon disulfide has been shown to cause non-specific liver cell damage in rats. In addition, chronic exposure may result in fetal toxicity and malformation [9]. Micromedex, Inc. [6] states the LD_{50} for rabbits is 300 mg/kg body weight.

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CHLOROBENZENE

CAS NUMBER

108-90-7

COMMON SYNONYMS

Monochlorobenzene, benzene chloride. [1]

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 471.7 mg/L at 25°C [2]
Vapor Pressure: 11.9 mm Hg at 25°C [2]
Henry's Law Constant: 3.45×10^{-3} atm-m^3/mole [2]
Specific Gravity: 1.11 at 20/4°C [1]
Organic Carbon Partition Coefficient: 83 to 389 [2]

FATE DATA: HALF-LIVES

Soil: 68 to 150 days [3]
Air: 3.0 to 30.4 days [3]
Surface Water: 68 to 150 days [3]
Groundwater: 136 to 300 days [3]

NATURAL SOURCES

None noted.

ARTIFICIAL SOURCES

Manufacture of pesticides (i.e., aniline, DDT), phenol; degreaser; solvent; heat transfer medium. [1,2]

FATE AND TRANSPORT

Chlorobenzene released to moist soils will volatilize fairly readily. Releases to sandy or dry soils, however, can be expected to leach to groundwater. Once in groundwater, chlorobenzene will undergo slow biodegradation to 2-chlorophenol and/or 4-chlorophenol (among others). If released to surface water, the primary removal mechanism will be volatilization. Biodegradation of this material will occur in surface waters; rapidity increases with increasing temperature and decreasing salinity. Chlorobenzene is not expected to bioconcentrate at significant levels among most aquatic species, although the

BCF of 447 observed in fathead minnows indicates bioconcentratibility in select species. The K_{oc} value suggests only slight to moderate adsorptive tendencies to soils and sediments in waters. Chlorobenzene is expected to exist almost entirely in the vapor phase in the atmosphere. The dominant mechanism for removal of chlorobenzene from the atmosphere is reaction with hydroxyl radicals, with the resultant production of chlorophenols. Reaction with nitrous oxides (in polluted air) may also occur, with the production of chloronitrobenzenes and chloronitrophenols. Photolysis may occur, but at a rate much slower than previously discussed atmospheric reactions. [2]

HUMAN TOXICITY

General. People exposed to chlorobenzene have experienced headaches, numbness, sleepiness, nausea, and vomiting. Chlorobenzene has been shown to affect the brain, liver, and kidneys in animals [4]. The USEPA has placed chlorobenzene in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [5].

Oral Exposure. A chronic RfD of 0.02 mg/kg/day is based on a NOAEL of 19 mg/kg/day and a LOAEL of 54 mg/kg/day determined for histopathologic changes in liver following subchronic oral (capsule) administration to dogs [5]. The limited data available indicate that chlorobenzene is absorbed from the gastrointestinal tract. A single human subject was found to absorb at least 31% of an administered dose, while rats were found to absorb at least 18% of an administered dose. A single dose of 4,000 mg/kg caused death in rats. A dose rate of 1,000 mg/kg/day for 14 days was lethal to all rats tested. Liver and kidney damage has been noted in animals following oral exposure. There is little information on oral exposures in humans. One case was reported of a 2-year-old child who ingested 5 to 10 ml of chlorobenzene, became unconscious and cyanotic, and had muscle spasms. The child recovered uneventfully [4]. The dose in the latter case can be estimated at approximately 344 to 688 mg/kg.

Inhalation Exposure. A chronic RfC of 0.02 mg/m^3 is based on a LOAEL of 75 ppm determined for liver and kidney effects in a subchronic rat inhalation study [6]. Chlorobenzene is absorbed via inhalation in humans and animals. Humans exposed to 0.5 to 0.84 ppm were found to absorb between 38% and 45% of the administered dose. Exposure to a concentration of 200 mg/m^3 chlorobenzene for 2 hours was lethal to all mice tested. Rabbits died 2 weeks after exposure to a concentration of approximately 2.5 mg/m^3. Some adverse effects on the liver and kidney in animals were noted. Little information was available regarding the health effects of chlorobenzene in humans following inhalation exposure. Humans occupationally exposed for up to 2 years displayed signs of neurotoxicity including numbness, cyanosis, hyperesthesia, and muscle spasms [4].

Dermal Exposure. No information was located regarding dermal exposure to chlorobenzene in humans or animals [4].

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CHLOROETHANE

CAS NUMBER

75-00-3

COMMON SYNONYMS

Ethyl chloride, monochlorethane, chlorethyl, ether hydrochloric. [1]

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 5710 mg/L at 20°C [2]
Vapor Pressure: 766 mm Hg at 12.5°C [2]
Henry's Law Constant: 8.48×10^{-3} atm-m^3/mole [2]
Specific Gravity: 0.9214at 0/4°C [1]
Organic Carbon Partition Coefficient: 33 - 143 [2]

FATE DATA: HALF-LIVES

Soil: 1 - 4 weeks [3]
Air: 6.67 - 66.8 days [3]
Surface Water: 1 - 4 weeks [3]
Groundwater: 2 - 8 weeks [3]

NATURAL SOURCES

None noted [1,2]

ARTIFICIAL SOURCES

Chemical intermediate; evaporation from solvents, aerosols, and anaesthetics; plastics and/or refuse combustion; microbial degradation of chlorinated solvents; landfill leachate treatment; wastewater treatment; refrigerant [1,2].

FATE AND TRANSPORT

Chloroethane, a gas at room temperature, will rapidly volatilize if released to soils, or may undergo significant leaching (given its low K_{oc} value). In moist soil systems (or groundwater) where evaporation is not a viable pathway, chloroethane will hydrolyze. Although this material will hydrolyze if released to surface waters, this reaction proceeds at a much slower rate than does volatilization. Limited data suggest that chloroethane may biodegrade. Bioconcentration among aquatic organisms is not expected to be a significant removal/fate process. Atmospheric concentrations of chloroethane will be subject to vapor-phase reactions with hydroxyl radicals. Additionally, atmospheric chloroethane will be subject to rainfall washout. [2]

HUMAN TOXICITY

General. The most relevant route of exposure to chloroethane is via inhalation. The central nervous system is the primary target of chloroethane toxicity [4,5]. Chloroethane is also used as a dermal anesthetic in humans. Information regarding the mutagenicity of chloroethane are equivocal. The USEPA has not placed chloroethane in a weight-of-evidence cancer group [6].

Oral Exposure. A chronic oral RfD and an oral slope factor for cancer are not available for chloroethane [6]. Information regarding toxic effects in humans or animals following oral exposure to chloroethane are not available [4].

Inhalation Exposure. A chronic inhalation RfC of 10 mg/m^3 is based on a NOAEL of 4000 mg/m^3 for developmental effects in mice [6]. Chloroethane is readily absorbed following inhalation exposure. Chloroethane has been used as a general anesthetic and, therefore, has occasionally resulted in the death of patients. Cause of death in the patients was usually respiratory paralysis or toxic injury to the heart [4]. The lowest reported fatal dose in humans was 13,000 ppm for a 17-minute exposure [5]. In rats and mice, the LC_{50} concentration for a 2-hour exposure was 60,632 ppm [4]. In humans, exposure to 19,000 ppm for 1 minute has resulted in feelings of drunkenness, exposure to 25,000 ppm for 15 minutes results in a lack of muscle coordination, and exposure to 33,600 ppm for 13 minutes has resulted in unconsciousness [4]. Similar effects have been reported in animals. Information regarding the potential effects of chloroethane on human reproduction and development are not available, but data in animals suggest that chloroethane is not a reproductive or developmental toxin [4]. It is not known if chloroethane produces cancer in humans, but long-term inhalation of high concentrations of chloroethane has been found to cause cancer in rodents [4]. An inhalation unit risk for cancer is not available for chloroethane [6].

Dermal Exposure. Dermally applied chloroethane is used as a local anesthetic in humans [4]. Chloroethane causes the skin to freeze, producing a numbing sensation. Symptoms of frostbite can result from prolonged dermal exposure to chloroethane. Similar effects have been reported in animals.

ECOLOGICAL TOXICITY

General. Chloroethane is considered one of the least toxic of the chlorinated ethanes. It does not occur as a natural product of nature. Chloroethane is highly volatile from water, is weakly adsorbed on soils, and has no significant potential for bioaccumulation [7]. No information was available from the technical literature to determine if chloroethane biomagnifies.

Vegetation. Chloroethane is highly mobile in soil and susceptible to significant leaching [8]. Estimates of unsaturated soil indicate that a significant amount of chloroethanes is expected to be present in the soil-water phase and thus, be available to migrate by bulk transport, dispersion, and diffusion. In most soil-groundwater systems, concentrations of microorganisms capable of biodegrading chloroethane is very low and drops off sharply with increasing depth. Thus, biodegradation is of minimal importance except in landfills with active microbiological populations [7]. Review of the technical literature did not produce information regarding the phytotoxic effects of chloroethane.

Aquatic Life. Bioconcentration, absorption, direct photolysis, and oxidation are not important aquatic fate processes for chloroethane. The dominant environmental fate process for chloroethane in surface water is volatilization. Volatilization half-lives range from 1.1 to 5.6 days [8]. Hydrolysis is also an important fate process in aquatic systems. A maximum hydrolytic half-life for chloroethane was reported to be 40 days [7]. There are no USEPA acute or chronic water quality standards for aquatic life [9].

Wildlife. The only report found in the reference materials came from Micromedex, Inc. [8] which stated a 2-hour LC_{50} for rodents of 57,600 ppm.

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CHLOROFORM

CAS NUMBER

67-66-3

COMMON SYNONYMS

Trichloromethane

ANALYTICAL CLASSIFICATION

Volatile (organic).

PHYSICAL AND CHEMICAL DATA

Water Solubility: 7,950 mg/L [1]
Vapor Pressure: 246 mm Hg at 25°C [1]
Henry's Law Constant: 4.35×10^{-3} atm-m^3/mole [1]
Specific Gravity: 1.484 at 20/20°C [2]
Organic Carbon Partition Coefficient: < 34 [1]

FATE DATA: HALF-LIVES

Soil: 1 to 6 months [3]
Air: 26 to 260 days [3]
Surface Water: 1 to 6 months [3]
Groundwater: 2 months to 5 years [3]

NATURAL SOURCES

Plants [1].

ARTIFICIAL SOURCES

Chemical industry, chlorination of drinking water, municipal sewage, power plants, auto exhaust, dry cleaning industry, fumigation, manufacturing [1].

FATE AND TRANSPORT

The majority of chloroform released to the environment ends up in the atmosphere, where it may be transported long distances. It is not adsorbed significantly on soils or sediment. Chloroform in soils will leach to groundwater, where it may remain for long periods of time or until discharged. Since it is substantially denser than water, when it occurs as a separate phase it tends to sink to the bottom of the aquifer. Releases to surface soils and water will be dissipated primarily by evaporation. It is subject to significant biodegradation. It is not expected to bioconcentrate in aquatic organisms [1].

HUMAN TOXICITY

General. Chloroform exerts adverse effects on the central nervous system, liver, and kidneys. It was used as a surgical anesthetic for many years before its harmful effects on the liver and kidney were recognized. High doses of chloroform have also been found to cause liver and kidney cancer in experimental animals [4]. The USEPA has placed chloroform in weight-of-evidence Group B2, indicating that it is a probable human carcinogen [5].

Oral Exposure. A chronic oral RfD of 0.01 mg/kg/day is based on a LOAEL of 12.9 mg/kg/day determined for fatty cyst formation following chronic administration to dogs [5]. Chloroform is readily absorbed following oral exposure, with up to 100% of an administered dose being absorbed by humans. Acute oral LD_{50} values in rats range from 446 to 2,180 mg/kg. Reported fatal oral doses for humans ranged from 212 to 3,755 mg/kg. Long-term exposure by ingestion can adversely affect liver and kidney function. Toxic effects may include jaundice and burning urination. Decreased fetal weight was observed in the offspring of pregnant rats receiving 400 mg/kg/day by gavage. Gonadal atrophy was observed in both sexes of rats treated by gavage at a rate of 410 mg/kg/day [4]. An oral slope factor of 6.1×10^{-3} $(mg/kg/day)^{-1}$ is based on kidney tumors observed in rats following exposure to treated drinking water [5].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for chloroform [5,6]. Chloroform is readily absorbed following inhalation exposure. An LC_{50} of 9,770 ppm was reported for female rats exposed for 4 hours. Breathing air concentrations of 10,000 to 22,500 ppm for less than 30 minutes did not result in increased mortality in human surgical patients. A concentration of about 40,000 ppm for a few minutes may be sufficient to cause death in humans. Deaths resulting from the use of chloroform as a surgical anesthetic were due to acute hepatotoxicity. Short-term inhalation of high concentrations causes tiredness, dizziness, and headache. Long-term exposure by inhalation can adversely affect liver and kidney function. Toxic effects may include jaundice and burning urination. Chloroform has been shown to be fetotoxic and teratogenic in experimental animals. Adverse reproductive effects in male and female rodents have also been reported [4]. An inhalation unit risk of 2.3×10^{-5} $(mg/m^3)^{-1}$ is based on hepatocellular carcinomas observed in female mice following gavage administration [5].

Dermal Exposure. Chloroform is readily absorbed following dermal exposure. No deaths or hepatic effects were observed in rabbits when 3,980 mg/kg was applied to the belly for 24 hours. However, adverse effects to the skin and kidney in rabbits were noted following 24-hour exposure to 1,000 mg/kg [4].

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1,1-DICHLOROETHANE

CAS NUMBER

75-34-3

COMMON SYNONYMS

Ethylidene dichloride. [1]

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 5060 mg/L at 25°C [2]
Vapor Pressure: 227 mm Hg at 25°C [2]]
Henry's Law Constant: 5.87×10^{-3} atm-m^3/mole [2]
Specific Gravity: 1.17 at 25/4°C [1]
Organic Carbon Partition Coefficient: 40 [2]

FATE DATA: HALF-LIVES

Soil: 32 days - 22 weeks [3]
Air: 10.3 - 103 days [3]
Surface Water: 32 days - 22 weeks [3]
Groundwater: 64 days - 51.4 weeks [3]

NATURAL SOURCES

Not naturally occurring. [2]

ARTIFICIAL SOURCES

Chemical intermediate; coupling agent in anti-knock gasoline; paint and varnish remover; metal degreaser; ore floatation agent; production of 1,1,1-trichloroethane. [2]

FATE AND TRANSPORT

1,1-Dichloroethane released to the soil will undergo rapid volatilization. Given the low organic carbon partition coefficient (K_{oc} = 40) of the compound, it may also be expected leach through soils to groundwater. Volatilization is the primary removal mechanism from surface waters as well; adsorption to sediments and hydrolysis occur, but at much slower rates. Biodegradation and/or bioconcentration (BCF = 1.2) are not expected to be significant in any medium. Atmospheric 1,1-dichloroethane will react with photochemically-produced hydroxyl radicals. 1,1-Dichloroethane exhibits a moderate degree of solubility; therefore, some atmospheric washout by rainfall may be expected [2].

HUMAN TOXICITY

General. The major target of 1,1-dichloroethane toxicity is the central nervous system [4]. Information regarding the mutagenicity of 1,1-dichloroethane are equivocal [4]. The USEPA has placed 1,1-dichloroethane in weight-of-evidence cancer Group C, indicating that it is a possible human carcinogen [5].

Oral Exposure. A chronic oral RfD of 0.1 mg/kg/day is based on a NOEL of 115 mg/kg/day for no adverse effects in a subchronic inhalation study in rats [6]. The oral RfD was extrapolated from inhalation data. 1,1-Dichloroethane is absorbed following oral exposure, but the extent of absorption is not known [4]. ATSDR reported acute oral LD_{50} values of 725 mg/kg and 14,100 mg/kg for rats, but ATSDR was not able to assess the quality of these values [4]. 1,1-Dichloroethane has not been found to be lethal to humans. Information is not available regarding the toxicity of 1,1-dichloroethane in humans following oral exposure. Long-term animal studies reported no adverse effects. There is no evidence that 1,1-dichloroethane causes cancer in humans, but studies in animals suggest that oral exposure may result in cancer [4]. An oral slope factor for cancer is not available for 1,1-dichloroethane [5].

Inhalation Exposure. A chronic inhalation RfC of 0.5 mg/m^3 is based on a NOEL of 138 mg/kg/day for kidney damage in a subchronic inhalation study in cats [6]. 1,1-Dichloroethane is readily absorbed following inhalation exposure. Inhaled 1,1-dichloroethane has not been shown to be fatal in humans and acute inhalation LC_{50} values are not available in animals. 1,1-Dichloroethane had been used as an anesthetic in humans, but this use was discontinued when it was found that it produced cardiac arrhythmias at anesthetic doses (approximately 26,000 ppm) [4]. In animals, inhalation exposure has also resulted in effects on the kidneys and on the developing fetus (retarded development) [4]. There is no evidence that 1,1-dichloroethane causes cancer in humans or animals following inhalation exposure. An inhalation unit risk for cancer is not available [5].

Dermal Exposure. No useful information was located regarding dermal exposure to 1,1-dichloroethane in humans or animals.

ECOLOGICAL TOXICITY

General. 1,1-Dichloroethane is one of the least toxic of the chlorinated ethanes. It is highly volatile in water, weakly adsorbed to soil, and has a low potential for bioaccumulation [7]. No information in the technical literature indicated biomagnification of 1,1-dichloroethane.

Vegetation. 1,1-Dichloroethane is highly mobile in natural soil systems and is only sorbed to a limited extent onto soils. Review of the technical literature did not produce information regarding the phytotoxic effects of 1,1-dichloroethane.

Aquatic Life. 1,1-Dichloroethane released into water, will be removed by volatilization, with a half-life of 6 to 9 days in a pond, 5 to 8 days in a lake, and 24 to 32 hour in a river [8]. According to Clement Associates, Inc. [9], 1,1-dichloroethane is acutely toxic at levels of 100 to 500 mg/L, with chronic toxic effects beginning at about 20 mg/L. The 96-hour LC_{50} for bluegill is 550 ppm, and the 7-day LC_{50} for guppies is 202 ppm [8]. In general, aquatic toxicity in chloroethanes decrease with decreasing chlorination [10]. There are no USEPA aquatic life water quality criteria for 1,1-dichloroehtane [11].

Wildlife. Based on an oral LD_{50} for rats of 725 mg/kg, 1,1-dichloroethane can be classified as slightly toxic to mammals [10]. No other information on wildlife toxicity was found in the technical literature.

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1,1-DICHLOROETHENE

CAS NUMBER

75-35-4

COMMON SYNONYMS

1,1-Dichloroethylene, asym-dichloroethylene, vinylidene chloride, DCE.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: approximately 2,500 mg/L at 25°C [1]
Vapor Pressure: 591 mm Hg at 25°C [1]
Henry's Law Constant: 3.01 x 10^{-2} atm-m^3/mole [1]
Specific Gravity: 1.213 at 20/4°C [2]
Organic Carbon Partition Coefficient: 150 [1]

FATE DATA: HALF-LIVES

Soil: 4 weeks to 6 months [3]
Air: 9.9 hours to 4.1 days [3]
Surface Water: 4 weeks to 6 months [3]
Groundwater: 56 to 132 days [3]

NATURAL SOURCES

None [4].

ARTIFICIAL SOURCES

Manufacture of plastic wrap, adhesives, and synthetic fibers; metabolism of chlorinated solvents [1].

FATE AND TRANSPORT

1,1-Dichloroethene is a relatively volatile and soluble compound. Releases of this compound to soils and waters, therefore, will be lost primarily through evaporative processes. Given the low K_{oc} value, little tendency to adsorb to soils and sediments/suspended solids (in waters) is exhibited, and some percolation through soils to groundwaters can be expected. In the groundwaters, very slow hydrolysis and biodegradation (via anaerobic reductive dechlorination to vinyl chloride) will occur. Released to the atmosphere, 1,1-dichloroethene will degrade by reaction with hydroxyl radicals. Photooxidative reactions in waters are insignificant. Based on its low octanol/water partition coefficient (K_{ow} = 135), no significant bioconcentration is expected [1].

HUMAN TOXICITY

General. High levels of DCE have reportedly caused a variety of adverse health effects in animals, including liver, kidney, heart and lung damage, as well as nervous system disorders and death. Harmful effects on the developing fetus have also been demonstrated [4]. The USEPA has placed DCE in weight-of-evidence Group C, indicating that it is a possible human carcinogen [5].

Oral Exposure. A chronic RfD of 0.009 mg/kg/day is based on a LOAEL of 9 mg/kg/day determined for hepatic lesions following chronic oral administration to rats [5]. Studies in animals have demonstrated that DCE is rapidly and almost completely absorbed from the gastrointestinal tract following oral administration. The oral LD_{50} for rats is approximately 1,500 mg/kg. No information on the health effects in humans following oral exposure was located [4]. An oral slope factor of 0.6 $(mg/kg/day)^{-1}$ is based on adrenal pheochromocytomas observed in male rats following chronic oral exposure [5].

Inhalation Exposure. The RfC is currently under review by the USEPA [5], and no value is provided in HEAST [6]. Studies in animals have demonstrated that DCE is rapidly absorbed following inhalation exposure. The 4-hour LC_{50} values in fed male rats range from approximately 6,000 to 8,000 ppm, while the 4-hour LC_{50} for male rats fasted for 16 hours is 400 ppm. No information was located regarding human deaths following inhalation exposure. The limited information available indicates that humans exposed via short-term inhalation may experience neurotoxicity. Also in humans, DCE has been implicated in liver and kidney toxicity following repeated, low-level exposure. Symptoms in humans exposed via inhalation to concentrations of about 4,000 ppm include: central nervous system depression, convulsions, spasms, and unconsciousness. Pregnant mice exposed to 15 ppm or greater DCE for an unspecified duration produced offspring with skeletal anomalies [4]. An inhalation unit risk of 5.0×10^{-5} $(mg/m^3)^{-1}$ is based on kidney adenocarcinomas observed in male mice exposed via inhalation for 12 months [5].

Dermal Exposure. DCE is irritating when applied to the skin of humans and animals. It is also an eye irritant in humans. Studies with mice indicate that DCE applied dermally is a tumor initiator. No other information was located regarding the health effects of DCE following dermal exposure [4].

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1,2-DICHLOROETHANE

CAS NUMBER

107-06-2

COMMON SYNONYMS

Ethylene dichloride, ethylene chloride, sym-dichloroethane, Dutch Liquid, 1,2-DCA.

ANALYTICAL CLASSIFICATION

Volatile organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 8,520 mg/L at 25°C [1]
Vapor Pressure: 78.7 mm Hg at 20°C [1]
Henry's Law Constant: 9.77×10^{-4} atm-m^3/mole [1]
Specific Gravity: 1.257 at 20/4°C [2]
Organic Carbon Partition Coefficient: 33 to 152 [1]

FATE DATA: HALF-LIVES

Soil: 100 days to 6 months [3]
Air: 12.2 to 122 days [3]
Surface Water: 100 days to 6 months [3]
Groundwater: 100 days to 12 months [3]

NATURAL SOURCES

None noted [1].

ARTIFICIAL SOURCES

Chemical intermediate; lead scavenger; extraction/cleaning solvent; pesticide diluent; grain fumigant; paints, coatings; and adhesives [1,2].

FATE AND TRANSPORT

1,2-Dichloroethane is a readily-volatilized material, releases of which to soils and/or waters will rapidly evaporate to the atmosphere. Once in the atmosphere, this compound will undergo photooxidation with photochemically-produced hydroxyl radicals; products of this photooxidation are CO_2 and HCl. Direct photolysis of this compound is not expected in the atmosphere or in waters. 1,2-Dichloroethane in the atmosphere, which does not undergo photooxidation, may be transported long distances with eventual atmospheric washout via rainfall. That which does not volatilize to the atmosphere shows an ability to leach through soils to unprotected groundwaters. This compound is not expected to adsorb significantly in either soils or aqueous environs, nor is it expected to hydrolyze, photolyze or bioconcentrate. Chemical and biological degradation may slowly occur in waters, but is not expected in soils. Bioconcentration in aquatic organisms should not be significant [1].

HUMAN TOXICITY

General. 1,2-DCA is known to cause cancer in laboratory animals when administered in large doses. Humans and animals have died from the acute effects of high doses taken in via ingestion or inhalation [4]. The USEPA has placed 1,2-DCA in weight-of-evidence Group B2, indicating that it is a probable human carcinogen [5].

Oral Exposure. The USEPA does not currently provide an oral RfD for 1,2-DCA [5,6]. Clinical evidence indicates that 1,2-DCA is rapidly absorbed by humans following oral intake. Animal studies have shown that oral absorption is rapid, complete, and essentially linear. An acute oral LD_{50} of 680 mg/kg has been reported for rats. Human deaths have resulted from ingestion of as little as 15 ml 1,2-DCA (approximately 270 mg/kg). Death in humans appears to result from cardiac arrhythmia. The symptoms of acute oral exposure in humans include: bronchitis, hemorrhagic gastritis and colitis, hepatocellular damage, central nervous system depression, and histological changes in brain tissue [4]. An oral slope factor of 0.091 $(mg/kg/day)^{-1}$ is based on hemangiosarcomas observed in rats following oral (gavage) exposure [5].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for 1,2-DCA [5,6]. 1,2-DCA is rapidly absorbed in the human lung, and is accumulated in the breast milk of nursing women. The 8-hour LC_{50} reported for rats is 1,000 ppm. One case study reported that a 51-year-old man died within 4 days of a 30-minute exposure to concentrated 1,2-DCA (concentration not specified). The symptoms of acute inhalation exposure in humans include: partial paralysis, clonic jerk, coma, nephrotoxic effects, hepatotoxic effects, nausea, and vomiting [4]. An inhalation unit risk of 2.6×10^{-5} $(mg/m^3)^{-1}$ is based on hemangiosarcomas observed in rats following oral (gavage) exposure [5].

Dermal Exposure. Dermal absorption of 1,2-DCA appears to occur, though somewhat slowly. Limited evidence indicates that 1,2-DCA produces nonmalignant tumors remote from the site of application [4].

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1,2-DICHLOROETHENE

CAS NUMBERS

1,2-Dichloroethene (total)	540-59-0
1,2-trans-Dichloroethene	156-60-5
1,2-cis-Dichloroethene	156-59-2

COMMON SYNONYMS

1,2-Dichloroethylene, acetylene dichloride.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

<u>1,2-trans-Dichloroethene</u>

Water Solubility: 6,300 mg/L at 25°C [1]
Vapor Pressure: 340 mm Hg at 25°C [1]
Henry's Law Constant: 6.72 x 10^{-3} atm-m^3/mole [1]
Specific Gravity: 1.26 [2]
Organic Carbon Partition Coefficient: 36 [1]

<u>1,2-cis-Dichloroethene</u>

Water Solubility: 3,500 mg/L [1]
Vapor Pressure: 200 mm Hg at 35°C [1]
Henry's Law Constant: 3.37 x 10^{-3} atm-m^3/mole [1]
Specific Gravity: 1.28 [2]
Organic Carbon Partition Coefficient: 49 [1]

FATE DATA: HALF-LIVES

<u>1,2-Dichloroethene (Total)</u>

Soil: 1 to 6 months [3]
Air: 1.1 to 11.9 days [3]
Surface Water: 1 to 6 months [3]
Groundwater: 2 months to 7.9 years [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Chemical industry, manufacturing, breakdown of TCE, tetrachloroethene, and 1,1,2,2-tetrachloroethane [1].

FATE AND TRANSPORT

Both isomers of 1,2-dichloroethene (cis and trans) released on soil should partially evaporate, with the balance leaching into groundwater where very slow biodegradation should occur. If released to surface water they will be lost mainly through volatilization. Adsorption to soil and sediment, as well as biodegradation and bioconcentration in aquatic organisms should not be significant. They will be abiotically degraded in air and scavenged by rainfall. Once in the atmosphere, considerable dispersal from source areas should occur [1].

HUMAN TOXICITY

General. The available toxicity information was very limited, and sometimes did not distinguish between the two forms of 1,2-dichloroethene, that is, cis and trans. Humans exposed to high vapor levels of 1,2-dichloroethene, depending on the form and duration, may experience nausea, drowsiness, and death. In animals, adverse effects to the lung, liver, heart, and blood have been noted [4]. The USEPA has placed 1,2-cis-dichloroethene in weight-of-evidence Group D; that is, it is not classifiable as to human carcinogenicity. 1,2-Trans-dichloroethene has not been placed in a weight-of-evidence group by the USEPA [5].

Oral Exposure. A chronic oral RfD of 0.01 mg/kg/day for 1,2-cis-dichloroethene is based on a NOAEL of 32 mg/kg/day for decreased hematocrit and decreased hemoglobin in a subchronic oral (gavage) study in rats [6]. A chronic oral RfD of 0.02 mg/kg/day [5], and a subchronic oral RfD of 0.2 mg/kg/day [6] for 1,2-trans-dichloroethene are based on a NOAEL of 17 mg/kg/day for increased blood alkaline phosphatase in a subchronic drinking water study in mice. No information on the rate and extent of absorption of 1,2-dichloroethene following oral exposure was located. The acute oral LD_{50} in rats was reported to be 1,275 mg/kg [4]. Oral LD_{50} values in mice ranged from 2,122 to 2,391 mg/kg [7]. Adverse effects to the livers of rats have been reported following oral administration of trans-1,2-dichloroethene. The cis isomer has been associated in rodents with adverse effects to blood, while the trans isomer has not [4].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for either form of 1,2-dichloroethene [5,6]. It has been reported that 72-75% of inhaled trans-1,2-dichloroethene is absorbed through the lungs in humans. A 6-hour LC_{50} of 21,723 ppm was reported for rats exposed to the trans isomer via inhalation. Adverse effects on the lung, liver, heart, and blood have been observed in rats following inhalation exposure to trans-1,2-dichloroethene [4]. 1,2-dichloroethene vapor is a narcotic and mucous membrane irritant, and was once used as a general anesthetic in humans. Exposure to the trans isomer in air at a level of 2,000 ppm causes burning of the eyes, vertigo, and nausea [7]. A single human death following inhalation exposure to 1,2-dichloroethene was reported [4].

Dermal Exposure. No information on the rate and extent of absorption of 1,2-dichloroethene following dermal exposure was located. Skin contact with 1,2-dichloroethene can induce a primary irritant response [7].

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ETHYLBENZENE

CAS NUMBER

100-41-4

COMMON SYNONYMS

None noted.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 161 mg/L at 25°C [1]
Vapor Pressure: 9.53 mm Hg at 25°C [1]
Henry's Law Constant: 8.44×10^{-3} atm-m^3/mole [1]
Specific Gravity: 0.87 at 25/25°C [2]
Organic Carbon Partition Coefficient: 871 [1]

FATE DATA: HALF-LIVES

Soil: 3 to 10 days [3]
Air: 8.56 hours to 3.57 days [3]
Surface Water: 3 to 10 days [3]
Groundwater: 6 to 228 days [3]

NATURAL SOURCES

Coal tar and petroleum [4].

ARTIFICIAL SOURCES

Manufacture of styrene, solvent, petroleum refining, vaporization/spills of gasoline and diesel fuel, auto emissions, paints, inks, insecticides, and cigarette smoke [1,2,4]

FATE AND TRANSPORT

Ethylbenzene released to surface soils will probably undergo partial volatilization and, given its limited ability to sorb to soils (K_{oc} = 871), leaching to groundwater. Evidence suggests that this material undergoes biodegradation in groundwaters, and may do so in soils if the initial loading doesn't prove toxic to soil-based microorganisms. If released to surface waters, ethylbenzene is expected to volatilize fairly readily. As with groundwaters, rapid biodegradation can be predicted after an initial acclimation period. Ethylbenzene shows only a slight to moderate tendency to adsorb to soils and sediments in waters.

Bioconcentration in aquatic organisms is not expected to be significant (BCF for ethylbenzene = 145). Ethylbenzene is expected to exist in the atmosphere primarily as a vapor, based upon its vapor pressure value (9.53 mm Hg). Principally, ethylbenzene will be removed from the atmosphere via reaction with hydroxyl radicals; some washout via rainfall may be expected. [1]

HUMAN TOXICITY

General. Humans exposed to ethylbenzene may experience eye and throat irritation, decreased movement, and dizziness. Studies in animals have shown liver and kidney damage, nervous system changes, and blood changes [4]. The USEPA has placed ethylbenzene in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [5].

Oral Exposure. A chronic RfD of 0.1 mg/kg/day is based on a NOEL of 97.1 mg/kg/day and a LOAEL of 291 mg/kg/day determined for liver and kidney toxicity in a rat subchronic to chronic oral bioassay [5]. Studies in animals revealed that ethylbenzene is quickly and effectively absorbed following oral exposure. The oral (gavage) LD_{50} in rats is reported to be 4,728 mg/kg. No information was located regarding death or health effects in humans following oral exposure [4].

Inhalation Exposure. The RfC of 1 mg/m^3 is based on a NOAEL of 434 mg/m^3 determined for developmental toxicity in rats and rabbits exposed via inhalation [5]. Ethylbenzene is rapidly and efficiently absorbed via inhalation in humans and animals. A 4-hour LC_{50} of 4,000 ppm was reported for rats. Exposure-related adverse effects in animals included those to liver and kidney, eye irritation, profuse lacrimation, CNS depression and ataxia. No deaths were reported for humans following inhalation of ethylbenzene. The effects observed in humans included pulmonary and ocular irritation, profuse lacrimation, chest constriction, dizziness, vertigo, and possible hematological alterations. Exposure of pregnant rats to levels above 138 ppm for 24 hours/day for 9 days had adverse developmental effects [4].

Dermal Exposure. Liquid ethylbenzene is rapidly absorbed through the skin; however, absorption of vapors through the skin is minimal. The dermal LD_{50} in rabbits for liquid ethylbenzene was reportedly 15,415 mg/kg. Ethylbenzene appears to be a slight eye irritant in rabbits [4].

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4-METHYL-2-PENTANONE

CAS NUMBER

108-10-1

COMMON SYNONYMS

Isopropylacetone; methyl isobutyl ketone; hexone. [1]

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 20,400 mg/L at 20°C [2]
Vapor Pressure: 14.5 mm Hg at 20°C [2]
Henry's Law Constant: 9.4x 10^{-5} atm-m^3/mole [2]
Specific Gravity: 0.80 at 20/4°C [1]
Organic Carbon Partition Coefficient: 19 - 106 [2]

FATE DATA: HALF-LIVES

Soil: 1 - 7 days [3]
Air: 4.6 hours - 1.9 days [3]
Surface Water: 1 - 7 days [3]
Groundwater: 2 - 14 days [3]

NATURAL SOURCES

None noted.

ARTIFICIAL SOURCES

Vehicular exhausts; solvent/denaturant; rare metals extraction; manufacture of coatings (e.g., lacquers, varnishes, paints), pharmaceuticals, pesticides, rubber processing chemicals, and adhesives. [1,2]

FATE AND TRANSPORT

4-Methyl-2-pentanone released to, or found on, soil surfaces is subject to direct photolysis, volatilization, and/or aerobic biodegradation. Given the relatively low K_{oc} value of 4-methyl-2-pentanone (19 - 106), leaching to groundwater may also be expected. Releases of this material to surface water are subject to volatilization and direct photolysis; some aerobic biodegradation may occur. Bioconcentration, however, is not expected to occur to any significant extent. Atmospheric concentrations of 4-methyl-2-pentanone will undergo photolysis, and/or reaction with hydroxyl radicals in direct sunlight. In photochemical smog situations, this material may also be predicted to react with nitrous oxides. Byproducts of photoreactions include acetone and, in the presence of nitrous oxides, peroxyacetyl nitrate. [2]

HUMAN TOXICITY

General. Symptoms observed following exposure to 4-methyl-2-pentanone include irritation of the eyes and mucous membranes, headaches, narcosis, coma and dermatitis [4,5,6]. There is no information regarding the mutagenicity or carcinogenicity of 4-methyl-2-pentanone. 4-Methyl-2-pentanone has not been placed in a weight-of-evidence cancer group by the USEPA [7].

Oral Exposure. A chronic oral RfD of 0.05 mg/kg/day is based on a NOEL of 50 mg/kg/day for liver and kidney effects in a subchronic study in rats [8]. 4-Methyl-2-pentanone is absorbed following oral exposure, but the extent of absorption is not known. An acute oral LD_{50} value of 2080 mg/kg was reported for rats [1,4,5]. It is not known if ingested 4-methyl-2-pentanone is fatal to humans. Information regarding systemic, reproductive or developmental effects in humans or animals following oral exposure are not available. An oral slope factor for cancer is not available for 4-methyl-2-pentanone [7].

Inhalation Exposure. A chronic inhalation RfC of 0.08 mg/m^3 is based on a NOEL of 50 ppm for liver and kidney effects in a subchronic study in rats [8]. 4-Methyl-2-pentanone is absorbed following inhalation exposure, but the extent of absorption is not known. An acute inhalation LC_{50} value of 23,300 mg/m^3 (5685 ppm) was reported for mice [5]. In rats, a 4-hour exposure to 4000 ppm, but not 2000 ppm, was fatal [4]. It is not known if inhaled 4-methyl-2-pentanone is fatal to humans. In humans, exposure to 200 ppm causes eye irritation and 400 ppm causes nasal irritation. At higher concentration, narcotic effects may occur [5]. Information regarding reproductive or developmental effects in humans or animals following inhalation exposure to 4-methyl-2-pentanone is not available. An inhalation unit risk for cancer is not available for 4-methyl-2-pentanone [7].

Dermal Exposure. 4-Methyl-2-pentanone is a skin irritant in humans. Doses resulting in skin irritation are not known. Further useful toxicity information are not available in humans or animals.

ECOLOGICAL TOXICITY

General. Insufficient data are available to evaluate or predict the short-term and long-term effects of 4-methyl-2-pentanone on plants, birds, or land animals. Acute toxicity effects of 4-methyl-2-pentanone include the death of birds, animals, and fish, and death or low growth rate in plants. Acute effects are seen 2 to 4 days after animals or plants come in to contact with the compound [9]. The biodegradation rate of 4-methyl-2-pentanone is slow.

Vegetation. If released to soil, 4-methyl-2-pentanone may be removed by direct photolysis on soil surfaces, volatilization, or aerobic biodegradation [10]. No technical information could be located to indicate the phytotoxicity of 4-methyl-2-pentanone.

Aquatic Life. 4-Methyl-2-pentanone has slight acute and chronic toxicity to aquatic life. The concentration found in fish tissues is expected to be about the same as the average concentration in the water from which the fish was taken, indicating low bioconcentration potential [11]. According to CH2M Hill, Inc. [12], the 96-hour LC_{50} for fathead minnows is 505 mg/L. Sax [9] states the 96-hour LC_{50} for fathead minnows is 492 to 593 mg/L based on a water hardness of 56.3 mg/L $CaCO_2$ and pH of 7.5. 4-Methyl-2-pentanone is highly soluble and slightly persistent in water with a half-life of 2 to 20 days.

Wildlife. Waterfowl and other birds are the major species threatened by 4-methyl-2-pentanone [9]. The oral LD_{50} for the redwinged blackbird is 100 mg/kg [10]. The acute oral LD_{50} for rats is 2,080 mg/kg and the LD_{50} for mice is 2,671 mg/kg [11].

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TETRACHLOROETHENE

CAS NUMBER

127-18-4

COMMON SYNONYMS

Tetrachloroethylene, perchloroethylene, PCE.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 1,503 mg/L at 25°C [1]
Vapor Pressure: 18.49 mm Hg at 25°C [1]
Henry's Law Constant: 1.49×10^{-2} atm-m^3/mole [1]
Specific Gravity: 1.6311 at 15/4°C [2]
Organic Carbon Partition Coefficient: 209 to 238 [1]

FATE DATA: HALF-LIVES

Soil: 0.5 - 1 year [3]
Air: 16 - 160 days [3]
Surface Water: 0.5 - 1 year [3]
Groundwater: 1 - 2 years [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Dry cleaning industry, metal finishing, organic chemical/plastics manufacturing [1].

FATE AND TRANSPORT

PCE released to surface soil will be subject to evaporation into the atmosphere and leaching to the groundwater. It is weakly adsorbed to soil organic material. Since it is only somewhat soluble in water and substantially denser, when it occurs as a separate phase it tends to sink to the bottom of the aquifer. Biodegradation of PCE occurs in soils and, to a lesser extent, in some types of groundwater. PCE released to surface water will be subject to rapid volatilization; it will not be expected to significantly biodegrade, bioconcentrate in aquatic organisms, or adsorb to sediment. Photooxidation degrades PCE in the atmosphere, although some may be washed out in rain before this occurs [1].

HUMAN TOXICITY

General. The primary targets of PCE toxicity are the central nervous system, the liver and the kidneys [4,5]. PCE is not considered to be mutagenic. The USEPA has not adopted a final position on the weight-of-evidence cancer classification for PCE, but an oral Slope Factor and inhalation Unit Risk have been derived [7].

Oral Exposure. A chronic oral RfD of 0.01 mg/kg/day is based on a NOAEL of 14 mg/kg/day for hepatotoxicity in mice and weight gain in rats following subchronic administration of PCE [6]. PCE is readily absorbed following oral exposure. Acute oral LD_{50} values ranged from 3000 to 8850 mg/kg in rats and 5000 to 8100 mg/kg in mice [4,5]. The fatal oral dose to humans is not known. Inebriation was the only reported side effect following treatment of intestinal parasites with doses of 2.8 to 4.0 ml (40-57 mg/kg) PCE [5]. No other data regarding toxic effects in humans following oral exposure are available. PCE has been found to cause liver tumors in mice following both oral and inhalation exposure [4]. An oral Slope Factor of 0.052 $(mg/kg/day)^{-1}$ is based on the incidence of liver cancer in mice [7].

Inhalation Exposure. An inhalation RfC for PCE is not currently available [6]. PCE is rapidly absorbed following inhalation exposure [4]. Acute inhalation LC_{50} values of 5200 ppm (4 hour) and 5040 ppm (8 hour) were identified for mice and rats, respectively [5]. Acute exposure of humans to concentrations of PCE in air above 200 ppm has resulted in depression of the central nervous system characterized by dizziness, impaired memory, confusion, irritability, "inebriation-like" symptoms, tremors and numbness. Long-term exposure of humans to PCE (concentration not reported) has resulted in toxic effects on the liver, including hepatitis, cirrhosis, liver-cell necrosis and enlarged liver. Chronic kidney disease has also been noted [5]. There is no evidence that PCE causes effects on human development or reproduction [4,5]. PCE has been found to cause liver tumors in mice following both oral and inhalation exposure [4]. An inhalation Unit Risk of 5.8×10^{-7} $(ug/m^3)^{-1}$ was derived based on the incidence of liver cancer in mice [7].

Dermal Exposure. A 10-day dermal LD_{50} value of 64,680 mg/kg was defined for mice [5]. Skin contact with PCE causes dryness, irritation, blistering and burns. Mild liver and kidney damage may also occur. The exposure levels that result in these effects are not known.

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TOLUENE

CAS NUMBER

108-43-2

COMMON SYNONYMS

Methylbenzene.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 534.8 mg/L at 25°C [1]
Vapor Pressure: 28.4 mm Hg at 25°C [1]
Henry's Law Constant: 5.94×10^{-3} atm-m^3/mole [1]
Specific Gravity: 0.866 at 20/4°C [2]
Organic Carbon Partition Coefficient: 37 to 178 [1]

FATE DATA: HALF-LIVES

Soil: 4 to 22 days [3]
Air: 10 hours to 4.3 days [3]
Surface Water: 4 to 22 days [3]
Groundwater: 1 to 4 weeks [3]

NATURAL SOURCES

Volcanoes, forest fires, and crude oil [1].

ARTIFICIAL SOURCES

Gasoline, fuel oils, automobile exhaust, chemical industry, paints and lacquers [1].

FATE AND TRANSPORT

Much of the toluene released to surface soil will be lost to volatilization. It is mobile in soils and will leach to groundwater. Biodegradation occurs slowly in soil and groundwater, but is inhibited by high concentrations. Under ideal conditions of low concentration and acclimated microbial populations, rapid biodegradation may occur. Losses from surface water occur due to volatilization and biodegradation. It will not significantly adsorb to sediment or bioconcentrate in aquatic organisms. In the atmosphere it will degrade or be washed out with rain [1].

HUMAN TOXICITY

General. Toluene acts primarily on the central nervous system [4]. The USEPA has placed toluene in weight-of-evidence Group D; that is, it is not classifiable as to human carcinogenicity [5].

Oral Exposure. A chronic RfD of 0.2 mg/kg/day is based on a NOAEL of 223 mg/kg/day for changes in liver and kidney weights in a subchronic oral study in rats. The LOAEL in this study was a dose of 446 mg/kg/day [5]. Toluene is absorbed more slowly from the gastrointestinal tract than from the lungs [6]. The acute oral LD_{50} for adult rats is in the range of 5,000 to 7,300 mg/kg [4,6]. Brain damage was noted in mice receiving 1,250 mg/kg/day by gavage for 13 weeks [6].

Inhalation Exposure. The RfC of 0.4 mg/m^3 is based on a LOAEL of 88 ppm for central nervous system effects observed in humans following inhalation exposure [7]. Toluene is rapidly absorbed following inhalation by humans and animals [6]. The inhalation LC_{50} in mice is 5,300 ppm for an 8-hour exposure. Exposure of humans by inhalation to 200 ppm for 8 hours produced mild fatigue, weakness, confusion, lacrimation, and tingling of the skin. At 600 ppm, additional effects included euphoria, headache, dizziness, dilated pupils, convulsions, and nausea. After 8 hours at 800 ppm, symptoms were more pronounced; effects included nervousness, muscular fatigue, and insomnia persisting for several days. Exposure to concentrations of 10,000 to 30,000 ppm could lead to narcosis and death. Chronic abusive inhalation of toluene vapors by humans produces central nervous system impairment and emotional and intellectual disturbances. Uptake in the various brain regions is widespread due to the high lipid solubility of toluene and the high lipid content of the brain. Effects on animals following high levels of exposure include hearing loss, kidney effects, and lung lesions. High level oral intake by animals has resulted in weight increases in the liver and kidney, and brain tissue damage [4].

Dermal Exposure. The absorption of toluene through human skin is slow, falling within the range of 14 to 23 mg/cm^2/hour. Dermal contact with toluene by humans may cause skin damage. Application of toluene to the eyes of rabbits reportedly resulted in moderately severe injury [6].

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1,1,1-TRICHLOROETHANE

CAS NUMBER

71-55-6

COMMON SYNONYMS

Methylchloroform, TCA.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 1,495 mg/L at 25°C [1]
Vapor Pressure: 123.7 mm Hg at 25°C [1]
Henry's Law Constant: 8×10^{-3} atm-m^3/mole [1]
Specific Gravity: 1.3376 at 20/4°C [2]
Organic Carbon Partition Coefficient: 183 [1]

FATE DATA: HALF-LIVES

Soil: 20 - 39 weeks [3]
Air: 225 days - 6.2 years [3]
Surface Water: 20 - 39 weeks [3]
Groundwater: 20 weeks - 1.5 years [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Metal degreasing, solvent, aerosol.

FATE AND TRANSPORT

TCA released to surface soil will be lost primarily to evaporation. It is mobile in soil, and will leach to groundwater. Since it is only somewhat soluble in water and substantially denser, when it occurs as a separate phase it tends to sink to the bottom of the aquifer. Almost all of the TCA present in surface water will be lost to evaporation. Releases to air will be transported long distances and partially returned to earth in rain. Photodegradation in the lower atmosphere is slow, while in the upper atmosphere it is rapid [1].

HUMAN TOXICITY

General. TCA is generally regarded as being of moderate to low toxicity. The primary target of TCA toxicity in humans is the central nervous system [4,5]. TCA is also a skin and eye irritant. Information regarding the mutagenicity of TCA are equivocal. The USEPA has placed TCA in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [6].

Oral Exposure. A chronic oral RfD of 0.09 mg/kg/day is based on a NOAEL of 500 ppm for liver toxicity in a subchronic inhalation study in guinea pigs [7]. The RfD was extrapolated from the chronic inhalation RfC [7]. TCA is absorbed following oral exposure, but the rate and extent of absorption are not known. Acute oral LD_{50} values in animals ranged from 5660 mg/kg in rabbits to 12,300 mg/kg in rats [4,5]. The fatal doses to humans has not been reported. A single, adult human who ingested 30 mL (approximately 570 mg/kg) of TCA showed initial symptoms of CNS depression and gastrointestinal upset. The patient survived and recovered within two weeks [5]. The effects of long-term oral exposure of humans to TCA are not known. In animals, TCA exposure has also resulted in effects on the liver (changes in liver enzymes). Information regarding the possible effects of TCA on the developing fetus in humans are not available, but oral studies in animals suggest that TCA is probably not a developmental toxicant [4]. There is no evidence that ingested TCA causes cancer in humans, and studies in animals are unable to assess the carcinogenic potential of TCA because the quality of the studies are poor [4]. An oral Slope Factor for cancer is not available [6].

Inhalation Exposure. A chronic inhalation RfC of 1 mg/m^3 is based on a NOAEL of 500 ppm for liver toxicity in a subchronic study in guinea pigs [7]. TCA is readily absorbed following inhalation exposure. Acute inhalation LC_{50} values in rats ranged from 10,305 ppm (6 hours) to 38,000 ppm (15 minutes) and in mice ranged from 3911 ppm (2 hours) to 18,358 ppm (1 hour) [4]. TCA inhalation has resulted in human deaths, with fatal concentrations estimated at 6,000 to 20,000 ppm [4]. Death is usually attributed to either depression of the central nervous system, resulting in respiratory arrest, or sensitization of the heart to epinephrine, resulting in severe cardiac arrhythmia [4]. Short-term inhalation of TCA in humans results in neurological effects. Within 20 minutes of exposure to 175 to 350 ppm TCA, deficits in motor performance have been seen [5]. Changes in reaction time, manual dexterity, and equilibrium have been reported following exposure to 350 ppm for 1-3 hours, and eye, nose and throat irritation and impaired perceptive capabilities have been found following exposure to 450 ppm for 8 hours. Exposure to TCA concentrations above 1000 ppm for 15 minutes or 2000 ppm for 5 minutes has resulted in disequilibrium in adults [5]. The effects of long-term inhalation of TCA are not known. Information regarding the possible effects of TCA on the developing fetus in humans are not available, but inhalation studies in animals suggest that TCA is probably not a developmental or reproductive toxicant [4]. There is no evidence that inhaled TCA causes cancer in humans, and inhalation studies in animals suggest that TCA is not a carcinogen via this route [4]. An inhalation Unit Risk factor for cancer is not available [6].

Dermal Exposure. Dermal exposure to TCA has not been shown to be lethal to humans, and dermal LD_{50} values are not available in animals [4]. Extended dermal contact to high concentrations of TCA results in skin irritation and a burning sensation, but TCA is not considered to be a strong skin irritant [4].

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TRICHLOROETHENE

CAS NUMBER

79-01-6

COMMON SYNONYMS

Trichloroethylene, TCE.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 1,100 mg/L at 25°C [1]
Vapor Pressure: 69.0 mm Hg at 25°C [1]
Henry's Law Constant: 1.03×10^{-2} atm-m^3/mole [1]
Specific Gravity: 1.4695 at 15/4°C [2]
Organic Carbon Partition Coefficient: 87 to 150 [1]

FATE DATA: HALF-LIVES

Soil: 0.5 to 1 year [3]
Air: 1.1 to 11.3 days [3]
Surface Water: 0.5 to 1 year [3]
Groundwater: 10.7 months to 4.5 years [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Metal degreasing operations, solvent, paint and ink formulations, electronics industry, and rubber processing industry [1].

FATE AND TRANSPORT

TCE released to soil will partially evaporate and partially leach to groundwater, where it may remain for a long time. It is highly mobile in soils, where there is some degradation to other chlorinated alkenes. Since it is only somewhat soluble in water and substantially denser, when it occurs as a separate phase it tends to sink to the bottom of the aquifer. Evaporation is the primary removal mechanism in surface water. Biodegradation, hydrolysis, and photooxidation are extremely slow by comparison. Adsorption to sediment and bioconcentration in aquatic organisms are insignificant. TCE in the atmosphere is present in the vapor phase and is rapidly degraded [1].

HUMAN TOXICITY

General. TCE has anesthetic properties, and inhalation of high concentrations causes unconsciousness in humans. Links to cancer and birth defects in humans are uncertain [4]. Neither IRIS nor HEAST currently provide toxicity values for TCE [5,6]. The USEPA has not resolved the weight-of-evidence classification of TCE, and currently places it in either Group C (possible human carcinogen) or Group B2 (probable human carcinogen). It has also been described as being on a Group "C-B2 continuum" [7].

Oral Exposure. Although quantitative data are lacking, it is probable that TCE is readily absorbed from the gastrointestinal tract. An acute oral LD_{50} of 4,920 mg/kg/day for a single dose was reported for rats. Hepatotoxicity in mice was noted at a level of 100 mg/kg/day, 5 days/week, for 6 weeks. Symptoms of oral exposure in humans include muscle weakness, vomiting, and unconsciousness. A human death following ingestion was reported to result from hepatorenal failure. There is some evidence in humans of adverse cardiovascular and neurological effects following ingestion of TCE [4]. The July 1985 Health Assessment Document for Trichloroethylene (EPA 600/8-82/006F) provides an oral slope factor of 0.011 $(mg/kg/day)^{-1}$ [7].

Inhalation Exposure. The initial rate of pulmonary uptake in humans is quite high, but levels off after a few hours. An inhalation LC_{50} of 12,500 ppm for a 4-hour exposure was reported for rats. Inhalation of TCE at high concentrations affects the central nervous system, causing effects such as dizziness, headache, slowed reaction times, sleepiness, and facial numbness. Additional effects include eye, nose, and throat irritation. At one time, TCE was used as a surgical anesthetic in humans. Animal studies have shown that prolonged inhalation or oral exposure to high levels of TCE produces liver and kidney damage, effects on the immune system and blood, and that chronic exposure can cause cancer of the liver, kidney, and lung. Consumption of alcohol can make people more susceptible to liver and kidney injury from TCE [4]. The June 1987 Addendum to the Health Assessment Document for Trichloroethylene (EPA 600/8-82/006FA) provides an inhalation unit risk of 1.7×10^{-6} $(mg/m^3)^{-1}$ [7].

Dermal Exposure. Dermal absorption of TCE in humans is rapid. The absorption rate in mice was reported to be 7.82 $mg/min/m^2$. The dermal LD_{50} in rabbits was reported to be 29,000 mg/kg. Humans exposed to 200 ppm TCE vapor for 1-7 hours experienced dry throats and mild eye irritation. Skin irritations, burns, and rashes have been reported for workers who underwent occupational exposure [4].

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VINYL CHLORIDE

CAS NUMBER

75-01-4

COMMON SYNONYMS

Chloroethene [1].

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 2,763 mg/L at 25°C [1]
Vapor Pressure: 2,660 mm Hg at 25°C [1]
Henry's Law Constant: 1.07×10^{-2} atm-m^3/mole [1]
Specific Gravity: 0.9106 at 20/4°C [2]
Organic Carbon Partition Coefficient: 0.40 to 56 [1]

FATE DATA: HALF-LIVES

Soil: 1 to 6 months [3]
Air: 9.7 to 97 hours [3]
Surface Water: 1 to 6 months [3]
Groundwater: 2 months to 7.9 years [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Plastics industry [1].

FATE AND TRANSPORT

Vinyl chloride rapidly volatilizes from surface soil. It is highly mobile and will likely leach to groundwater. It may be subject to limited biodegradation under aerobic conditions in soil and groundwater. It will rapidly volatilize from surface water. It is not expected to hydrolyze, bioconcentrate in aquatic organisms, or adsorb to sediment. Photodegradation may occur rapidly in surface waters high in humic acid. In the atmosphere it exists mainly in the vapor phase, and degrades rapidly [1].

HUMAN TOXICITY

General. The primary health concern associated with exposure to vinyl chloride is its carcinogenic potential. The target organs for cancer include the liver, brain, and lungs, and probably the lymph- and blood-forming systems. Cases of liver cancer in humans have been associated with exposure. Other types of cancer have been demonstrated in animal studies [4]. The USEPA has placed vinyl chloride in weight-of-evidence Group A, indicating that it is a human carcinogen [5].

Oral Exposure. The USEPA does not currently provide an oral RfD for vinyl chloride [5,6]. Vinyl chloride is rapidly and virtually completely absorbed in the gastrointestinal tract of the rat. An oral LOAEL of 1.7 mg/kg/day for 149 weeks was determined for increased death in rats. No information was located regarding adverse health effects in humans following oral exposure to vinyl chloride [4]. An oral slope factor of 1.9 $(mg/kg/day)^{-1}$ is based on lung and liver tumors observed in a chronic feeding study in rats [5].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for vinyl chloride [5,6]. Vinyl chloride is readily and rapidly absorbed via inhalation in humans and animals. NOAELs for inhalation by rats range from 50,000 ppm (6 h/day, up to 5 days) for hepatic effects to 200,000 ppm (30 min) for renal effects. Rats, rabbits, guinea pigs, and dogs tolerated exposure to 50 ppm for 6 months with no apparent adverse effects. Two human deaths were reported following inhalation exposure to very high concentrations of vinyl chloride. Autopsies indicated asphyxiation. A LOAEL for inhalation by humans of 8,000 ppm (5 min, twice/day) for dizziness was reported [4]. Humans exposed to 20,000 ppm for 5 minutes experienced lightheadedness, dizziness, nausea and dulling of vision [7]. Acroosteolysis, or resorption of the terminal phalanges of fingers was observed in persons occupationally exposed. Chronic exposure to vinyl chloride may also cause liver damage, decreased lung function, and spleen enlargement. There is strong evidence that liver cancer in humans is associated with long-term exposure to vinyl chloride. Studies have also linked vinyl chloride exposure in humans to cancers of the brain, lungs, and the lymph- and blood-forming systems. Genotoxicity has been demonstrated, and birth defects in humans have been anecdotally linked to vinyl chloride [4]. An inhalation slope factor of 0.3 $(mg/kg/day)^{-1}$ is based on liver tumors observed in a chronic inhalation study in rats [5].

Dermal Exposure. Dermal absorption of vinyl chloride vapor is probably insignificant. In rhesus monkeys, no more than 0.031% was absorbed in an atmosphere of 7,000 ppm. No information was located regarding death in humans or animals following dermal exposure to vinyl chloride. Human skin reportedly may develop numbness and a second degree burn following dermal exposure. No other useful information on adverse health effects in humans or animals resulting from dermal exposure to vinyl chloride was located [4].

ECOLOGICAL TOXICITY

General. Results of environmental toxicological studies of vinyl chloride effects on vegetation, aquatic life, and wildlife are limited in the reference materials. Volatilization of vinyl chloride from aquatic and terrestrial systems is the most important transport process [8]. Vinyl chloride is highly volatile, very weakly absorbed by soil, and has no significant potential for bioaccumulation [9]. No information on biomagnification was available in the technical literature.

Vegetation. Limited information exists for vinyl chloride toxicity in plants. In soil 97 percent of vinyl chloride is present in the gaseous phase. Diffusion through the soil-air pores up to the ground surface, and subsequent removal by wind, will be a significant loss pathway. Review of the technical literature did not produce information regarding the phytotoxic effects of vinyl chloride.

Aquatic Life. Vinyl chloride has a half-life in aquatic systems ranging from several minutes to a few hours, depending on temperature, water turbulence, and mixing efficiency [10]. Vinyl chloride is too readily volatilized to undergo bioaccumulation, except perhaps in the most extreme exposure conditions [11]. Limited data were available on vinyl chloride toxicity in aquatic systems. One study reported complete mortality of northern pike after a 10-day exposure at 388 ppm [12]. There are no federal water quality standards established to protect aquatic life from vinyl chloride [13].

Wildlife. The vinyl chloride oral LD_{50} for rats is 500 mg/kg [12,14]. The 2-hour LC_{50} for both mice and rabbits was 113,000 ppm; for rats, 150,000 ppm; and for guinea pigs, 230,000 ppm [9]. Chronic exposure by animals can result in growth disturbances and leisons of the liver, kidneys, spleen, and lungs [11].

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XYLENES

CAS NUMBER

1330-20-7

COMMON SYNONYMS

Xylene.

Note: There are three isomers (forms) of xylene: ortho, meta, and para, also known as 1,2-, 1,3-, and 1,4-xylene, respectively.

ANALYTICAL CLASSIFICATION

Volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 146 - 175 mg/L at 25°C [1]
Vapor Pressure: 6.6 - 8.7 mm Hg at 25°C [1]
Henry's Law Constant: 5.1 x 10^{-3} to 7.7 x 10^{-3} atm-m^3/mole [1]
Specific Gravity: 0.880 at 20/4°C (*o*-xylene) [2]
Organic Carbon Partition Coefficient: 25.4 - 204 [1]

FATE DATA: HALF-LIVES

Soil: 1 - 4 weeks [3]
Air: 2.6 hours - 1.8 days [3]
Surface Water: 1 - 4 weeks [3]
Groundwater: 2 weeks - 1 year [3]

NATURAL SOURCES

All three isomers of xylene occur in petroleum. 1,2-Xylene is found additionally in coal tar, forest fire products, and plants [1].

ARTIFICIAL SOURCES

Gasoline, fuel oils, and their combustion products. Petroleum refining, chemical industry; aerosols of paints, varnishes, and shellacs. Wood-burning stoves and fireplaces [1].

FATE AND TRANSPORT

Xylenes are moderately mobile in soil and may leach to groundwater where they are known to persist for several years despite evidence of biodegradation in both soil and groundwater. The dominant removal process in surface water is volatilization, but this is not a rapid process. Some adsorption to sediment will occur. Once released to the atmosphere, xylenes will undergo photochemical degradation at a moderate rate [1].

HUMAN TOXICITY

General. The primary target of xylenes toxicity is the central nervous system [4,5]. Xylenes are considered to be nongenotoxic. The USEPA has placed xylenes in weight-of-evidence cancer Group D, indicating that they are not classifiable as to human carcinogenicity [6].

Oral Exposure. A chronic oral RfD of 2 mg/kg/day is based on a NOAEL of 250 mg/kg/day for hyperactivity, decreased body weight and increased male mortality in a chronic study in rats [6]. Acute oral LD_{50} values for xylenes ranged from 3523 to 8600 mg/kg in rats and 5251 to 5627 mg/kg in mice [4,5]. Death in humans has been reported following the ingestion of xylenes, but the fatal dose is not known [4]. Reports of the ingestion of xylenes in humans are generally lacking. In animals, oral exposure to xylenes results in effects on the liver (increased liver enzymes and weight), the kidenys (increased kidney weight), and the nervous system (impairment of visual function, hyperactivity) [4]. Information is not available regarding the effects of ingested xylene on reproduction or development in humans, and the results of developmental studies in animals are inconclusive [4]. There is no conclusive evidence that oral exposure to xylenes causes cancer in humans or animals, therefore, an oral slope factor is not available [6].

Inhalation Exposure. An inhalation RfC for mixed xylenes is considered non-verifiable by the USEPA [7]. Xylenes are readily absorbed following inhalation exposure. Acute inhalation LC_{50} values of 6350 to 6700 ppm (4-hour exposure) were reported in rats for mixed xylenes [4]. LC_{50} values for the separate isomers are comparable to the mixture. Cause of death was usually respiratory failure and/or sudden ventricular fibrillation. In humans, inhalation of approximately 10,000 ppm xylenes has been fatal [4]. Exposure of humans to 90 ppm xylene has produced impairment of reaction time, manual coordination and body balance [5]. Brief exposure to concentrations of 200 ppm has caused irritation of the eyes, nose and throat. and exposure to concentrations above 200 ppm has resulted in nausea, vomiting, abdominal pain and loss of appetite [5]. Long-term high-level occupational exposure to xylenes (> 200 ppm) has resulted in central nervous system effects, incoordination, nausea, vomiting, and abdominal pain [5]. Studies in laboratory animals suggest that xylenes have a relatively low chronic toxicity. Some data in animals suggest possible kidney and liver impairment with high level inhalation exposures (> 1000 ppm) [5]. Information regarding the effects of xylenes on human reproduction and development are not available, but teratogenicity, fetotoxicity, and maternal toxicity have been observed in animals [4,5]. Xylenes have been found to cross the human placenta, therefore, there is sufficient reason for concern for pregnant women who are exposed to xylenes [4,5]. It is not known whether inhaled xylenes cause cancer in humans or animals, therefore, an inhalation unit risk is not available [6].

Dermal Exposure. Acute dermal LD_{50} values in rabbits of 14.1 ml/kg and greater than 5.0 ml/kg are reported for m-xylene and mixed xylenes, respectively [5]. Xylene is a skin irritant and causes redness, defatting and dryness. Vesicles may form following prolonged skin contact [4,5].

ECOLOGICAL TOXICITY

General. Xylenes are not a priority pollutant because they have low acute and chronic toxicity. Xylenes move through the soil/groundwater system when present at low concentrations, dissolved in water and adsorbed on soil, or as a separate organic phase resulting from a spill of significant quantities. Xylenes readily volatilize from water, are moderately adsorbed on soil, and have a moderate potential for bioccumulation [8]. No information on biomagnification of xylenes was available in the technical literature.

Vegetation. Nearly all xylenes (98.8 percent) are expected to be sorbed into the soil. For the portion of xylenes in the gaseous phase of soil (0.5 percent), diffusion through the soil/air pores up to the ground surface and removal by wind will be a significant loss pathway [8]. Review of the technical literature did not produce information regarding the phytotoxic effects of xylenes.

Aquatic Life. The half-life of xylenes in surface water has been calculated as 2.6 to 11.2 days [9]. Under normal environmental conditions, xylenes are not expected to undergo hydrolysis because they contain no hydrolyzable functional groups [8]. The LC_{50} value for freshwater fish was approximately 30 mg/L [9]. The 96-hour LC_{50} values for fathead minnows were 26.7 mg/L in soft water and 28.8 mg/L in hard water [10]. The 96-hour LC_{50} for bluegills was 20.9 mg/L in soft water [10]. There are no federal water quality standards established to protect aquatic life [11].

Wildlife. Xylenes are considered to be of low acute and chronic toxicity to birds and mammals [12]. No changes were found in rats, guinea pigs, dogs, and monkeys continuously exposed to 80 ppm for 127 days, nor in rats exposed to 700 ppm for 130 days [8]. Japanese quail showed no signs of toxicity at oral concentrations of 5,000 to 20,000 ppm (approximately 600 to 2,400 mg/kg body weight) [9]. Mallard eggs were immersed in xylene (10%) for 30 seconds and no significant effects on embryonic weight and length were observed when compared to controls [13]. Arthur D. Little, Inc. [8] reported an oral LD_{50} for rats at 4,300 mg/kg.

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SEMI-VOLATILE ORGANIC COMPOUNDS TOXICITY PROFILES

BENZOIC ACID

CAS NUMBER

65-85-0

COMMON SYNONYMS

Benzenecarboxylic Acid

ANALYTICAL CLASSIFICATION

Volatile organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 2700 mg/L at 18°C [1]
Vapor Pressure: 4.5×10^{-3} mm Hg at 20°C [1]
Henry's Law Constant: 7.0×10^{-8} atm-m^3/mole [1]
Specific Gravity: 1.27 [2]
Organic Carbon Partition Coefficient: ND

FATE DATA: HALF-LIVES

Soil: ND
Air: ND
Surface Water: ND
Groundwater: ND

NATURAL SOURCES

Beaver scent glands, black cherry tree bark, cranberries, berries, prunes, ripe cloves, oil of anise seed, and tolu balsam. [1]

ARTIFICIAL SOURCES

May commonly be found in wastewater or emissions during its production/use in the manufacture of phenol, plasticizers (benzoate), and benzol chloride. Used as a food preservative, and in medicines, and cosmetics. Formed in combustion processes, and found in gasoline/diesel fuel exhaust, refuse combustion, and tobacco smoke. [1]

FATE AND TRANSPORT

Benzoic acid can leach into soil and biodegrade with a half-life less than one week. In water, it will also rapidly biodegrade (half-life of 0.2 - 3.6 days). Volatilization and sediment adsorption should not be significant. Benzoic acid does not tend to bioconcentrate in aquatic organisms. In the air, benzoic acid is most often associated with aerosols, and will be washed out with rain. [1]

HUMAN TOXICITY

General. Benzoic acid and sodium benzoate are used as food preservatives, with a daily intake of 4 mg/kg/day benzoic acid. This intake is considered safe by the FDA [3]. Benzoic acid is an irritant in humans and animals. There is no evidence that benzoic acid is mutagenic or carcinogenic in humans or animals following any route of exposure [3]. USEPA has placed benzoic acid in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [3].

Oral Exposure. A chronic oral RfD of 4 mg/kg/day is based on a NOAEL of 4.4 mg/kg/day for no adverse effects in humans [3]. Benzoic acid is absorbed following oral exposure but the extent of absorption is not known. Acute oral LD_{50} values of 1700 to 2530 mg/kg in rats, 2370 mg/kg in mice and 2000 mg/kg in dogs, cats and rabbits have been reported [2,4]. The lowest reported lethal dose in humans is 500 mg/kg [4]. Ingestion of higher doses of benzoic acid is associated with gastrointestinal irritation. In animals, long-term ingestion of benzoic acid resulted in decreased food intake and body weight [3]. There is no information regarding the effects of ingested benzoic acid on reproduction or development in humans or animals. An oral Slope Factor for cancer is not available for benzoic acid [3].

Inhalation Exposure. Information regarding the toxicity of inhaled benzoic acid in humans and animals were not located. Consequently, a chronic inhalation RfC and an inhalation Unit Risk for cancer are not available for benzoic acid [3].

Dermal Exposure. Benzoic acid is a mild irritant to skin, eyes and mucous membranes [4]. Further information regarding the effects of dermal exposure to benzoic acid were not located.

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BIS(2-ETHYLHEXYL)PHTHALATE

CAS NUMBER

117-81-7

COMMON SYNONYMS

1,2-Benzenedicarboxylic acid bis(2-ethylhexyl)ester; di(2-ethylhexyl) phthalate; dioctylphthalate.

ANALYTICAL CLASSIFICATION

Semi-volatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 0.3 mg/L at 25°C [1]
Vapor Pressure: 6.45×10^{-6} mm Hg at 25°C [1]
Henry's Law Constant: 1.1×10^{-5} atm-m^3/mole [1]
Specific Gravity: 0.99 at 20/20°C [2]
Organic Carbon Partition Coefficient: 10,000 - 100,000 [1]

FATE DATA: HALF-LIVES

Soil: 5 - 23 days [3]
Air: 2.9 - 29 hours [3]
Surface Water: 5 - 23 days [3]
Groundwater: 10 - 389 days [3]

NATURAL SOURCES

Possible product of animal and/or plant life.

ARTIFICIAL SOURCES

Plasticizer for polyvinylchloride and other polymers; disposal/incineration of plastic(s)/polymer(s) [1].

FATE AND TRANSPORT

Bis(2-ethylhexyl)phthalate (hereafter, BEHP) has a strong tendency to adsorb to soils and sediments, suggesting low likelihood of leaching to groundwaters. Given the very low vapor pressure and Henry's Law constant of BEHP, volatilization from soils and waters is very unlikely. This compound does show a tendency to bioconcentrate in aquatic organisms. Hydrolysis (from aquatic systems), photolysis (in the water and atmosphere), and photo-oxidation (in atmospheric systems) are not predicted to be important removal processes. In aquatic environments, aerobic biodegradation occurs rapidly following acclimation; no anaerobic biodegradation occurs. Some slight biodegradation in soils is expected. In the atmosphere, the primary removal mechanism is via rainfall washout [1].

HUMAN TOXICITY

General. There is currently no evidence that BEHP causes adverse effects in humans, but animal studies indicate that the liver, kidneys and testes are targets of oral exposure [4]. Information regarding the genotoxicity of BEHP are equivocal but indicate that BEHP may act as a co-carcinogen in rodents [4]. The USEPA has placed BEHP in weight-of-evidence cancer Group B2, indicating that it is a probable human carcinogen [5].

Oral Exposure. A chronic oral RfD of 0.02 mg/kg/day is based on a LOAEL of 19 mg/kg/day for increased relative liver weight in a chronic oral study in guinea pigs [5]. BEHP is readily absorbed following oral exposure. Acute oral LD_{50} values of 30,600 mg/kg and 33,900 mg/kg have been defined for rats and rabbits, respectively [4]. BEHP has not been found to be fatal to humans at doses up to 143 mg/kg; mild abdominal pain and diarrhea were the only effects reported at this dose [4]. Oral studies in animals reported effects on the liver (morphological changes, nodules, tumors), kidneys (effects on kidney cells), thyroid and pancreas (changes in the acinar cells of both organs), and testes (atrophy and degeneration). Animal studies indicated that monkeys are less susceptible to the toxic effects of BEHP than are mice and rats [4]. The relative susceptibility of humans is not known. Effects on fetal development (reduced survival, malformations) were reported in rodents following oral exposure [4]. There is no evidence that BEHP causes cancer in humans, but studies in animals suggest that oral exposure results in liver cancer [4]. An oral slope factor of 0.014 $(mg/kg/day)^{-1}$ is based on the incidence of liver tumors in mice [5].

Inhalation Exposure. An inhalation RfC is not available for BEHP [5]. Information regarding the toxicity of inhaled BEHP in humans are not available and data in animals are limited to one developmental study [4]. In the developmental study, no adverse effects were reported in rats following exposure to up to 300 mg/m^3 during gestation [4]. There is no evidence that inhaled BEHP causes cancer in humans or animals, therefore, an inhalation unit risk for cancer is not available for BEHP [5].

Dermal Exposure. An acute dermal LD_{50} value of 24,750 mg/kg was reported for rabbits [4]. Dermal exposure of both humans and animals indicate that BEHP is neither an irritant nor a sensitizer [4].

ECOLOGICAL TOXICITY

General. Bis(2-ethylhexyl)phthalate (BEHP) is the most well studied of the phthalate esters. Most information reported in the technical literature dealt with phthalate esters as a group. Autian [6] suggests there is evidence phthalate esters are degraded by microbiota and metabolized by fish and animals. As a result, phthalate esters are not likeley to biomagnify. According to Arthur D. Little, Inc. [7], phthalate esters readily complex with natural organic substances (e.g., fulvic acid) to form complexes which are very soluble in water. BEHP is nonvolatile, strongly adsorbed, and has a high potential for bioaccumulation.

Vegetation. Review of the technical literature did not produce information regarding the phototoxic effects of BEHP.

Aquatic Life. Bioconcentration factors (BCFs) for fish and aquatic invertebrates range from 54 to 2,680. Fathead minnows accumulated levels of BEHP 1,380 times the water concentration of 2.5 μg/L after 28 days. Residue half-life was 7 days. Invertebrates accumulated BEHP up to 13,400 times when exposed to water concentrations ranging from 0.08 to 0.3 μg/L. Over 90 percent of the residues were lost within 10 days [8]. The 96-hour LC_{50} of bluegill is more than 770,000 μg/L [9]. The LC_{50} of *Daphnia magna* exposed to BEHP was 11,000 μg/L. There are no USEPA acute or chronic aquatic life criteria for BEHP [10,11].

Wildlife. The only information available on wildlife toxicity to BEHP concerns laboratory animals. The oral LD_{50} values for rats is 31,000 mg/kg, 30,000 mg/kg, for mice, and 34,000 mg/kg for rabbit [12].

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BUTYLBENZYLPHTHALATE

CAS NUMBER

85-68-7

COMMON SYNONYMS

Benzyl butyl phthalate

ANALYTICAL CLASSIFICATION

Semivolatile Organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 2.69 mg/L at 25°C [1]
Vapor Pressure: 8.60×10^{-6} mm Hg at 20°C [1]
Henry's Law Constant: 1.3×10^{-6} atm-m^3/mole [1]
Specific Gravity: 1.1 at 25/25°C [2]
Organic Carbon Partition Coefficient: 17,000 [1]

FATE DATA: HALF-LIVES

Soil: 1 - 7 days [3]
Air: 6 hours - 2.5 days [3]
Surface Water: 1 - 7 days [3]
Groundwater: 2 days - 6 months [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Almost always used as a plasticizer. Half of its production is used in PVC flooring products; and the other fifty-percent is used in adhesives in the packaging industry. [4]

FATE AND TRANSPORT

BBP may be released into the environment from its production, distribution, and polyvinyl chloride blending operations. BBP is most commonly found in the soil and water, and not often in the atmosphere. BBP has a high K_{oc} value, and will tend to adsorb to soil, and therefore, is not likely to leach into the groundwater. In water, BBP will adsorb to sediments and biota, and will not volatilize to any great extent, except under windy weather conditions or in shallow water bodies. Biodegradation is primarily the loss mechanism, and occurs under anaerobic conditions [1].

HUMAN TOXICITY

General. The major targets of BBP toxicity are the liver, kidneys and testes [4]. BBP is considered to be nonmutagenic. BBP has been placed in weight-of-evidence cancer Group C, indicating that it is a possible human carcinogen [5].

Oral Exposure. A chronic oral RfD of 0.2 mg/kg/day is based on a NOAEL of 159 mg/kg/day for increased liver-to-body weight and liver-to-brain weight ratios in a subchronic study in rats [5]. BBP is absorbed following oral exposure but the extent of absorption is not known. Acute oral LD_{50} values of 2330 and 4170 mg/kg were reported for rats and mice, respectively [4]. An LD_{50} of 20,400 mg/kg in rats was found for undiluted material [4]. Ingested BBP has not been reported to be fatal to humans and information is not available regarding the effects of oral exposure of humans to BBP. In animals, short-term administration of high levels of BBP (25,000 mg/kg/day) resulted in effects on the testes (degeneration) and long-term administration to lower levels (2,000 mg/kg) resulted in effects on the liver (increased liver weight, focal necrosis) and kidneys (increased kidney weight) [4]. It is not known whether ingested BBP will effect human development. No evidence of fetotoxicity or teratogenicity was reported in rabbits [4]. There is no evidence that ingested BBP causes cancer in humans, but studies in animals suggest that BBP may cause leukemia in female rats [4]. An oral Slope Factor for cancer is not available for BBP [5].

Inhalation Exposure. A chronic inhalation RfC is not available for BBP [5]. BBP is absorbed following inhalation exposure, but the extent of absorption is not known. An acute inhalation LC_{50} value of 13,100 mg/m^3 was reported for mammals (exact species not specified) [6]. Inhaled BBP has not been reported to be fatal to humans and information is not available regarding the effects of inhalation exposure of humans to BBP. In animals, short-term exposure to 1936 mg/m^3 resulted in decreased body weight and atrophy of the spleen and testes, while long-term exposure to 200 mg/m^3 resulted in decreased kidney weight (decrease liver weight was noted at a higher concentration) [4]. There is no evidence that inhaled BBP causes effects on development or cancer in humans or animals. An inhalation Unit Risk for cancer is not available for BBP [5].

Dermal Exposure. An acute dermal LD_{50} value of greater than 10,000 mg/kg is reported for rabbits [4]. In humans, a repeat insult patch test indicated that BBP is not a primary or cumulative skin irritant or sensitizing agent [4].

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CARBAZOLE

CAS NUMBER

86-74-8

COMMON SYNONYMS

Dibenzopyrole

ANALYTICAL CLASSIFICATION

Semivolatile Organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: insignificant at 25°C [2]
Henry's Law Constant: ND
Specific Gravity: 1.10 at 18/4°C [2]
Organic Carbon Partition Coefficient: 12,882 [3]

FATE DATA: HALF-LIVES

Soil: ND
Air: ND
Surface Water: ND
Groundwater: ND

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Important as a dye intermediate. Used in the formulation of photographic plates sensitive to ultraviolet light. Lignin, carbohydrate, and formaldehyde reagent. [1]

FATE AND TRANSPORT

Given its high K_{oc} value and insolubility in water, carbazole will be tightly bound to soil and is unlikely to migrate to groundwater. Carbazole is not likely to volatilize from soil or water. Information regarding biodegradation of carbazole in the environment and bioconcentration of carbazole in aquatic organisms was not located.

HUMAN TOXICITY

Very little information is known regarding the toxicity of carbazole to humans and animals. An acute oral LD_{50} value of > 5000 mg/kg is reported for rats [1]. The lowest lethal reported dose in rats is 500 mg/kg [4]. Chronic oral RfD and inhalation RfC values are not available [4]. An oral slope factor and inhalation unit risk for cancer are also not available [4].

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DI-n-BUTYLPHTHALATE

CAS NUMBER

84-74-2

COMMON SYNONYMS

Butyl phthalate

ANALYTICAL CLASSIFICATION

Semivolatile-Organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 8.7 to 13 mg/L at 20°C [1]
Vapor Pressure: 1.0 x 10^{-5} to 1.4 x 10^{-5} mm Hg at 25°C [1]
Henry's Law Constant: 2.8 x 10^{-7} 4.6 x 10^{-7} atm-m^3/mole [1]
Specific Gravity: 1.047 at 20/4°C [1]
Organic Carbon Partition Coefficient: 169,824 [1]

FATE DATA: HALF-LIVES

Soil: 2 to 23 days [2]
Air: 7.4 hours to 3.1 days [2]
Surface Water: 1 to 14 days [2]
Groundwater: 2 to 23 days [2]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Di-n-butylphthalate (DBP) is most commonly used as a plasticizer for epoxy resins and polyvinyl chloride (PVC). It is also used in carpet-back coatings, as a concrete additive, as an insect repellent, and can be found in cosmetics [3].

FATE AND TRANSPORT

DBP can be released into the environment through emissions and in wastewater during the manufacture, use, and burning of materials containing it. In water, it will adsorb moderately to particulates and sediment. Pollution in water affects biodegradation, with DBP disappearing more rapidly in moderately polluted water bodies. Biodegradation in soils is slow, and once spilled, it will moderately adsorb. When introduced to groundwater, it will degrade under anaerobic conditions. Vapor phase DBP is subject to degradation through the reaction with photochemically produced hydroxyl radicals. [4]

HUMAN TOXICITY

General. There is no reliable information that DBP has caused adverse health effects in humans. The most serious health effects of this compound, as revealed by animal studies, are associated with its ability to interfere with normal reproduction [1]. The USEPA has placed DBP in weight-of-evidence Group D, indicating that it is not classifiable as to carcinogenicity [5].

Oral Exposure. A chronic RfD of 0.1 mg/kg/day is based on a NOAEL of 125 mg/kg/day and a LOAEL of 600 mg/kg/day for increased mortality in a rat subchronic to chronic oral bioassay [5]. Animal studies indicate that DBP is rapidly and extensively absorbed by the oral route. Absorption of up to 100% of an orally-administered dose was reported for rats. DBP is of low acute toxicity. The acute oral LD_{50} is reportedly in excess of 20,000 mg/kg. Developmental effects, as well as minor liver and kidney effects have been noted in animals following oral administration. Rats receiving 600 mg/kg/day or more while pregnant had an increased number of fetal resorptions. Pregnant rats receiving 1,000 mg/kg/day during gestation experienced complete reproductive failure. Oral exposure of male rats for 7 days at a dose of 1,000 mg/kg resulted in decreased testicular weight and decreased sperm count [1].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for DBP [5,6]. No reliable information was located regarding the absorption of DBP following inhalation exposure in either humans or animals. The health effects reportedly caused in animals following inhalation exposure were minor [1].

Dermal Exposure. DBP appears to be reasonably well absorbed at a slow, steady rate across the skin. The 90-day dermal LD_{50} for rabbits was reported to be greater than 4,200 mg/kg/day. Slight kidney damage was also noted at this dose rate. A NOAEL of 2,100 mg/kg/day was identified. In rabbits, a single dermal application of 520 mg/kg/day was reported to be slightly irritating to skin and "quite irritating" to mucous membranes [1].

ECOLOGICAL TOXICITY

General. Di-n-butylphthalate (DBP) is a member of the phthalate ester group. Most information found in the technical literature dealt with phthalate esters as a group. Autian [7] suggests there is evidence that phthalate esters are degraded by microbiota and metabolized by fish and animals. As a result, phthalate esters are not likely to biomagnify. DBP has a very low volatility, is strongly absorbed to soil, and has a high potential for bioaccumulation [8].

Vegetation. Arthur D. Little, Inc. [8] estimates that all (99.97 percent) DBP would be sorbed on soil. Corn plants showed decreased growth at 2,000 μg/g soil concentration, but no effects were reported at 200 μg/g [9]. Review of the technical literature did not produce any other information regarding the phytotoxic effects of DBP.

Aquatic Life. DBP is rapidly metabolize in fish reducing its capability to bioconcentrate. Invertebrates accumulated DBP up to 6,700 times when exposed to water concentrations ranging from 0.08 to 0.3 μg/L [10]. The USEPA [9] cited the 96-hour LC_{50} for aquatic organisms at 100-1,000 ppm. The 96-hour LC_{50} values are 1.3 ppm for fathead minnow, 0.73 ppm for bluegill, and greater than 10 ppm for crayfish [11]. Fathead minnow embryos did not survive exposure to 1.8 mg/L DBP. Hatching and larval survival were affected by exposure to 1.0 mg/L DBP, but not to 0.56 mg/L [11]. There are no USEPA chronic or acute aquatic life water quality criteria [12].

Wildlife. Tests show there is a low order of acute toxicity in experimental animals. Rats maintained for three generations on diets containing 300 to 500 mg/kg/day or for five generations on diets containing 100 mg/kg/day experienced no adverse effects [8]. The oral LD_{50} values are 1200 to 12,000 mg/kg body weight for rats, 5282 mg/kg for mice, and 1000 mg/kg for rabbits [13]. Mallard ducks fed a diet containing 10 mg/kg of DBP showed no significant accumulation after 5 months of continuous dietary exposure [11].

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2,4-DINITROTOLUENE/2,6-DINITROTOLUENE

GENERAL

There are six isomers of dinitrotoluene, the most important being 2,4-DNT [4]. It is yellow-orange solid which has a melting point of 71°C. DNT is used in the preparation of polyurethane foams and manufacture of toluene disocyanate for the production of polyurethane plastics, in the production of military and commercial explosives, to plasticize cellulose nitrate in explosives, to moderate the burning rate of propellants and explosives, and as an intermediate in TNT production [4].

CAS NUMBER

2,4-Dinitrotoluene	121-14-2
2,6-Dinitrotoluene	606-20-2

COMMON SYNONYMS

2,4-Dinitrotoluene

1-methyl-2,4-dinitrobenzene; dinitrotoluol; 2,4-DNT; DNT; RCRA Waste Number U105, NCI-C01865.

2,6-Dinitrotoluene

2,6-DNT; 2-methyl-1,3-Dinitrotoluene; RCRA Waste Number U106.

ANALYTICAL CLASSIFICATION

Explosives.

PHYSICAL AND CHEMICAL DATA

2,4-DNT

Water Solubility: 270 mg/L [1]
Vapor Pressure: 5.1 x 10^{-3} mm Hg at 25°C [1]
Henry's Law Constant: atm-m^3/mole [1]
Specific Gravity: 1.52 at 25/25°C [1]
Organic Carbon Partition Coefficient: 201 [1]
Molecular Weight: 182.15 [3]

2,6-DNT

Water Solubility: 0.5 mg/l [1]
Vapor Pressure: 0.018 mm Hg
Henry's Law Constant: atm-m^3/mole [1]
Specific Gravity: 1.28 at 25/25^oC [1]
Organic Carbon Partition Coefficient: 249 [1]
Molecular Weight: 182.15 [3]

FATE DATA: HALF-LIVES

Common

Soil: days [4]
Air: days [4]
Surface Water: days [4]
Groundwater: days [4]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Man-made.

FATE AND TRANSPORT

Mixture with Sodium Carbonate can decompose with significant pressure increase at 210^oC [3]. Decomposes when heated to 250^oC. Emits a toxic fume upon decomposition.

HUMAN TOXICITY

General. 2,4-DNT and 2,6-DNT can be toxic by ingestion, inhalation, or adsorption through the skin or eyes. The USEPA has placed 2,4-DNT in weight-of-evidence B2 indicating that it is a animal carcinogen [2]. There is no data on 2,6-DNT at this time.

Oral Exposure. A chronic oral RfD for 2,4-DNT is of 0.002 mg/kg/day is based on a NOAEL of 0.2 mg/kg/day for neurotoxicity, Heinz bodies and biliary tract hyperplasia in a feeding study [2]. Ingestion of 2,4-DNT have been associated with decreased oxygen carrying capacity and moderate to severe headache, nausea, vomiting, irregular heart beat and drop in blood pressure [4]. The Oral LD_{50} in the rat for 2,4-DNT is 268 mg/kg and 177 mg/kg for 2,6-DNT [3]. Currently, no oral slope factor has been assigned to this explosive.

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for 2,4-DNT or 2,6-DNT. Inhalation of 2,4-DNT and 2,6-DNT may affect the central nervous system and the blood. Nervous system effects may include confusion, disorientation, dizziness, weakness, drowsiness and coma [4].

Dermal Exposure. 2,4-DNT and 2,6-DNT is readily absorbed through the skin. Exposure may be small amounts on clothing or shoes [4]. Eye contact to hot fumes can cause severe burning of the eyelids and cornea [4].

ECOLOGICAL TOXICITY

General. No information is available involving the toxicity of 2,4-DNT relating to vegetation or wildlife.

Vegetation.

Aquatic Life. To protect fresh water aquatic life 330 ug/L on an acute toxicity basis and 230 ug/L on a chronic toxicity basis [4].

Wildlife.

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DI-n-OCTYLPHTHALATE

CAS NUMBER

117-84-0

COMMON SYNONYMS

Dioctyl phthalate; Octyl phthalate

ANALYTICAL CLASSIFICATION

Semivolatile Organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 0.285 mg/L at 24°C [1]
Vapor Pressure: 1.2 mm Hg at 200°C [1]
Henry's Law Constant: 2.2×10^{-4} atm-m^3/mole [2]
Specific Gravity: 0.99 at 20/20°C [1]
Organic Carbon Partition Coefficient: 19,000 [2]

FATE DATA: HALF-LIVES

Soil: 7 days - 4 weeks [3]
Air: 4.5 hours - 1.9 days [3]
Surface Water: 7 days - 4 weeks [3]
Groundwater: 14 days - 1 year [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Emissions from the manufacture, recycling and processing of plastics; leaches from plastic tubing, containers, etc.; used as organic pump fluid [1].

FATE AND TRANSPORT

Given its high K_{oc} value, di-n-octylphthalate will strongly adsorb to soils and sediment and is unlikely to leach to groundwater. Di-n-octylphthalate will slowly biodegrade with acclimation. Some volatilization from environmental media will occur and aerobic biodegradation may be extensive. Di-n-octylphthalate will bioconcentrate in aquatic organisms, especially in species where little or no metabolism occurs. If released to air, di-n-octylphthalate will be primarily in aerosol form and will be subject to gravitational settling and photodegradation by hydroxy radicals [1,2].

HUMAN TOXICITY

General. Very little information is available regarding the toxicity of di-n-octylphthalate in humans or animals. There is no evidence that di-n-octylphthalate is mutagenic or carcinogenic in humans or animals. Di-n-octylphthalate has not been placed in a weight-of-evidence group by the USEPA [4].

Oral Exposure. A chronic oral RfD of 0.02 mg/kg/day is based on a LOAEL of 175 mg/kg/day for increased liver and kidney weight and increased SGOT and SGPT activity in a subchronic study in rats [5]. Di-n-octylphthalate is absorbed following oral exposure, but the extent of absorption is not known. An acute oral LD_{50} value of 6513 mg/kg was reported for mice [6]. It is not known if ingested di-n-octylphthalate is fatal to humans. There is no evidence that ingested di-n-octylphthalate causes reproductive or developmental effects in humans or animals, but teratogenic effects have been reported following intraperitoneal injection in animals [7]. An oral Slope Factor for cancer is not available for di-n-octylphthalate [4].

Inhalation Exposure. Information regarding effects resulting from the inhalation of di-n-octylphthalate have not been reported in humans or animals. Consequently, a chronic inhalation RfC and an inhalation Unit Risk for cancer are not available [4].

Dermal Exposure. Di-n-octylphthalate is a skin and eye irritant in animals [6].. Further information regarding toxic effects of di-n-octylphthalate following dermal exposure are not available.

ECOLOGICAL TOXICITY

General. Di-n-octylphthalate is one of the least studied phthalate esters. Most information found in the technical literature dealt with phthalate esters as a group. Autian [8] suggests there is evidence that phthalate esters are degraded by microbiota and metabolized by fish and animals. As a result, phthalate esters are not likely to bioconcentrate or biomagnify.

Vegetation. Review of the technical literature did not produce information regarding the phytotoxic effects of di-n-octylphthalate.

Aquatic Life. McCarthy and Whitmore [9] reported that exposure of embryos and larvae of fathead minnows to di-n-octylphthalate at concentrations as high as 10 mg/L did not affect survival of either life stage. Hatching, however, was significantly decreased at 10 mg/L but not at 3.2 mg/L. There are no USEPA aquatic life water quality criteria established for di-n-octylphthalate [10].

Wildlife. Review of the technical literature produced little information regarding toxicity of wildlife to di-n-octylphthalate. Sax [11] reported an oral LD_{50} for mice as 6,513 mg/kg.

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DIBENZOFURAN

CAS NUMBER

132-64-9

COMMON SYNONYMS

Diphenylene Oxide

ANALYTICAL CLASSIFICATION

Semivolatile Organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 10 mg/L at 25°C [1]
Vapor Pressure: 0.0044 mm Hg at 25°C [1]
Henry's Law Constant: 9.73×10^{-5} atm-m^3/mole [1]
Specific Gravity: 1.0886 at 99/4°C [1]
Organic Carbon Partition Coefficient: 4,600 - 6,350 [1]

FATE DATA: HALF-LIVES

Soil: 7 days to 4 weeks [2]
Air: 1.9 to 19 hours [2]
Surface Water: 7 days to 4 weeks [2]
Groundwater: 8.5 to 35 days [2]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Atmospheric emissions result from the combustion of coal, biomass, refuse and diesel fuel. Wastewater emissions from coal tar, coal gasification and shale oil operations [1].

FATE AND TRANSPORT

Dibenzofuran will have very low mobility in soil, and significant leaching is not expected. Dibenzofuran is biodegraded readily by microbes in the presence of sufficient oxygen. In low-oxygen environments, biodegradation may occur very slowly. If released to water, dibenzofuran may partition to sediments and suspended material. Volatilization from water may also be an important process. In the air, dibenzofuran will exist primarily in the gas phase where it will rapidly degrade by reaction with hydroxyl radicals. A small percentage of dibenzofuran in air will be in the particle phase. Removal from air may occur via both dry and wet deposition. Significant bioconcentration of dibenzofuran in aquatic organisms is expected to occur [1]

HUMAN TOXICITY

No useful information was located regarding the toxicity of dibenzofuran in humans or animals following any route of exposure. The HEAST indicates that data for dibenzofuran are inadequate for quantitative risk assessment [3], but IRIS states that a chronic inhalation RfC for dibenzofuran is currently under review [4].

Dibenzofuran has been placed in weight-of-evidence cancer Group D, indicating that it is not classifiable as to human carcinogenicity [3].

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DIETHYL PHTHALATE

CAS NUMBER

84-66-2

COMMON SYNONYMS

Diethyl phthalate; Ethyl phthalate

ANALYTICAL CLASSIFICATION

Semivolatile Organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 1,080 mg/L at 25°C [1]
Vapor Pressure: 1.65 x 10^{-3} mm Hg at 25°C [1]
Henry's Law Constant: 4.8 x 10^{-7} atm-m^3/mole [1]
Specific Gravity: 1.120 at 25/25°C [2]
Organic Carbon Partition Coefficient: 94 - 526 [1]

FATE DATA: HALF-LIVES

Soil: 3 days - 8 weeks [3]
Air: 21 hours - 8.8 days [3]
Surface Water: 3 days - 8 weeks [3]
Groundwater: 6 days - 16 weeks [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

It is primarily used as a plasticizer for cellulosic plastics. It has also been used as a fixative for perfumes, as a solvent to cellulose acetate in varnishes, and as an alcohol denaturant [4].

FATE AND TRANSPORT

DEP most often enters the environment through plastic materials containing DEP. Air, water, and soil are potential targets, with volatilization and leaching the primary routes of transport. When released to both soil and water, DEP biodegrades under aerobic conditions. Oxidation, chemical hydrolysis and volatilization are not expected to be important processes from wet soil. DEP may volatilize from dry soil. The Henry's Law Constant suggests volatilization may occur in shallow water bodies as opposed to deeper water bodies. Bioaccumulation is not expected to be significant. When released to the atmosphere, the vapor form of DEP is emitted and adsorbs to airborne particles. Removal via particulate settling and precipitation is expected to occur [1].

HUMAN TOXICITY

General. Both the acute and chronic toxicity of DEP appear to be very low [4]. DEP is considered to be nonmutagenic and information regarding the carcinogenicity of DEP are not available [4]. DEP has been placed in weight-of-evidence cancer Group D, indicating that it is not classifiable as to human carcinogenicity [5].

Oral Exposure. A chronic oral RfD of 0.8 mg/kg/day is based on a NOAEL of 750 mg/kg/day for decreased growth rate and food consumption, and altered organ weights in a subchronic study in rats [5]. DEP is absorbed following oral exposure, but the extent of absorption is not known. Acute oral LD_{50} values of 8600 mg/kg for rats and 6172 mg/kg for mice were reported [4]. Information regarding the short- or long-term effects of ingested DEP in humans is not available. Animal studies indicate that ingested DEP has low toxicity, with effects on growth and organ weights reported only at high doses [4,5]. There is no information regarding effects of ingested DEP on reproduction or development in humans or animals. Teratogenic effects were reported in animals, however, following intraperitoneal administration of DEP. An oral Slope Factor for cancer is not available for DEP [5].

Inhalation Exposure. A chronic inhalation RfC for DEP is not available [5]. It is not known if DEP is absorbed following inhalation exposure because the only reported effects observed following inhalation exposure are portal-of-entry effects (respiratory system effects) [4,6]. An acute inhalation LC_{50} value of 7510 mg/m^3 was reported for rats [4]. Inhaled DEP has not been reported to be fatal to humans. Exposure to heated vapors of DEP may result in transient irritation of the nose and throat [6]. Other reported symptoms of toxicity include conjunctivitis, corneal necrosis, respiratory tract irritation, dizziness, nausea and eczema [6]. There is no information regarding effects of inhaled DEP on reproduction or development in humans or animals. Teratogenic effects were reported, however, in animals following intraperitoneal administration of DEP. An inhalation Unit Risk for cancer is not available for DEP [5].

Dermal Exposure. An acute dermal LD_{50} value of 3000 mg/kg was reported for guinea pigs [4]. No other useful information was located regarding effects in humans or animals following dermal exposure to DEP.

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NAPHTHALENE
2-METHYLNAPHTHALENE

GENERAL

There is relatively little information available on 2-methylnaphthalene as compared to naphthalene. Therefore, all information below refers to naphthalene unless explicitly stated otherwise.

CAS NUMBERS

Naphthalene	91-20-3
2-Methylnaphthalene	91-57-6

COMMON SYNONYMS

Naphthalene: Naphthene, Tar Camphor.
2-Methylnaphthalene: Beta-methylnaphthalene

ANALYTICAL CLASSIFICATION

Semi-Volatile Organic.

PHYSICAL AND CHEMICAL DATA

	Naphthalene	2-Methylnaphthalene
Water Solubility (mg/L at 20°C) [1]	31.7	ND
Vapor Pressure (mm Hg at 25°C) [1]	0.087	ND
Henry's Law Constant (atm-m^3/mole) [1]	4.6×10^{-4}	ND
Specific Gravity (20/4°C) [1]	1.145	1.0058
Organic Carbon Partition Coefficient [1]	933	ND

FATE DATA: HALF-LIVES (HRS)

Soil: 16.6 to 48 days [2]
Air: 2.96 to 29.6 hours [2]
Surface Water: 12 hours to 20 days [2]
Groundwater: 1 to 288 days [2]

NATURAL SOURCES

Crude oil; natural, uncontrolled combustion (i.e., forest fires) [3,4].

ARTIFICIAL SOURCES

Naphthalene: Petroleum refining, mothball use and manufacture, coal tar distillation, pitch fumes, chemical intermediate (i.e., phthalic anhydride manufacture), vehicle emissions, combustion processes (i.e., refuse combustion), tobacco smoke, and oil spillage [3,4].

2-Methylnaphthalene: Synthesis of organic compounds such as insecticides, and release from gasoline due to its use as an additive [1,5].

FATE AND TRANSPORT

Naphthalene's sorption to soil ranges from low to moderate, depending upon the organic carbon content of the soil, and will leach rapidly through sandy soils. Volatilization from the uppermost soil layer will be important, but will lessen in importance with soil depth. In addition, volatilization from moisture-saturated soil is not expected to be important. Biodegradation is expected to be rapid in soils previously contacted with other polycyclic aromatic hydrocarbons (PAHs), but slow in "virgin" soils [3].

Volatilization, photolysis, sorption (to suspended solids, sediments, etc.), and biodegradation are the primary removal mechanisms for naphthalene in waters. The actual predominant mechanisms change with variations in several factors (i.e., water flow rate, level of sediments/suspended soils, water clarity, etc.) In addition, biodegradation rates of naphthalene in water vary with changes in concentration of naphthalene (higher concentrations yield higher rates), "virgin" versus oil-polluted water (quicker in oil-polluted waters), actual pollution site (more rapid biodegradation in sediments than waters), aerobic versus anaerobic conditions (no biodegradation in anaerobic conditions), and so on. Bioconcentration in aquatic organisms is expected to be moderate, except for accelerated bioconcentration in organisms lacking an aryl hydroxylase enzyme system (i.e. phytoplankton, snails, mussels). Naphthalene in the atmosphere reacts during daylight hours with hydroxyl radicals, and during nighttime hours with nitrate radicals. Photolysis is also expected in the atmosphere [3].

HUMAN TOXICITY

General. The breakdown of red blood cells is the primary health concern for humans exposed to naphthalene. Human deaths following ingestion have occurred [1]. The USEPA has placed naphthalene in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [6]. The USEPA does not currently provide any toxicity values for 2-methylnaphthalene [7,8].

Oral Exposure. Both the chronic and subchronic RfDs for naphthalene of 0.04 mg/kg/day are based on a NOEL of 50 mg/kg/day for decreased body weight observed in a subchronic oral (gavage) study in rats [7]. Clinical evidence indicates that naphthalene is absorbed by humans in significant quantities via the oral route. The oral LD_{50} reported for naphthalene in rats ranges from 2,200 to 2,400 mg/kg in rats [1]. The oral LD_{50} reported for 2-methylnaphthalene in rats is 1,630 mg/kg [5]. Lethal doses of naphthalene in humans have ranged from as low as 74 mg/kg to as high as 574 mg/kg [1,8]. Ocular damage has been documented in humans and animals following oral exposure [1]. Symptoms of intoxication include: nausea, vomiting, headache, diaphoresis, hematuria, hemolytic anemia, fever, central nervous system depression, hepatic necrosis, jaundice, convulsions, and coma [1,2,9]. Administration of 300 mg/kg/day to pregnant mice resulted in a decrease in the number of live pups per litter [1].

Inhalation Exposure. An inhalation RfC was not reported for naphthalene [6,7]. Clinical reports suggest that inhaled naphthalene may be absorbed in sufficient quantity to produce adverse health effects in humans; however, no quantitative absorption data were located for humans or animals. One study, on rats, reported a NOAEL of 78 ppm for a 4-hour exposure. Symptoms and effects of inhalation exposure in humans include: headache, nausea, vomiting, abdominal pain, malaise, confusion, anemia, jaundice, and renal disease. No information was found regarding developmental and reproductive effects [1].

Dermal Exposure. Limited evidence in human infants indicated that hemolytic anemia may have resulted from dermal exposure to an unknown quantity of naphthalene. A NOAEL of 2,500 mg/kg was reported for rats. Naphthalene is a mild dermal and ocular irritant [1].

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4-METHYLPHENOL

CAS NUMBER

106-44-5

COMMON SYNONYMS

p-Cresol; 4-Cresol; 4-Hydroxytoluene; p-Methylphenol

ANALYTICAL CLASSIFICATION

Semi-Volatile

PHYSICAL AND CHEMICAL DATA

Water Solubility: 22.6 g/L at 40°C [1]
Vapor Pressure: 0.13 mm Hg at 25°C [1]
Henry's Law Constant: 9.6×10^{-7} atm-m^3/mole [1]
Specific Gravity: 1.0347 at 20/4°C [2]
Organic Carbon Partition Coefficient: 49 to 3420 [1]

FATE DATA: HALF-LIVES

Soil: 1 to 16 hours [3]
Air: 1.5 to 15 hours [3]
Surface Water: 1 to 16 hours [3]
Groundwater: 2 to 672 hours [3]

NATURAL SOURCES

Plant volatile. Methylphenols also occur in petroleum [1].

ARTIFICIAL SOURCES

When released into the environment, 4-methylphenol is most commonly associated with wastewater and emissions from its production in coal tar refining and its use as a disinfectant, as well as metal refining and chemical manufacturing. Emissions from autos and diesel engines, wood pulping, brewing, glass fibre manufacture, and tobacco smoke are sources of 4-methylphenol. The photooxidation of toluene will also produce 4-methylphenol [1].

FATE AND TRANSPORT

When released to water, biodegradation is expected to be the dominant loss mechanism. Volatilization of this chemical from water will be low. In soils, it is relatively mobile, and therefore can be expected to leach into groundwater. Biodegradation is rapid in soils, sewage, activated sludge, and freshwater inocula. In the atmosphere, it will react with hydroxyl radical during daylight hours and with nitrate radicals at night. Being a highly soluble chemical in water, it will be scavenged from the atmosphere by rain [1].

HUMAN TOXICITY

General. 4-Methylphenol is one of three methylphenol isomers (2-methylphenol, 3-methylphenol, 4-methylphenol) that are often found as a mixture. The major effects of 4-methylphenol are irritation of the skin, eyes, mouth and throat, and gastrointestinal distress (abdominal pain, vomiting) [4]. Information regarding the genotoxicity of 4-methylphenol are equivocal. 4-Methylphenol has been placed in weight-of-evidence Group C, indicating that it is a possible human carcinogen [5].

Oral Exposure. A chronic oral RfD of 0.05 mg/kg/day is based on a NOAEL of 50 mg/kg/day for decreased body weight and neurotoxicity in a subchronic study in rats [6]. 4-Methylphenol is readily absorbed following oral exposure. An acute oral LD_{50} value of 1800 mg/kg was reported for rats [4]. In humans, ingestion of a mixture of methylphenol isomers (in the form of Lysol cleaner) has been fatal with an estimated lethal dose of approximately 2000 mg/kg [4]. Symptoms of acute poisoning include throat and mouth burns, abdominal pain, vomiting, hematological effects (methemoglobin formation, intravascular hemolysis), renal toxicity and coma [4]. There is no information regarding effects in humans following long-term oral exposure to 4-methylphenol. Repeated oral exposure of animals to 4-methylphenol has resulted in decreased body weight gain and neurological effects (coma, tremors, convulsions) [4]. Information regarding the potential effects of ingested 4-methylphenol on human reproduction and development were not located, and animal studies suggest that 4-methylphenol is mildly fetotoxic, but only at doses that produce maternal toxicity [4]. There is no evidence that 4-methylphenol is carcinogenic in humans following oral exposure, but one animal study suggests 4-methylphenol may act as a promoter of forestomach carcinogenesis in hamsters [4]. An oral Slope Factor for cancer is not available for 4-methylphenol [5].

Inhalation Exposure. A chronic inhalation RfC for 4-methylphenol is considered non-verifiable by the USEPA [5]. 4-Methylphenol is absorbed following inhalation exposure, but the extent of absorption is not known. Inhaled 4-methylphenol has not been reported to be fatal to humans and acute inhalation LC_{50} values in animals are not available. Information regarding toxic effects of inhaled 4-methylphenol in humans are not available, but the isomer 2-methylphenol is a respiratory irritant in humans [4]. There is no information regarding effects on reproduction, development or cancer in humans or animals following inhalation exposure to 4-methylphenol. Consequently, an inhalation Unit Risk for cancer is not available for 4-methylphenol [5].

Dermal Exposure. An acute dermal LD_{50} value of 300 mg/kg is reported for rabbits [4]. Dermal exposure of humans to methylphenols has been reported to be fatal. In one of the fatal cases, the lethal dose was estimated at 820 mg/kg [4]. Methylphenols are strong skin irritants in both humans and animals with corrosive, irreversible damage being reported. Neurological effects, including coma, swelling of the brain and facial paralysis, have been reported following dermal exposure of humans to methylphenols. The exposure dose resulting in the effects is not known. 4-Methylphenol has not been evaluated for its ability to produce cancer following dermal exposure, but a cancer-promotion study indicates that all three methylphenol isomers may be tumor promoters [4].

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NAPHTHALENE
2-METHYLNAPHTHALENE

GENERAL

There is relatively little information available on 2-methylnaphthalene as compared to naphthalene. Therefore, all information below refers to naphthalene unless explicitly stated otherwise.

CAS NUMBERS

Naphthalene	91-20-3
2-Methylnaphthalene	91-57-6

COMMON SYNONYMS

Naphthalene: Naphthene, Tar Camphor.
2-Methylnaphthalene: Beta-methylnaphthalene

ANALYTICAL CLASSIFICATION

Semi-Volatile Organic.

PHYSICAL AND CHEMICAL DATA

	Naphthalene	2-Methylnaphthalene
Water Solubility (mg/L at 20°C) [1]	31.7	ND
Vapor Pressure (mm Hg at 25°C) [1]	0.087	ND
Henry's Law Constant (atm-m^3/mole) [1]	4.6×10^{-4}	ND
Specific Gravity (20/4°C) [1]	1.145	1.0058
Organic Carbon Partition Coefficient [1]	933	ND

FATE DATA: HALF-LIVES (HRS)

Soil: 16.6 to 48 days [2]
Air: 2.96 to 29.6 hours [2]
Surface Water: 12 hours to 20 days [2]
Groundwater: 1 to 288 days [2]

NATURAL SOURCES

Crude oil; natural, uncontrolled combustion (i.e., forest fires) [3,4].

ARTIFICIAL SOURCES

Naphthalene: Petroleum refining, mothball use and manufacture, coal tar distillation, pitch fumes, chemical intermediate (i.e., phthalic anhydride manufacture), vehicle emissions, combustion processes (i.e., refuse combustion), tobacco smoke, and oil spillage [3,4].

2-Methylnaphthalene: Synthesis of organic compounds such as insecticides, and release from gasoline due to its use as an additive [1,5].

FATE AND TRANSPORT

Naphthalene's sorption to soil ranges from low to moderate, depending upon the organic carbon content of the soil, and will leach rapidly through sandy soils. Volatilization from the uppermost soil layer will be important, but will lessen in importance with soil depth. In addition, volatilization from moisture-saturated soil is not expected to be important. Biodegradation is expected to be rapid in soils previously contacted with other polycyclic aromatic hydrocarbons (PAHs), but slow in "virgin" soils [3].

Volatilization, photolysis, sorption (to suspended solids, sediments, etc.), and biodegradation are the primary removal mechanisms for naphthalene in waters. The actual predominant mechanisms change with variations in several factors (i.e., water flow rate, level of sediments/suspended soils, water clarity, etc.) In addition, biodegradation rates of naphthalene in water vary with changes in concentration of naphthalene (higher concentrations yield higher rates), "virgin" versus oil-polluted water (quicker in oil-polluted waters), actual pollution site (more rapid biodegradation in sediments than waters), aerobic versus anaerobic conditions (no biodegradation in anaerobic conditions), and so on. Bioconcentration in aquatic organisms is expected to be moderate, except for accelerated bioconcentration in organisms lacking an aryl hydroxylase enzyme system (i.e. phytoplankton, snails, mussels). Naphthalene in the atmosphere reacts during daylight hours with hydroxyl radicals, and during nighttime hours with nitrate radicals. Photolysis is also expected in the atmosphere [3].

HUMAN TOXICITY

General. The breakdown of red blood cells is the primary health concern for humans exposed to naphthalene. Human deaths following ingestion have occurred [1]. The USEPA has placed naphthalene in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [6]. The USEPA does not currently provide any toxicity values for 2-methylnaphthalene [7,8].

Oral Exposure. Both the chronic and subchronic RfDs for naphthalene of 0.04 mg/kg/day are based on a NOEL of 50 mg/kg/day for decreased body weight observed in a subchronic oral (gavage) study in rats [7]. Clinical evidence indicates that naphthalene is absorbed by humans in significant quantities via the oral route. The oral LD_{50} reported for naphthalene in rats ranges from 2,200 to 2,400 mg/kg in rats [1]. The oral LD_{50} reported for 2-methylnaphthalene in rats is 1,630 mg/kg [5]. Lethal doses of naphthalene in humans have ranged from as low as 74 mg/kg to as high as 574 mg/kg [1,8]. Ocular damage has been documented in humans and animals following oral exposure [1]. Symptoms of intoxication include: nausea, vomiting, headache, diaphoresis, hematuria, hemolytic anemia, fever, central nervous system depression, hepatic necrosis, jaundice, convulsions, and coma [1,2,9]. Administration of 300 mg/kg/day to pregnant mice resulted in a decrease in the number of live pups per litter [1].

Inhalation Exposure. An inhalation RfC was not reported for naphthalene [6,7]. Clinical reports suggest that inhaled naphthalene may be absorbed in sufficient quantity to produce adverse health effects in humans; however, no quantitative absorption data were located for humans or animals. One study, on rats, reported a NOAEL of 78 ppm for a 4-hour exposure. Symptoms and effects of inhalation exposure in humans include: headache, nausea, vomiting, abdominal pain, malaise, confusion, anemia, jaundice, and renal disease. No information was found regarding developmental and reproductive effects [1].

Dermal Exposure. Limited evidence in human infants indicated that hemolytic anemia may have resulted from dermal exposure to an unknown quantity of naphthalene. A NOAEL of 2,500 mg/kg was reported for rats. Naphthalene is a mild dermal and ocular irritant [1].

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N-NITROSODIPHENYLAMINE

CAS NUMBER

86-30-6

COMMON SYNONYMS

Diphenyl-N-nitrosoamine, Diphenylnitrosamine, NDPA

ANALYTICAL CLASSIFICATION

Semivolatile Organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 113 mg/L at 25°C [1]
Vapor Pressure: 6.30 x 10^{-4} mm Hg at 25°C [1]
Henry's Law Constant: 1.40 x 10^{-6} atm-m^3/mole [1]
Specific Gravity: ND
Organic Carbon Partition Coefficient: 650 [2]

FATE DATA: HALF-LIVES

Soil: 10 to 34 days [3]
Air: 0.70 to 7.0 hours [3]
Surface Water: 10 to 34 days [3]
Groundwater: 20 to 68 days [3]

NATURAL SOURCES

Found in a wide variety of foods such as cured meats, beer, some cheeses, nonfat dry milk, and sometimes in fish. [1]

ARTIFICIAL SOURCES

It is primarily used as an intermediate in the manufacture of para-nitrosodiphenylamine, and as a rubber-processing chemical. It can also be utilized in pesticide manufacturing. [1]

FATE AND TRANSPORT

In soils, the mobility of NDPA is dependent on the extent of sorption on soil particles. Given the K_{oc} of 650, the potential for sorption to soils is significant. Volatilization from near-surface soils may also be important. Groundwater underlying NDPA-contaminated soils with a low organic content has the potential to become contaminated. Given the low Henry's Law constant, volatilization of NDPA from water is not likely to be significant. NDPA released to the air will undergo photochemical oxidation or direct photolysis [1]

HUMAN TOXICITY

General. Information regarding the toxicity of NDPA are limited, but suggest that the major target of toxicity is the urinary bladder [2]. Data regarding the mutagenicity of NDPA are equivocal [2,3]. The USEPA has placed NDPA in weight-of-evidence cancer Group B2, indicating that it is a probable human carcinogen [4].

Oral Exposure. A chronic oral RfD is not available for NDPA [4]. NDPA is absorbed following oral exposure, but the extent of absorption is not known. Acute oral LD_{50} values of 1650 to 3850 mg/kg and 3850 mg/kg have been reported for rats and mice, respectively [2,3]. NDPA has not been reported to be fatal to humans and information regarding effects in humans following oral exposure is not available. Studies in animals reported effects on the urinary bladder (inflammation, hyperplasia of the epithelium, cancer) and decreased body weight [2]. There is no information regarding the effects of ingested NDPA on reproduction or development. An oral Slope Factor 0.0049 $(mg/kg/day)^{-1}$ is based on the increased incidence of bladder tumors in rats [4].

Inhalation Exposure. No useful information was located regarding inhalation exposure to NDPA in humans or animals. Consequently, neither an inhalation RfC nor an inhalation Unit Risk for cancer are available [4].

Dermal Exposure. No useful information was located regarding dermal exposure to NDPA in humans or animals.

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PENTACHLOROPHENOL

CAS NUMBER

87-86-5

COMMON SYNONYMS

PCP; Penchlorol

ANALYTICAL CLASSIFICATION

Pesticide (organic).

PHYSICAL AND CHEMICAL DATA

Water Solubility: 14 mg/L at 20°C [1]
Vapor Pressure: 1.10 x 10^{-4} mm Hg at 25°C [1]
Henry's Law Constant: 2.75 x 10^{-6} atm-m^3/mole [1]
Specific Gravity: 1.978 at 22/4°C [2]
Organic Carbon Partition Coefficient: 1000 - 4000 [1]

FATE DATA: HALF-LIVES

Soil: 23 - 178 days [3]
Air: 5.8 - 58 days [3]
Surface Water: 1 hour - 4.6 days [3]
Groundwater: 46 days - 4.2 years [3]

NATURAL SOURCES

Fungus metabolism [1].

ARTIFICIAL SOURCES

Wood preservative; fungicide; bactericide; algicide; herbicide [1].

FATE AND TRANSPORT

Given its high K_{oc} value, pentachlorophenol will adsorb to soils, with stronger adsorption occurring under acid conditions. In soils, slow biodegradation and leaching into groundwater will occur. Biodegredation of pentachlorophenol appears to become significant after a period of acclimation. In soils, biodegredation appears more thorough under anaerobic conditions, yielding byproducts such as pentachloroamisole and tri-/tetrachlorophenols (as well as 2,3,7,8-tetrachlorophenol and carbon dioxide, in estuarine sediment). Photolysis does not readily occur in soils, but will occur with dissociated pentachlorophenol (which occurs at ambient pH levels) to a significant degree. Given the tendency of pentachlorophenol to dissociate in acidic soils, leaching to unprotected groundwater is possible. Hydrolysis and oxidation do not appear to be significant loss mechanisms in either soils or waters. Volatilization from soils and water may occur, but is not predicted to be significant. Bioconcentration of this material in aquatic organisms is expected, but is dependant upon pH levels of the aquatic environment (since pentachlorophenol will be dissociated at higher pH levels) [1].

Atmospheric pentachlorophenol may be found in the vapor phase or adsorbed to particulate matter. Vapor-phase pentachlorophenol undergoes photolysis and, to a lesser extent, hydroxyl-radical reaction. Particulate adsorbed complexes are subject to gravitational deposition [1].

HUMAN TOXICITY

General. The major targets of pentachlorophenol toxicity are the liver and kidneys [4]. Information regarding the genotoxicity of pentachlorophenol are equivocal [4]. The USEPA has placed pentachlorophenol in weight-of-evidence cancer Group B2, indicating that it is a probable human carcinogen [5].

Oral Exposure. The chronic oral RfD of 0.03 mg/kg/day is based on a NOAEL of 3 mg/kg/day for liver and kidney effects in a chronic study in rats [5]. Pentachlorophenol is readily absorbed following oral exposure. Acute oral LD_{50} values in animals ranged from 27 to 230 mg/kg in rats and 117 to 134 mg/kg in mice [4]. The lowest lethal dose of pentachlorophenol in humans is estimated at 1 gram (14 mg/kg) [4]. Limited data in humans indicate that pentachlorophenol is a neurotoxin. Neurological effects result from the ability of pentachlorophenol to disrupt biochemical pathways, and not from direct effects on the nervous system [4]. Studies in animals indicate that oral exposure results in effects on the liver, kidneys and blood at doses greater than 2.5 mg/kg/day [4]. Data in animals suggest that pentachlorophenol is not teratogenic (causing birth defects), but may be toxic to both the fetus and the mother [4]. There is no evidence that pentachlorophenol causes cancer in humans, but studies in animals suggest that oral exposure results in cancer of the liver and blood vessels [4]. An oral slope factor of 0.12 $(mg/kg/day)^{-1}$ is based on the incidence of cancer of the liver and blood vessels in rodents [5].

Inhalation Exposure. A chronic inhalation RfC for pentachlorophenol is currently under review by the USEPA [5]. Inhalation LC_{50} values in rats ranged from 1.2 ppm (45 minutes) to 31 ppm (exposure time not specified) [4]. Based on animal studies, NIOSH determined that a concentration of 14 ppm is immediately dangerous to human life and health [4]. Inhalation of 0.09 ppm has resulted in irritation to the eyes and nose [4]. Inhaled pentachlorophenol has not been shown to cause effects on reproduction or development or to cause cancer in humans or animals [4]. An inhalation unit risk for cancer is not available for pentachlorophenol [5].

Dermal Exposure. Exposure in the workplace or misuse of pentachlorophenol-containing products in the home are the most likely methods of exposure. The primary route of exposure in these cases is dermal, although inhalation probably also occurs. Effects on the respiratory tract (congestion, edema), blood (anemia), liver (enlarged liver, degeneration), kidneys (dysfunction), and skin (skin eruptions) have been reported following occupational exposure, but the exposure concentration is not known [4]. Neurological effects have also been observed, but these effects probably result from the ability of pentachlorophenol to disrupt biochemical pathways, and not from direct effects on the nervous system [4].

ECOLOGICAL TOXICITY

General. Pentachlorophenol and its sodium salt (sodium pentachlorophenate) are among the mostly widely used pesticides and wood preservative in the United States. Both compounds have the same toxic effects, but different solubilities [6]. Pentachlorophenol will bioconcentrate because of its low water solubility, but the BCF will be dependent upon the pH [7]. With water pH of 7.3, the photodegradation of ionized pentachlorophenol was completed in 20 hours [6]. No information on biomagnification was available in the technical literature.

Vegetation. Pentachlorophenol is strongly phytotoxic [6]. It has a tendency to adsorb to soil and sediment. Adsorption to soil and sediment appears to be pH dependent, and is stronger under acid conditions [8]. According to Eisler [9], terrestrial plants were adversely affected by pentachlorophenol at 0.3 mg/L. Micromedex, Inc. [8] gives its toxicity to aquatic plants at 0.001 ppm.

Aquatic Life. Increasing pH of the water column decreases the hazard of pentachlorophenol to aquatic biota. Pentachlorophenol is rapidly accumulated and rapidly excreted, and has little tendency to persist in living organisms. It also is readily degraded in the environment by chemical, microbiological, and photochemical processes [9]. Adverse effects on growth, survival, and reproduction of sensitive species of aquatic organisms occurred at concentrations of 8 to 80 μg/L for algae and macrophytes, 3 to 100 μg/L for invertebrates, and <1 to 68 μg/L for fish [9]. The accumulation of pentachlorophenol in fish is rapid and primarily by direct uptake from water rather than through the food chain or diet. Fish can bioconcentrate pentachlorophenol from water up to 10,000 times [9], but the half-life in fish tissues is less than 24 hours. The mean acute LC_{50}s values are 63.1 μg/L for fathead minnow and 65.5 μg/L for goldfish. The mean value is derived because the toxicity of pentachlorophenol varies with pH [10]. Micromedex, Inc. [8] reported a 96-hour LC_{50} for bluegill at 32 μg/L. Eisler [9] proposed pentachlorophenol criteria for protection of aquatic biota. For freshwater life, the acute criterion was 48 to <55 μg/L, and the chronic criterion was <3.2 μg/L. For warmwater fish, the criterion was 10 to <15 μg/L. The USEPA acute and chronic aquatic life water quality criteria for pentachlorophenol are 20 μg/L and 13 μg/L, respectively, based on a pH of 7.8 [11].

Wildlife. Eisler [9] reported pentachlorophenol killed various species of birds at single oral doses of 380 to 504 mg/kg body weight, at dietary concentrations of 3,850 mg/kg ration fed over a 5-day period, and when nesting materials contained >285 mg/kg. The acute oral LD_{50} for mallards is 380 mg/kg body weight, for rabbits 100 to 130 mg/kg body weight, and for mice is 65 to 252 mg/kg body weight [9]. Sax [12] gives the oral LD_{50} for rats at 50 mg/kg and hamsters at 168 mg/kg. Eisler [9] proposed pentachlorophenol criteria for the protection of wildlife. For bird diets, the recommended criteria were <1.0 mg/kg to avoid adverse effects and >3,850 mg/kg for fatal effects. In a study on rats, 3 to 10 mg/kg body weight produced no adverse effects [9].

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PHENOL

CAS NUMBER

108-95-2

COMMON SYNONYMS

Hydroxybenzene

ANALYTICAL CLASSIFICATION

Semivolatile Organic

PHYSICAL AND CHEMICAL DATA

Water Solubility: 87,000 mg/L at 25°C [1]
Vapor Pressure: 0.524 mm Hg at 25°C [1]
Henry's Law Constant: 3.97×10^{-7} atm-m^3/mole [1]
Specific Gravity: 1.07 at 20/20°C [2]
Organic Carbon Partition Coefficient: 148 [1]

FATE DATA: HALF-LIVES

Soil: 1 to 10 days [3]
Air: 2.28 to 22.8 hours [3]
Surface Water: 0.22 to 2.4 days [3]
Groundwater: 0.5 to 7 days [3]

NATURAL SOURCES

Animal wastes, decomposition of organic wastes. [1]

ARTIFICIAL SOURCES

Wastewater; resins, plastics, fibers, adhesives, iron and steel; aluminum, leather, and rubber industries; spills connected with its transport and use. Phenol is also found in cigarette smoke, and automobile exhaust, as well as disinfectants and medicinal products. [1]

FATE AND TRANSPORT

Phenol will rapidly degrade in sewage, soil, freshwater, and seawater. When it is released to soil, biodegradation will occur in under five days. Groundwater can be expected to be free of this chemical due to the rapidity of degradation. In freshwater systems, it can be expected to biodegrade on the order of hours to days, and in estuarine waters up to a few weeks. It will exist in the vapor phase in the atmosphere. Evaporation is not a primary loss mechanism. Generally, biodegradation will be quicker under aerobic conditions for both soils and water. Bioconcentration is not significant [1].

HUMAN TOXICITY

General. Phenol is considered to be very toxic. Human deaths due to phenol exposure have been reported [2,4]. Based on animal studies, exposure to high levels of phenol vapor for several weeks results in paralysis and severe injury to the heart, kidneys, liver, and lungs [2]. The USEPA has placed phenol in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [4].

Oral Exposure. A chronic RfD of 0.6 mg/kg/day is based on a NOAEL of 60 mg/kg/day and a LOAEL of 120 mg/kg/day determined for reduced fetal body weight in a rat oral developmental study [4]. Phenol is readily absorbed via the gastrointestinal tract in humans and animals. Up to 98% of an orally-administered dose was absorbed by humans, while up to 95% was absorbed by rats. The oral LD_{50} for rats varies depending on the concentration of dosing solution used, but ranges from 340 to 530 mg/kg. Acute oral poisoning in rats and rabbits is characterized by muscular tremors in the head region, followed by effects in the lower extremities [2]. The probable lethal oral dose in humans is 50 to 500 mg/kg, and ingestion of 1 gram has been lethal. Symptoms of exposure in humans include sonorous breathing, frothing at the mouth and nose [4], mouth sores, and diarrhea [2].

Inhalation Exposure. An inhalation RfC for phenol is considered non-verifiable by the USEPA [4]. Phenol is readily absorbed following inhalation exposure. Up to 99% absorption was determined for humans. A concentration of 26 to 52 ppm phenol was lethal to guinea pigs over the course of a 28-day exposure. The effects on the lungs in these guinea pigs included inflammation, cellular infiltration, pneumonia, and bronchitis. Phenol exposure in animals has also been shown to cause severe damage to the heart, liver, and kidney. A concentration of 26 ppm was reported as the LOAEL for serious neurological effects in guinea pigs exposed for 41 days. No useful information was found regarding adverse effects of phenol inhalation in humans [2].

Dermal Exposure. Phenol is readily absorbed from skin. Substantial dermal absorption of phenol vapor occurs. The dermal LD_{50} for molten phenol liquid in the rat was reported to be about 669 mg/kg, while application of a 66% aqueous solution (330 mg phenol/kg) was 100% lethal to rats. Application of concentrated phenol to skin results in severe edema, erythema, and necrosis. Muscle tremors and convulsions are a characteristic response of laboratory animals to acute dermal phenol toxicity [2]. Skin exposure in humans may cause pain followed by numbness [4]. Arrhythmias have been associated with dermal exposure of humans. Human deaths have occurred following dermal exposure to phenol.

Phenol applied to the skin is reportedly a tumor promoter and possibly a complete carcinogen in mice [2].

ECOLOGICAL TOXICITY

General. Most of the information found in the technical literature dealt with aquatic life because phenol is very toxic to fish. Phenol should not be bioaccumulated to any extent in aquatic environments [5].

Vegetation. The chronic toxicity value of phenol to vegetation is 20 ppm [6]. The toxicity of phenol to aquatic plants is 0.2 ppm [6].

Aquatic life. Phenol is harmful to aquatic life in very low concentrations. Phenol can affect freshwater biota by direct toxicity and by lowering the amount of available oxygen because of the high oxygen demands of the compound [7]. The toxicity of phenol toward fish increases as the dissolved oxygen concentration is diminished, as the temperature is raised, and as the hardness is lessened [8]. The effect of combinations of different phenolic compounds is additive [8]. Phenols appear to be less toxic toward fish-food organisms and other lower aquatic life than towards fish [8]. The acute and chronic toxicity to freshwater aquatic life occurs at concentrations as low as 10,200 μg/L and 2,560 μg/L, respectively [9]. Acute LC_{50} values for fathead minnow and bluegill range from 24,000 to 67,500 μg/L and 11,500 to 28,116 μg/L, respectively [10]. Tests for the acute toxicity of phenol found rainbow trout to be the most sensitive species with an LC_{50} value of 5,020 μg/L [10]. The acute LC_{50} value for mosquitofish is 26 mg/L [6]. The acute lowest observed effect level for *Daphnia magna* is 5,000 μg/L [11]. The chronic aquatic toxicity limit is 0.001 ppm [6]. Bioconcentration factors for *Daphnia* and goldfish are 277 and 1.9, respectively [6]. The federal acute and chronic lowest observed effect levels for freshwater aquatic life are 10,200 μg/L and 2,560 μg/L [12].

Wildlife. The oral LD_{50} values for rats and mice are 317 mg/kg and 270 mg/kg, respectively [6]. The oral LD_{50} values for rabbits and dogs are 600 mg/kg and 500 mg/kg body weight, respectively [6]. The livestock toxicity value is 1,000 ppm [6]. The chronic waterfowl toxicity limits is 0.025 ppm [6].

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POLYCYCLIC AROMATIC HYDROCARBONS

GENERAL

Polycyclic aromatic hydrocarbons (PAHs) are a large group of chemicals formed during the incomplete combustion of organic materials. There are over one hundred PAHs, and they are found throughout the environment in air, water, and soil. Seven of the 15 PAHs addressed in this profile are classified as probable human carcinogens [1,2].

CAS NUMBERS

Acenaphthene	83-32-9	Chrysene	218-01-9
Acenaphthylene	208-96-8	Dibenzo(a,h)anthracene	53-70-3
Anthracene	120-12-7	Fluoranthene	206-44-0
Benzo(a)anthracene	56-55-3	Fluorene	86-73-7
Benzo(a)pyrene	50-32-8	Indeno(1,2,3-cd)pyrene	193-39-5
Benzo(b)fluoranthene	205-99-2	Phenanthrene	85-01-8
Benzo(g,h,i)perylene	191-24-2	Pyrene	129-00-00
Benzo(k)fluoranthene	207-08-9		

COMMON SYNONYMS

Polynuclear aromatic hydrocarbons, PNAs, PAHs.

ANALYTICAL CLASSIFICATION

Semivolatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: insoluble to 3.93 mg/L [1]
Vapor Pressure: negligible to very low at 25°C [1]
Henry's Law Constant: 6.95×10^{-8} to 1.45×10^{-3} atm-m^3/mole [1]
Specific Gravity: approximately 0.9 to 1.4 at 0 to 27°C [1]
Organic Carbon Partition Coefficient (K_{oc}): 2.5×10^3 to 5.5×10^6 [1]

FATE DATA: HALF-LIVES

Soil: 12.3 days to 5.86 years [3]
Air: 0.191 hours to 2.8 days [3]
Surface Water: 0.37 hours to 1.78 years [3]
Groundwater: 24.6 days to 10.4 years [3]

NATURAL SOURCES

Volcanoes, forest fires, crude oil, and oil shale [1].

ARTIFICIAL SOURCES

Motor vehicles and other petroleum fuel engines, wood-burning stoves and fireplaces, furnaces, cigarette smoke, industrial smoke or soot, and charcoal-broiled foods [1].

FATE AND TRANSPORT

Because the physical and chemical properties of PAHs vary substantially depending on the specific compounds in question, the fate and transport characteristics vary. Thus, the following discussion is presented in very general terms. Some fate characteristics are roughly correlated with molecular weight; so the compounds are grouped as follows [1]:

- Low molecular weight: acenaphthene, acenaphthylene, anthracene, fluorene, and phenanthrene;
- Medium molecular weight: fluoranthene and pyrene; and
- High molecular weight: benzo(a)anthracene, benzo(b)fluoranthene, benzo-(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo-(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

PAHs are present in the atmosphere in the gaseous phase and sorbed to particulates. They may be transported great distances, and are subject to photodegradation as well as wet or dry deposition [1].

PAHs in surface water are removed by volatilization, binding to particulates and sediments, bioaccumulation, and sorption onto aquatic biota. The low molecular weight PAHs have Henry's Law constants in the range of 10^{-3} to 10^{-5} atm-m^3/mole, and would therefore be expected to undergo significant volatilization; medium molecular weight PAHs have constants in the 10^{-6} range; and high molecular weight PAHs have constants in the range of 10^{-5} to 10^{-8}. Half-lives for volatilization of benzo(a)anthracene and benzo(a)pyrene from water have been estimated to be greater than 100 hours. It has been reported that lower molecular weight PAHs could be substantially removed by volatilization under conditions of high temperature, shallow depth, and high wind. For example, anthracene was found to have a half-life for volatilization of 18 hours in a stream with moderate current and wind. In an estuary, volatilization and adsorption are the primary removal mechanisms for medium and high molecular weight PAHs, whereas volatilization and biodegradation are the major mechanisms for low molecular weight compounds. PAHs can bioaccumulate in plants and animals, but are subject to extensive metabolism by high-trophic-level consumers, indicating that biomagnification is not significant [1].

Potential mobility in soil is related to the organic carbon partition coefficient (K_{oc}). The low molecular weight PAHs have K_{oc} values in the range of 10^3 to 10^4, which indicates a moderate potential to be adsorbed to organic material. Medium molecular weight compounds have values on the order of 10^4, while high molecular weight compounds have values in the 10^5 to 10^6 range. The latter compounds, then, have a much greater tendency to adsorb and resist movement through soil. Volatilization of the lower molecular weight compounds from soil may be substantial. However, some portion of PAHs in soil may be transported to groundwater, and then move laterally in the aquifer, depending on soil/water conditions [1].

HUMAN TOXICITY

General. Ingestion of, inhalation of, or dermal contact with PAHs by laboratory animals has been shown to produce tumors. Reports in humans show that individuals exposed by inhalation or dermal contact for long periods of time to mixtures of PAHs and other compounds can also develop cancer. However, the relationship of exposure to any individual PAH with the onset of cancer in humans is not clear [1]. The available slope factors are presented below. No other toxicity values were available [2,4].

Oral Exposure. Indirect evidence suggests that benzo(a)pyrene may not be readily absorbed following oral exposure in humans. On the other hand, absorption in rats appears to be rapid and efficient. Whether or not there is actually a significant difference between humans and rats in the capacity to absorb benzo(a)pyrene is questionable. It should be noted that the degree of uptake is highly dependent on the vehicle of administration. A NOAEL of 150 mg/kg/day was determined for gastrointestinal, hepatic, and renal effects in rats following acute oral exposure to benzo(a)pyrene or benzo(a)anthracene. LOAELs in the range of 40 to 160 mg/kg/day were determined for developmental and reproductive effects in mice following acute oral exposure to benzo(a)pyrene [1]. An oral slope factor of 7.3 $(mg/kg/day)^{-1}$ for benzo(a)pyrene is based on tumors detected in the forestomachs of rats and mice in various diet studies [2].

Inhalation Exposure. The USEPA does not currently provide inhalation RfCs for any of the PAHs [2,4]. Pure PAH aerosols appear to be well absorbed from the lungs of animals. However, PAHs adsorbed to various particles appear to be poorly absorbed, if at all. The latter are most likely to be removed from the lungs by mucociliary clearance and subsequent ingestion. Lung cancer in humans has been strongly associated with long-term inhalation of coke-oven emissions, roofing-tar emissions, and cigarette smoke, all of which contain mixtures of carcinogenic PAHs. It has been estimated that the 8-hour time-weighted average exposure to PAHs in older coke plants was approximately 22 to 33 mg/m^3 [1]. An inhalation slope factor of 6.1 $(mg/kg/day)^{-1}$ for benzo(a)pyrene is based on tumors detected in the respiratory tracts of hamsters in a chronic intermittent inhalation study [4].

Dermal Exposure. Limited *in vivo* evidence exists that PAHs are at least partially absorbed by human skin. An *in vitro* study with human skin indicated that 3% of an applied dose of benzo(a)pyrene was absorbed after 24 hours. Studies in mice indicated that at least 40% of an applied dose of benzo(a)pyrene was absorbed after 24 hours. The carcinogenic PAHs as a group cause various noncancerous skin disorders in humans and animals. Substances containing mixtures of PAHs have been linked to skin cancers in humans. Studies in laboratory animals have demonstrated the ability of benz(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene to induce skin tumors [1].

ECOLOGICAL TOXICITY

General. The molecular weight of the individual PAHs affects their mobility and solubility in the environment, with lower weight compounds generally being more volatile and soluble than higher weight compounds, which have strong sorption properties. In aquatic environments, PAH partitioning in sediments occurs in an equilibrium process, with a potential for localized occurrences of high levels of dissolved PAHs [5,6]. PAHs can bioaccumulate in plants and animals, but do not biomagnify in food chains. Inter- and intraspecies responses to carcinogenic PAHs are variable, and some PAHs tend to inhibit the carcinogenicity of other compounds in mammals [7]. A variety of adverse effects on aquatic and terrestrial animals has been observed.

Vegetation. Plants absorb PAHs from soils through their root systems, and can translocate them to above ground parts. Lower weight PAHs are absorbed more readily than other PAHs [7]. Airborne deposition of particulate PAHs, and the subsequent adsorption to the skins of fruits and vegetables, accounts for reported higher PAH concentrations in aboveground versus underground plant parts. Soil concentrations of benzo(a)pyrene typically may reach 1,000 mg/kg; concentrations for total PAHs typically exceed benzo(a)pyrene concentrations by at least one order of magnitude. PAH concentrations in vegetation typically range from 20 to 1,000 μg/kg [6]. Some plants biocentrate PAHs in their oily parts (e.g., seeds) above levels in surrounding soils, but this does not appear to be typical [6]. In limited studies on PAHs in plants, phytotoxic effects were rare; photosynthetic inhibition in algae has been documented [6,7]. Some vascular plants catabolize benzo(a)pyrene [6], and PAHs synthesized by plants may act as growth hormones [7,8]. Plants may serve as a pathway for exposure of higher-order consumers to toxic levels of PAHs.

Aquatic Life. Most PAHs in aquatic environments tend to sorb to sediments, and sediment-associated PAHs have accounted for up to 77 percent of the steady-state body burden in benthic amphipods [7]. Absorption and assimilation of PAHs vary widely among species and according to the specific compound. Crustaceans and fish appear better able to assimilate, metabolize, and eliminate PAHs than do molluscs and polychaetes [7,8]. Fish appeared to detoxify benzo(a)pyrene as quickly as it was absorbed in water-only exposures [9]. Little potential for biomagnification through aquatic food chains exists, and bioconcentration factors range widely. A 2- to 3-day exposure BCF of 485 was reported for anthracene in fathead minnows, and a 24-hour BCF of 12 was reported for benzo(a)pyrene in bluegill [7].

Toxic effects of PAHs in fish include liver, thyroid, gonad, and skin tumors. Phenanthene has an LC_{50} of 370 μg/L in grass shrimp, and benz(a)anthracene has an LC_{87} of 1,000 μg/L in bluegill [7]. In the Black River, Ohio, where sediment PAH levels were 10,000 times those in a control location, brown bullheads showed elevated concentrations of lower molecular weight PAHs in their livers and a higher incidence of liver tumors [5,7,8]. Dissolved fluorene introduced into pond waters resulted in reduced growth in bluegill at 0.12 mg/L, and in increased vulnerability to predation at 1.0 mg/L [7].

There are no promulgated federal aquatic life water quality criteria for any of the PAHs, though the USEPA has proposed a chronic criterion of 6.3 μg/L and an acute criterion of 30 μg/L for phenanthrene in fresh waters [10].

Wildlife. PAH toxicity studies in animals are mostly confined to laboratory experiments. Many PAHs can produce tumors in skin and epithelia tissues in all animal species tested, with malignancies induced by microgram acute exposures. Some carcinogenic PAHs can pass across skin, lungs, intestines, and placenta in mammals. Target organs are diverse, and the tissue affected is dependent on the compound and method of exposure. For example, dietary benzo(a)pyrene caused leukemia, lung adenoma, and stomach tumors in mice. Ancillary tissue damage may accompany carcinomas [7]. Selective effects based on age and gender of the receptor have also been observed [8,9,11,12]. Mammals do not tend to accumulate PAHs, which is likely due to the rapid metabolism of these compounds. For example, the biological half-life of benzo(a)pyrene in rat blood and liver was 5 to 10 minutes [7].

There is a scarcity of data on PAHs that are not carcinogenic [13]. Many chemicals, including other PAHs, modify the carcinogenic actions of PAHs in laboratory animals. Inhibitors of PAH-induced tumors include selenium, vitamins A and E, flavones, and ascorbic acid [7]. LD_{50} values also range widely: acute oral LD_{50} values for rodents range from 50 mg/kg body weight for benzo(a)pyrene to 700 mg/kg for phenanthrene, to 2,000 mg/kg for fluoranthene. Chronic oral carcinogenicity values for rodents include 40 mg/kg for benzo(b)fluoranthene, 72 mg/kg for benzo(k)fluoranthene, and 99 mg/kg for chrysene [7].

In a study on mallards, no mortality or visible toxic effects were observed over 7 months during which birds were fed diets containing 4,000 mg/kg PAHs, though heptatic changes were observed. Sax [9] reports that single oral doses of 250 ppm benzo(a)pyrene were not acutely toxic to ducks or chickens.

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HERBICIDES
TOXICITY PROFILES

DICAMBA

CAS NUMBER

1918-00-9

COMMON SYNONYMS

Banvel; Dianat; Mediben

ANALYTICAL CLASSIFICATION

Herbicide (organic)

PHYSICAL AND CHEMICAL DATA

Water Solubility: 5,600 mg/L at 20°C [1]
Vapor Pressure: 3.4 x 10^{-5} mm Hg at 25°C [1]
Henry's Law Constant: 9.0 x 10^{-7} atm-m^3/mole [1]
Specific Gravity: ND
Organic Carbon Partition Coefficient: 4.4 [1]

FATE DATA: HALF-LIVES (HRS)

Soil: ND
Air: ND
Surface Water: ND
Groundwater: ND

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Used as a pre- and post-emergent herbicide that is applied by aerial or ground spraying or by basal application of granules [1].

FATE AND TRANSPORT

Given the low K_{oc} value and high water solubility, dicamba is very mobile in most soils and will leach to the groundwater. Although some volatilization from plant surfaces may occur, volatilization from soil surfaces will not be an important pathway. If released to water, microbial degradation and photolysis will be important removal processes. Aquatic hydrolysis, volatilization, adsorption to sediment and bioconcentration should not be significant. Dicamba in the air will exist in both the vapor phase and the adsorbed to particulate phase. Particulate phase dicamba will be removed by both wet and dry deposition [1].

HUMAN TOXICITY

General. The major target of dicamba appears to be the developing fetus. Dicamba appears to have low systemic toxicity following both short- and long-term exposure [2]. Information regarding the mutagenicity of dicamba were not located. Dicamba has not been placed in a weight-of-evidence cancer group by the USEPA [2].

Oral Exposure. A chronic oral RfD of 0.03 mg/kg/day is based on a NOEL of 3 mg/kg/day for maternal and fetal toxicity in a developmental study in rabbits [2]. Dicamba is absorbed following oral exposure but the extent of absorption is not known. In rats, acute oral LD_{50} values ranged from 1040 to 2900 mg/kg [3,4]. Ingestion of dicamba has not been reported to be fatal to humans. Information is not available regarding toxic effects in humans from ingested dicamba, but animal studies indicate that dicamba has low toxicity following both short- and long-term exposure [2]. There is no evidence that ingested dicamba affects human reproduction and development, but studies in animals indicate that dicamba produces both maternal toxicity (lower body weight gain) and fetal toxicity (reduced fetal body weight and increased post implantation loss) [2]. Information regarding the carcinogenicity of ingested dicamba were not located, therefore, an oral Slope Factor is not available [2].

Inhalation Exposure. Information were not located regarding toxic effects of inhaled dicamba in humans or animals. Consequently, an chronic inhalation RfC and an inhalation Unit Risk for cancer are not available [2].

Dermal Exposure. Useful information regarding toxic effects from dermal exposure to dicamba were not located.

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SILVEX
(2,4,5-TP)

CAS NUMBER

93-72-1

COMMON SYNONYMS

2-(2,4,5-Trichlorophenoxy) propanoic acid, 2,4,5-TP.

ANALYTICAL CLASSIFICATION

Pesticide (organic).

PHYSICAL AND CHEMICAL DATA

Water Solubility: 140 mg/L at 25°C [1]
Vapor Pressure: 5.2×10^{-6} mm Hg at 25°C [1]
Henry's Law Constant: 1.31×10^{-8} atm-m^3/mole [1]
Specific Gravity: 1.2085 at 20/4°C [2]
Organic Carbon Partition Coefficient: 2,600 [1]

FATE DATA: HALF-LIVES

Soil: 12 to 17 days [1]
Air: 6.3 hours [1]
Surface Water: long [1]
Groundwater: long [1]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Silvex has been used in the past as a herbicide, applied to both land and water. Its use is currently severely restricted in the U.S. [1,3].

FATE AND TRANSPORT

Silvex will strongly adsorb to soils and biodegrade. It is not expected to leach, hydrolyze, or evaporate. It may be lost due to soil erosion. In surface water it will biodegrade slowly, while strongly adsorbing to sediment. It may photooxidize near the surface of waters. It will not appreciably bioconcentrate. The propensity of silvex to volatilize from water is insignificant. It can exist in the atmosphere in both the vapor and particulate phases, and will be lost mainly by rainout and dry deposition [1].

HUMAN TOXICITY

General. Long-term effects include possible liver and kidney damage. May cause teratogenic, embryotoxic, and fetotoxic effects [2]. Silvex is structurally similar to 2,4,5-T, and like 2,4,5-T, may contain or may have at one time contained 2,3,7,8-TCDD (dioxin) as a contaminant. Among other things, this confounds the reported experimental findings [2,3]. The USEPA has placed silvex in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [4].

Oral Exposure. A chronic RfD of 0.008 mg/kg/day is based on a NOEL of 0.75 mg/kg/day and a LOAEL of 2.5 mg/kg/day for histopathological changes in the liver following chronic oral administration to dogs [4]. The acute oral LD_{50} is 650 mg/kg for rats, and 276 mg/kg for mice. Signs of acute toxicity include depression, posterior quarter muscle weakness, irritation of the stomach, and minor liver and kidney damage. Humans receiving an oral dose of 1 mg/kg exhibited no adverse effects. Pregnant rats exposed orally to 25-100 mg silvex/kg/day on days 6 to 15 of gestation produced malformed fetuses. Embryotoxic and fetotoxic effects were also noted following oral administration [2].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for silvex [4,5]. No other data were available on adverse effects resulting from inhalation of silvex.

Dermal Exposure. Human dermal absorption of silvex is estimated to range from <0.001 to 0.095 mg/kg/hr. The acute dermal LD_{50} for rabbits was reported to be 3,200 mg/kg [2]. It is irritating to eyes, skin, and mucous membranes [3].

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PESTICIDES/PCB'S
TOXICITY PROFILES

ALDRIN/DIELDRIN

GENERAL

Aldrin and dieldrin are structurally similar man-made insecticides. Additionally, dieldrin is a breakdown product of aldrin, resulting from biodegradation. Aldrin is rapidly converted to dieldrin in the environment. Humans and animals exposed to aldrin metabolize it into dieldrin [1].

CAS NUMBERS

Aldrin	309-00-2
Dieldrin	60-57-1

COMMON SYNONYMS

Aldrin	HHDN
Dieldrin	HEOD

ANALYTICAL CLASSIFICATION

Pesticide (organic)

PHYSICAL AND CHEMICAL DATA

	Aldrin	Dieldrin
Water Solubility (mg/L at 20°C) [2]:	0.02	0.17
Vapor Pressure (mm Hg at 20°C) [2]:	3.75×10^{-5}	3.75×10^{-6}
Henry's Law Constant (atm-m^3/mole) [2]:	4.69×10^{-4}	5.8×10^{-5}
Specific Gravity [1]:	1.70 (at 20°C)	1.75 (at 25°C)
Organic Carbon Partition Coefficient [1]:	48,978	7,413

FATE DATA: HALF-LIVES

	Aldrin	Dieldrin
Soil: [3]	3 wk to 1.6 yr	175 da to 3 yr
Air: [3]	55 min to 9.1 hr	4 hr to 1.7 da
Surface Water: [3]	3 wk to 1.6 yr	175 da to 3 yr
Groundwater: [3]	1 da to 3.2 yr	1 da to 6 yr

NATURAL SOURCES

None noted [2].

ARTIFICIAL SOURCES

Insecticides; dieldrin is also an environmental degradation product of aldrin [2].

FATE AND TRANSPORT

Aldrin is no longer produced or used in the United States. Since it is readily converted to dieldrin in the environment, there should be relatively little left. Aldrin is considered to be moderately persistent. Biodegradation of aldrin should be slow and it should not leach to groundwaters. Photooxidation in water is significant. Reaction with hydroxyl radicals in air should be rapid.

Dieldrin is an extremely persistent compound. Releases of dieldrin to soils may persist for periods exceeding 7 years. The low water solubility and high K_{oc} values make leaching into groundwaters unlikely even over long periods of time at elevated temperatures. Soil runoff may carry particle-adsorbed dieldrin to the water system. Dieldrin in water systems will not undergo hydrolysis or appreciable biodegradation; photoarrangement to photodieldrin is a possibility. Adsorption to sediments/suspended solids in waters, and moderate to significant bioconcentration in aquatic organisms are predicted to be important transport/fate mechanisms. At low water flow conditions, the main "sink" for dieldrin in water systems will be the sediment (via desorption and pore water diffusion through sediments). Evaporation from waters may be an important process. Volatilization from soils, slight in any case, will increase as the moisture content of the soils increases. Dieldrin in the atmosphere is probably associated with particulate matter, given the low vapor pressure and high K_{oc} values of dieldrin, and may be transported over long distances. Vapor-phase dieldrin in the atmosphere may undergo photodegradation to photodieldrin although it is not expected to be an important process [2].

HUMAN TOXICITY

General. Aldrin and dieldrin are absorbed by oral, inhalation, and dermal routes of exposure. Exposure to very high levels of aldrin and/or dieldrin for a short time causes convulsions and/or kidney damage. Exposure to lower levels for a longer time may also cause convulsions. Human deaths following exposure have been documented [1]. The USEPA has placed both aldrin and dieldrin in weight-of-evidence Group B2, indicating that they are probable human carcinogens [4].

Oral Exposure. A chronic RfD for aldrin of 0.00003 mg/kg/day is based on a LOAEL of 0.025 mg/kg/day for liver toxicity in a chronic feeding study in rats. A chronic RfD of 0.00005 mg/kg/day for dieldrin is based on a NOAEL of 0.005 mg/kg/day for liver lesions in a chronic feeding study in rats [4]. Aldrin and dieldrin are absorbed from the gastrointestinal tract, but the rate and extent of absorption have not been fully characterized. Oral LD_{50} values in rats reportedly range from 39 to 60 mg/kg/day for aldrin, and 37 to 46 mg/kg/day for dieldrin, indicating a fairly high level of toxicity. Decreased survival in dogs exposed for 25 months was observed at a level of 1 mg/kg/day for aldrin, and a level of 0.5 mg/kg/day for dieldrin. Adverse central nervous system effects have been observed in humans and animals following oral exposure to aldrin and/or dieldrin. Several cases of aldrin and dieldrin poisoning in humans, including deaths, have been reported [1]. An oral slope factor of 17 $(mg/kg/day)^{-1}$ for aldrin is based on liver carcinomas observed in mice maintained on a treated diet. An oral slope factor of 16 $(mg/kg/day)^{-1}$ for dieldrin is based on liver carcinomas observed in mice maintained on a treated diet [4].

Inhalation Exposure. The USEPA does not currently provide inhalation RfCs for aldrin or dieldrin [4,5]. Although quantitative data are lacking, it appears that aldrin is readily absorbed in the mammalian lung. Central nervous system symptoms reported by workers involved in the manufacture and application of aldrin and/or dieldrin included headaches, dizziness, hyperirritability, general malaise, nausea and vomiting, anorexia, muscle twitching, and myoclonic jerking [1]. An inhalation unit risk of 0.0049 $(mg/m^3)^{-1}$ for aldrin was calculated based on the oral study. An inhalation unit risk of 0.0046 $(mg/m^3)^{-1}$ for dieldrin was calculated based on the oral study [4].

Dermal Exposure. Dermal absorption of aldrin and dieldrin in skin is rapid for rats, and appears to be rapid in humans as well. Central nervous system symptoms reported by workers involved in the manufacture and application of aldrin and/or dieldrin included headaches, dizziness, hyperirritability, general malaise, nausea and vomiting, anorexia, muscle twitching, and myoclonic jerking [1].

ECOLOGICAL TOXICITY

General. Both aldrin and dieldrin were developed and widely used as insecticides. As would be expected from this class of compounds, both chemicals have a high environmental toxicity for invertebrates and are also quite toxic to fish, birds, and mammals. They also shows strong tendencies for bioaccumulation, with bioconcentration factors on the order of 10^5 in fish tissue, ostracods, and snails; 10^3 in algae, freshwater vascular plants (*Elodea*), and clams; and 10^2 for crabs [6]. As a result, the use and manufacture of these chemicals has been prohibited in the United States since the 1970's.

Vegetation. In soils, aldrin is volatilized or slowly transformed to dieldrin. In studies reviewed by Micromedex, Inc. [7], the half-life of aldrin in soils was reported in one source to be from 20 to 100 days, while another source reported a 2- to 3-month half-life for the first half year, and 9 months to 13 months for the following 3 years. Although aldrin has some affinity for soil particles, it is not strongly adsorbed like many other organochlorines. It therefore is more bioavailable to plants than are many other members of this chemical group.

Sax [8] states that aldrin has no phytotoxicity to irrigable plants when it is used in the proper formulation. This appears to be demonstrated by studies that involved the application of a 5-percent solution of aldrin to *Viburnum lantana* (a woody shrub) with resulting injury to only 15 percent of the test species [9]. Corn seed soaked in aldrin at a rate of 2 ounces per bushel had a 40 percent decrease in germination [10].

Data summarized by Micromedex, Inc. [7] indicate that dieldrin in the environment is very persistent, having a half-life in soils of 7 years. Biodegradation and hydrolysis are unimportant processes, and losses occur only through slow photodegradation at the soil surface or the volatilization of small amounts from soil.

No data on the phytotoxicity of dieldrin were found. However, its widespread application to corn and other crops for many years without reports of decreased crop germination, growth, or yields indicates a low level of phytotoxicity. Dieldrin is strongly adsorbed to soils, and is immobile even with high temperatures and prolonged leaching [7]. As a result, this compound is not readily bioavailable for plant uptake.

Aquatic Life. The federal aquatic life criterion for dieldrin for the chronic protection of freshwater aquatic life is 0.0019 μg/L.

Aldrin and dieldrin are highly toxic to aquatic invertebrates and fish. For example, studies cited in the USEPA "Red Book" [6] show 96-hour LC_{50}s (acute toxicities) of dieldrin for invertebrates of 0.2 μg/L to 0.3 μg/L. Micromedex, Inc. [7] shows 96-hour LC_{50}s of dieldrin for invertebrates ranging from 0.9 to 6,700 μg/L and most 96-hour LC_{50}s of aldrin for invertebrates between 1.3 μg/L and 50 μg/L. Dieldrin is acutely toxic to frog and toad tadpoles at 100 to 150 μg/L [7]. Acute toxicities to common freshwater fish species such as bluegill, trout, largemouth bass, and catfish typically range from 1 to 20 μg/l [6,7]. Generally, an application factor of 0.01 is used to convert acute toxicities to criteria that provide for the chronic protection of aquatic life [6].

A major concern for aquatic life is the bioconcentration of dieldrin. (Aldrin has a negligible bioconcentrating effect because it is rapidly converted to dieldrin by aquatic organisms [6]. Studies cited in the Red Book showed bioconcentration factors on the order of 10^5 in fish tissue, ostracods, and snails; 10^3 in algae, freshwater vascular plants (*Elodea*), and clams; and 10^2 for crabs [6].

Wildlife. Toxicity of aldrin and dieldrin to non-human mammals is indicated by the human toxicity information presented earlier, which was based on studies of rodents and dogs. The lethal dose of dieldrin by ingestion for mule deer was 75 mg/kg to 100 mg/kg [7]. Adverse effects on deer occurred with long-term feeding at 2 ppm dieldrin [6]. In the mammalian body, dieldrin accumulates chiefly in the adipose tissue where some bioconcentration occurs [8]. For example, in cattle and swine, the adipose tissue concentrations of dieldrin after 28 days were approximately twice the concentrations in the animals' feed [8].

Birds are also susceptible to aldrin and dieldrin poisoning. Studies summarized in Micromedex, Inc. [7] showed that ring-necked pheasant, bobwhite quail, Japanese quail, grey partridge, and house sparrows had 5-day LC_{50}s for ingestion of dieldrin ranging from 10 to 80 mg/kg. Waterfowl appeared to be more tolerant of this compound, with 5-day LC_{50}s of 100 to 380 mg/kg. Aldrin was toxic to bird species at concentrations ranging from 6 to 520 mg/kg. In long-term feeding studies, 1 ppm of dieldrin affected reproduction in Hungarian partridge, and slight eggshell thinning was noted in mallards fed 3 ppm dieldrin.

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CHLORDANE

CAS NUMBER

57-74-9 for nonstereospecific chlordane; 5103-71-9 for cis- or alpha-chlordane; 5103-74-2 for trans- or gamma-chlordane

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Pesticide (organic).

PHYSICAL AND CHEMICAL DATA

Water Solubility: 0.056 - 0.1 mg/L at 25°C [1]
Vapor Pressure: 3.0 x 10^{-6} to 4.6 x 10^{-4} mm Hg at 25°C [1]
Henry's Law Constant: 4.85 x 10^{-5} to 1.3 x 10^{-3} atm-m^3/mole [1]
Specific Gravity: 1.59 - 1.63 at 25°C [2]
Organic Carbon Partition Coefficient: 15,500 - 24,600 [1]

FATE DATA: HALF-LIVES

Soil: 283 days - 3.8 years [3]
Air: 5.2 hours - 2.2 days [3]
Surface Water: 283 days - 3.8 years [3]
Groundwater: 1.6 - 7.6 years [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Chlordane was used in the past as an insecticide [1].

FATE AND TRANSPORT

Chlordane may persist for long periods of time if released to soil. Given the high K_{oc} value, chlordane is expected to be generally immobile or only slightly mobile in soil; however, movement into groundwater may occur. Chlordane may volatilize from surface soils on which it has been sprayed, particularly if the soil is moist. Incorporation into shallow soils, however, will greatly reduce volatilization. If released to water, chlordane is not expected to undergo significant hydrolysis, oxidation or photolysis. Adsorption to sediment will inhibit volatilization. Chlordane is biotransformed very slowly and has a high potential to bioconcentrate (BCF for fish: 8,320-11,500). In the air, chlordane will be predominantly in the vapor phase. Long range transport of chlordane through the atmosphere is known to occur [1].

HUMAN TOXICITY

General. The major target of chlordane toxicity is the central nervous system [4,5]. Chlordane is generally considered nonmutagenic. The USEPA has placed chlordane in weight-of-evidence cancer Group B2, indicating that it is a probable human carcinogen [6].

Oral Exposure. A chronic oral RfD of 0.00006 mg/kg/day is based on a NOEL of 0.055 mg/kg/day for regional liver hypertrophy in a chronic study in rats [6]. Chlordane is readily absorbed following oral exposure. Acute oral LD_{50} values of 200 to 335 mg/kg in rats and 1720 mg/kg in hamsters have been reported [4,5]. The fatal oral dose for adults is estimated to be between 86 and 860 mg/kg, with the onset of symptoms within 45 minutes to several hours after ingestion [4,5]. Acute symptoms include vomiting, diarrhea, seizures, coma and respiratory failure [5]. Convulsive symptoms have occurred at doses of 32 mg/kg [5]. Chronic animal studies suggest chlordane causes liver and kidney damage, but these findings have not been observed with long-term human exposure [4,5]. Information regarding the effects of ingested chlordane on human reproduction and development are not available, but animal studies indicate that exposure to high doses for several generations results in decreased fertility and viability of the offspring [5]. There is no evidence that ingestion of chlordane causes cancer in humans, but studies in animals suggest that oral exposure to chlordane may result in liver cancer [4]. An oral slope factor of 1.3 $(mg/kg/day)^{-1}$ is based on the increase in the incidence of liver cancer in mice [6].

Inhalation Exposure. An inhalation RfC for chlordane is currently under review by the USEPA [6]. Chlordane is readily absorbed following inhalation exposure. An acute inhalation LC_{50} value of 100 mg/m^3 is reported for a 4-hour exposure in cats [5]. Inhaled chlordane has not been reported to be fatal to humans. Symptoms associated with accidental inhalation exposure to chlordane include headache, dizziness, vision problems, incoordination, excitability, weakness, muscle twitching, convulsions, gastrointestinal effects, and jaundice [4,5]. The exposure concentration necessary to elicit these effects is not known. Several epidemiologic studies involving occupational exposure to chlordane do not provide any evidence of increased cancer mortality, although anecdotal reports suggest a relationship between exposure to chlordane and a noncancer blood disease, acute leukemia, and development of malignant tumors in children. An inhalation unit risk of 0.00037 $(\mu g/m^3)^{-1}$ was extrapolated from the oral slope factor [6].

Dermal Exposure. Acute dermal LD_{50} values of 690 to 840 mg/kg in rats and 780 to 1150 mg/kg in rabbits have been reported [4]. Dermal exposure to chlordane has been reported to be fatal to humans, but the fatal dose is not known. Chlordane is rapidly absorbed through the skin [5]. Effects on the central nervous system similar to those reported following other routes of exposure have been reported following dermal exposure to chlordane [4,5].

ECOLOGICAL TOXICITY

General. Chlordane was widely used as an insecticide until 1975, when the USEPA severely limited its use in the United States [7]. As would be expected from this class of compounds, it has a high environmental toxicity to invertebrates and is also quite toxic to fish, birds, and mammals. It also shows strong tendencies for bioaccumulation, with bioconcentration factors on the order of 10^3 to 10^5 for both plants and animals. Its persistence in the environment, its ability to bioconcentrate in almost all classes of biota, and its ability to biomagnify through the food chain make chlordane a greater ecological risk than most other organochlorines.

Vegetation. Sax [8] summarized several articles that studied the effects of chlordane on plants. According to this source, Probst and Everly [9] found no effect to mature soybeans or to harvest yield from the application of chlordane at a rate of 2.1 pounds per acre (which translates to a concentration in near-surface soils of approximately 1 ppm). Juska [10] found decreased germination of *Poa annua* (annual bluegrass) seeds in soils treated with chlordane at a rate of 260 pounds per acre (about 130 ppm in near-surface soils) and in *Poa pratensis* (Kentucky bluegrass) seeds in soils with chlordane applications of 87 pounds per acre (about 40 ppm in near-surface soils). Sources reviewed by Eisler [11] found that low (0.1 to 100 μg/L) concentrations of chlordane stimulated the growth of simple freshwater plants like blue-green and green algae, but that growth was inhibited by higher concentrations [12,13]. These data indicate that chlordane has relatively low toxicities to plants compared to its effects on animals.

Chlordane has been shown to bioconcentrate in both terrestrial and aquatic plants. Studies summarized in Eisler [11] showed dry-weight concentrations in corn stalks and kernels of 1,260 μg/kg and 480 μg/kg, respectively. Dry-weight concentrations in sorghum were 420 μg/kg. Bioconcentration factors of 10^4 were reported in green algae [14]. Although in-tissue concentrations of chlordane may not be toxic to the plants, they could be important as sources of chlordane in higher trophic levels.

Aquatic Life. The federal aquatic life criterion for chlordane for the chronic protection of freshwater aquatic life is 0.0043 μg/L [15].

These standards derive from the high toxicity of chlordane to aquatic invertebrates and fish. For example, studies show that 96-hour LC_{50}s (acute toxicities) for invertebrates are usually between 4 μg/L and 40 μg/L [7,14,17]. Most 96-hour LC_{50}s for fish are in a similar range, falling between 10 μg/L and 60 μg/L [7,14,17]. Eisler [11] reports that water concentrations between 0.2 μg/L and 3 μg/L were harmful (chronic toxicity) to various species of fish and aquatic invertebrates. Generally, an application factor of 0.01 is used to convert acute toxicities to criteria that provide for the chronic protection of aquatic life [7].

A major concern to aquatic life is the bioconcentration of chlordane. Studies show bioconcentration factors for invertebrates and fish generally ranging from 10^3 to 10^5 [7,8,14,18]. The USEPA [17] cites data showing half lives for the elimination of chlordane in invertebrates and fish in the range of 2 to 3 days. However, most other sources indicate biological half lives in aquatic life of 4.4 weeks to 20 weeks [11,14,16]. One study reported in Eisler [11] estimated that 99 percent of alpha-chlordane remained in goldfish tissues after 25 days. Generally, alpha-chlordane persisted longer in tissue than did gamma-chlordane [11]. Bioaccumulation of chlordane is important both because the chemical can build up to toxic concentrations in the animal's tissues and because it serves as a source of toxic levels of chlordane to higher trophic levels.

Although the use of chlordane has been highly restricted since 1975, substantial concentrations of chlordane were detected in fish samples collected a decade later. Data presented in Eisler [11] show that numerous samples of whole fish, fish muscle, or fish eggs collected in the United States in the mid-1980's had chlordane concentrations in excess of 1,000 μg/kg wet weight, and some values were greater than 5,000 μg/kg wet weight. These values exceeded both the guideline for protection of predatory fish of 0.1 mg/kg fresh weight and the Food and Drug Administration's action level of 0.3 mg chlordane per kg of fresh weight for protection of human health [11].

<u>Wildlife.</u> Toxicity of chlordane to non-human mammals is indicated by the human toxicity information presented earlier, which was based on studies of rodents and rabbits. In warm-blooded animals, chlordane is transformed to oxychlordane and/or heptachlor epoxide, both of which are more toxic and persistent than chlordane [11]. (See the discussion on heptachlor epoxide in the heptachlor profile). Chlordane and its metabolites accumulate chiefly in the adipose tissue but are also found in the liver, kidney, brain, and muscle [11,14]. The half-life of chlordane in the mammalian body is reported as ranging from 1 day to 88 days [11,14]. The half-life for oxychlordane in mammals is about 92 days [11].

Birds are also susceptible to chlordane poisoning. Studies summarized in Micromedex Inc. [14] showed that mallards, ring-necked pheasants, bobwhite quail, and Japanese quail had 5-day LD_{50}'s for ingestion of chlordane ranging from 330 ppm to 850 ppm. However, Eisler [11] reports that sensitive bird species had reduced survival on diets containing chlordane at 1.5 mg/kg.

Some chlordane isomers persist in avian tissues for lengthy periods. For example, the biological half-lives of alpha-chlordane, cis-nonachlor (a chlordane metabolite) and oxychlordane in northern gannets were estimated to be 11.2, 19.4, and 35.4 years, respectively [11]. As recently as 1986, maximum brain tissue concentrations of these compounds in many species of debilitated birds collected in New York were above 2,000 μg/kg fresh weight, with some values above 8,000 μg/kg. Affected species included hawks, herons, jays, owls, robins, grackles, bluebirds, and starlings [11]. Lethal exposures of birds to chlordane in the environment occurred at least a decade after the use of this chemical was restricted, with chlordane implicated as the principal toxicant in 30 pesticide poisonings of hawks, owls, herons, and other birds in New York between 1982 and 1986 [11]. Secondary poisonings of raptors after consumption of prey that had accumulated large quantities of chlordane also have been documented [11].

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4,4'-DDE

CAS NUMBER

72-55-9

COMMON SYNONYMS

p,p' - DDE; 4,4-Dichlorodiphenylchloroethane; 1,1-Dichloro-2,2-bis(p-ethylphenyl) ethane; 1,1'-(2,2-Dichloroethylidene)bis[4-ethylbenzene] [1]

ANALYTICAL CLASSIFICATION

Pesticide (organic).

PHYSICAL AND CHEMICAL DATA

Water Solubility: 0.12 mg/L at 25°C [2]
Vapor Pressure: 6.50 x 10E-6 mm Hg at 20°C [2]
Henry's Law Constant: 6.8 x 10^{-5} atm-m^3/mole [2]
Specific Gravity: ND [2]
Organic Carbon Partition Coefficient: 4,400,000 [2]

FATE DATA: HALF-LIVES

Soil: 2 - 15.6 years [3]
Air: 17.7 hours - 7.4 days [3]
Surface Water: 15 hours - 6.1 days [3]
Groundwater: 16 days - 31.3 years [3]

NATURAL SOURCES

None noted [1].

ARTIFICIAL SOURCES

Insecticide [1].

FATE AND TRANSPORT

Like 4,4-DDD and 4,4-DDT, 4,4-DDE is a highly stable compound. Generally, it is resistant to photodegradation and/or oxidation [1]. Given the high K_{oc} value, 4,4-DDE is expected to adsorb tightly to soils and sediments/suspended solids in waters. In addition to the high K_{oc} value, the low level of solubility suggests little probability of groundwater infiltration via leaching through soils. The low vapor pressure and Henry's Law constant values suggest little tendency to volatilize from soils and/or waters. 4,4-DDE has a high bioconcentration factor (51,000), indicating that it is expected to readily bioconcentrate in aquatic organisms [4]. Biodegradation, aerobic or anaerobic, is expected to be slow.

HUMAN TOXICITY

General. Typically, individuals are exposed to a mixture of 4,4-DDT, 4,4-DDE and 4,4-DDD, and not to the compounds individually. Both 4,4-DDE and 4,4-DDD are contaminants, as well as degradation and metabolic products, of 4,4-DDT [2]. Most of the available toxicity data deal with 4,4-DDT. The major targets of the three compounds are the central nervous system (CNS) and the liver [2]. Data regarding the genotoxicity of the compounds are equivocal, but chromosomal damage has been observed in exposed individuals [2]. The USEPA placed 4,4-DDT, 4,4-DDE and 4,4-DDD in weight-of-evidence Group B2, indicating that they are probable human carcinogens [6].

Oral Exposure. A chronic oral RfD is currently not available for 4,4-DDE [6]. 4,4-DDE is readily absorbed following oral exposure [2]. Acute oral LD_{50} values of 880 to 1240 mg/kg were reported for male and female rats, respectively, and a range of 700 to 1000 mg/kg was reported in mice [5]. Symptoms of acute exposure were not reported, but toxic effects on the liver (necrosis) and CNS (tremors, ataxia, loss of equilibrium) have resulted in animals following long-term oral exposure [5]. In one study in humans, no adverse effects were noted in an individual given 5 mg (0.07 mg/kg/day) 4,4-DDE orally for 92 days [5]. Limited animal studies indicate that 4,4-DDE is not likely to affect reproduction or development. There is no evidence that 4,4-DDE causes cancer in humans, but studies in animals suggest that oral exposure may result in liver cancer [5]. The USEPA derived an oral slope factor of 0.34 $(mg/kg/day)^{-1}$ based on the incidence of liver tumors in animals [6].

Inhalation Exposure. A chronic inhalation RfC is not available for 4,4-DDE [6]. Inhalation of 4,4-DDE is considered to be a minor route of entry because 4,4-DDE is a large particle and, when inhaled, is trapped in the upper regions of the respiratory tract and eventually swallowed [2]. Data are not available regarding the toxicity of inhaled 4,4-DDE in humans or animals [2].

Dermal Exposure. No useful information was located regarding dermal exposure to 4,4-DDE.

ECOLOGICAL TOXICITY

General. 4,4-DDE is an impurity in 4,4-DDT and also is formed as a degradation product of 4,4-DDT [7]. It is not manufactured as a commercial product [8]. As would be expected from this class of compounds, 4,4-DDE has a high environmental toxicity to invertebrates and is also quite toxic to fish, birds, and mammals. However, the primary concerns related to 4,4-DDE are its persistence in the environment, its ability to bioconcentrate in almost all classes of biota, and its capacity to biomagnify through the food chain. These problems are particularly serious because, unlike 4,4-DDT and 4,4-DDD, 4,4-DDE in biota appears to be a stable end product incapable of being further degraded by biotransformation [8]. This characteristic results in 4,4-DDE being detected in 90 to 100 percent of fish and bird samples collected throughout the United States at least 11 years after the use of 4,4-DDT was banned [7].

Vegetation. Although no data were found on the phytotoxicity of DDE, the risk of this compound to plants is probably low. According to Micromedex, Inc. [7], enough 4,4-DDT was produced to cover all of the arable land in the world with this compound and its metabolites, 4,4-DDD and 4,4-DDE, at a rate of 1.5 pounds per acre. Despite the abundance of these chemicals, the scientific literature is virtually devoid of information on phytotoxicity. This implies that 4,4-DDE has low toxicity to plants.

Like 4,4-DDT, 4,4-DDE bioconcentrates in aquatic plants. Studies summarized by the USEPA [8] and Micromedex, Inc. [7] show bioconcentration factors in algae of 10^3 to 10^4. Tissue concentrations in aquatic vascular plants of 2 μg/kg dry weight were found in Finnish lakes. Although in-tissue concentrations of 4,4-DDE may not be toxic to the plants, they are important as sources of 4,4-DDE in higher trophic levels. Concerning the structurally similar compound 4,4-DDT, Johnson and Finley [9] state that "Food seems to be more important than water as a source of body residues," while a study on DDE summarized by the USEPA [8] found concentration factors of 10^4 in mosquito larvae and fish exposed in a food-chain microcosm, but only 10^2 through aquatic exposure where a food chain did not exist.

Aquatic Life. The USEPA has not established a criterion for 4,4-DDE for the chronic protection of freshwater aquatic life. However, because of the chemical similarities between 4,4-DDE and 4,4-DDT, it is assumed that the 4,4-DDT criteria would provide adequate protection if applied to 4,4-DDE. The federal aquatic life criterion for 4,4-DDT for the chronic protection of freshwater aquatic life is 0.001 μg/L [10].

4,4-DDE appears to be slightly less toxic to fish than 4,4-DDT. Acute toxicities (96-hour LC_{50}s) from 4,4-DDE for freshwater fish summarized by Micromedex, Inc. [7] ranged from 32 μg/L to 240 μg/L. Acute toxicities for 4,4-DDT for fish seldom exceeded 10 μg/L. No data were found concerning acute toxicities of 4,4-DDE to aquatic invertebrates.

A major concern to aquatic life is the bioconcentration of 4,4-DDE. Studies reported by the USEPA [8] and Micromedex, Inc. [7] show bioconcentration factors for invertebrates and fish generally ranging from 10^3 to 10^5. Bioaccumulation of 4,4-DDE is important both because the chemical can build up to toxic concentrations in the animal's tissues and because it serves as a source of toxic levels of 4,4-DDE to higher trophic levels. In fish collected from Great Lakes watersheds in the early 1980's, 94 percent were positive, with 4,4-DDE concentrations ranging from 15 to 5,800 ppb [7]. More than 30 percent of snapping turtles from waters in New York had 4,4-DDE concentrations of greater than 5 ppm [7].

Wildlife. Toxicity of 4,4-DDE to non-human mammals is indicated by the human toxicity information presented earlier, which was based on studies of rodents. In the body, 4,4-DDE accumulates chiefly in the adipose tissue, but is also found in significant concentrations in liver, brain, and muscle tissues [11].

Birds are also susceptible to 4,4-DDE poisoning. Studies summarized by Micromedex, Inc. [7] showed that mallards, ring-necked pheasant, bobwhite quail, and Japanese quail had 5-day LD_{50}'s for ingestion of 4,4-DDE ranging from 825 to 3,572 ppm. Bioaccumulation also occurs in birds. In other studies summarized by Micromedex, Inc. [7], 100 percent of 293 dead or moribund bald eagles collected in the United States from 1978 through 1981 tested positive for 4,4-DDE and had median carcass concentrations of 4,4-DDE each year of 2.4 to 3.3 ppm. Mean 4,4-DDE concentrations in Pacific black ducks were 331 ppm in fat, 42 ppm in wings, 10 ppm in liver, and 2.1 ppm in brain [7]. However, the greatest environmental threat to birds from 4,4-DDE is associated with eggshell thinning and related reproduction failure. Studies cited by Micromedex, Inc. [7] showed 100 percent of black-crowned night heron eggs collected from Colorado and Wyoming in 1979 contained concentration of 4,4-DDE ranging from 0.33 to 44 ppm (wet weight) as did 98 percent of colonial waterbirds eggs collected from Green Bay and Lake Michigan between 1975 and 1980 (0.30 to 44 ppm wet weight). Steep declines in populations of birds such as eagles, peregrine falcons, ospreys, and brown pelicans that occupy upper trophic levels prompted the United States and many other developed countries to ban the use of 4,4-DDT in the early 1970's.

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4,4'-DDD

CAS NUMBER

72-54-8

COMMON SYNONYMS

p,p' - DDD; 4,4-Dichlorodiphenyldichloroethane; 1,1-Dichloro-2,2-bis(p-chlorophenyl) ethane; 1,1'-(2,2-Dichloroethylidene)bis[4-chlorobenzene]

ANALYTICAL CLASSIFICATION

Pesticide (organic)

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble (maximum 0.16 mg/L at 25°C) [1]
Vapor Pressure: 10.2 x 10^{-7} mm Hg at 30°C [1]
Henry's Law Constant: 7.96E-6 atm-m^3/mole [2]
Specific Gravity: 1.385 gm/m^3 [1]
Organic Carbon Partition Coefficient: 770,000 [1]

FATE DATA: HALF-LIVES

Soil: 2 - 15.6 years [3]
Air: 17.7 hours - 7.4 days [3]
Surface Water: 2 - 15.6 years [3]
Groundwater: 70 days - 31.3 years [3]

NATURAL SOURCES

None noted [4].

ARTIFICIAL SOURCES

Contact insecticide; pediculicide [4].

FATE AND TRANSPORT

Like 4,4-DDE and 4,4-DDT, 4,4-DDD is a highly stable compound difficult to remove from soils and waters. It is resistant to photodegradation and/or oxidation [4]. Given the high K_{oc} value, 4,4-DDD would be expected to adsorb very tightly to soils and sediments/suspended solids in waters. In addition to the high K_{oc}, the low level of solubility suggests little probability of groundwater infiltration via leaching. The low values associated with this compound for vapor pressure and Henry's Law constant suggest little tendency to volatilize from soils or waters. The bioconcentration of similar compounds (namely, 4,4-DDE and 4,4-DDT) suggests that this compound is likely to bioconcentrate. Biodegration, aerobic or anaerobic, is expected to be slow [1].

HUMAN TOXICITY

General. Typically, individuals are exposed to a mixture of 4,4-DDT, 4,4-DDE and 4,4-DDD, and not to the compounds individually. Both 4,4-DDE and 4,4-DDD are contaminants, as well as degradation and metabolic products, of 4,4-DDT [1]. Most of the available toxicity data deal with 4,4-DDT. The major targets of the three compounds are the central nervous system (CNS) and the liver [1]. Data regarding the genotoxicity of the compounds are equivocal [1,5]. The USEPA placed 4,4-DDT, 4,4-DDE and 4,4-DDD in weight-of-evidence cancer Group B2, indicating that they are probable human carcinogens [6].

Oral Exposure. A chronic oral RfD is currently not available for 4,4-DDD [6]. 4,4-DDD is readily absorbed following oral exposure [1]. An oral LD_{50} value of 113 mg/kg is reported for rats [5]. It is not known whether oral exposure to 4,4-DDD will result in effects on human reproduction or development. There is no evidence that 4,4-DDD causes cancer in humans, but studies in animals suggest that oral exposure results in liver cancer [5]. The USEPA derived an oral slope factor of 0.24 $(mg/kg/day)^{-1}$ based on the incidence of liver tumors in mice [6].

Inhalation Exposure. A chronic inhalation RfC is not available for 4,4-DDD [6]. Inhalation of 4,4-DDD is considered to be a minor route of entry because 4,4-DDD is a large particle and, when inhaled, is trapped in the upper regions of the respiratory tract and eventually swallowed [1]. Data are not available regarding the toxicity of inhaled 4,4-DDD in humans or animals [1].

Dermal Exposure. Dermal LD_{50} values in rabbits range from 1200 to 5000 mg/kg [1,5]. Further information regarding the toxicity of dermal exposure to 4,4-DDD were not located.

ECOLOGICAL TOXICITY

General. 4,4-DDD was widely used as an insecticide until 1972, when its use in the United States was banned. However, it is still manufactured and used elsewhere in the world. It is also produced from the anaerobic decomposition of 4,4-DDT in the environment [7].

As would be expected from this class of compounds, 4,4-DDD has a high environmental toxicity to invertebrates and is also quite toxic to fish, birds, and mammals. However, the primary concerns related to 4,4-DDD are its persistence in the environment, its ability to bioconcentrate in almost all classes of biota, and its capacity to biomagnify through the food chain.

Vegetation. Although no data was found on the phytotoxicity of 4,4-DDD, the risk of this compound to plants is probably low. According to Micromedex, Inc. [8], enough 4,4-DDT was produced to cover all of the arable land in the world with this compound and its metabolites 4,4-DDD and 4,4-DDE at a rate of 1.5 pound per once. Despite the abundance of these chemicals, the scientific literature is virtually devoid of information on phytotoxicity. This implies that 4,4-DDD has low toxicity to plants.

Like 4,4-DDT, 4,4-DDD bioconcentrates in aquatic plants. Studies summarized by Micromedex, Inc. [8] show a bioconcentration factor in algae of more than 6,200. Tissue concentrations in aquatic vasuclar plants of 0.5 μg/kg dry weight were found in Finnish lakes. Although in-tissue concentrations of DDT may not be toxic to the plants, they are important as sources of 4,4-DDD in higher trophic levels. Concerning the structurally similar compound 4,4-DDT, Johnson and Finley [9] state that "Food seems to be more important than water as a source of body residues," while a study on DDE (another metabolite of DDT with a similar chemical structure) summarized by the USEPA [7] found concentration factors of 10^4 in mosquito larvae and fish exposed in a food-chain microcosm, but only 10^2 through aquatic exposure where a food chain did not exist.

Aquatic Life. The USEPA has not established a criterion on 4,4-DDD for the chronic protection of freshwater aquatic life. However, because of the chemical simularities between 4,4-DDD and 4,4-DDT, it is assumed that the 4,4-DDT criteria would provide adequate protection if applied to 4,4-DDD. The federal aquatic life criterion for 4,4-DDT for the chronic protection of freshwater aquatic life is 0.001 μg/L [10].

4,4-DDD appears to be slightly less toxic to aquatic fauna than 4,4-DDT. Acute toxicities (96-hour LC_{50}s) for 4,4-DDD for freshwater aquatic invertebrates summarized by Johnson and Finley [9] and Micromedex, Inc. [8] ranged from 0.6 μg/L to 380 μg/L, with approximately half of the values above 10 μg/L. Acute toxicities for fish ranged between 18 μg/L and 70 μg/L 4,4-DDD for sensitive species such as walleye, bass, and trout, and to more than 1,500 μg/L for species such as the catfish and fathead minnow [8]. Acute toxicities for 4,4-DDT for batch invertebrates and fish seldom exceed 10 μg/L.

A major concern to aquatic life is the bioconcentration of 4,4-DDD. Studies reported by the USEPA [7] and Micromedex, Inc. [8] show bioconcentration factors for invertebrates and fish generally ranging from 10^3 to 10^5. Bioaccumulation of 4,4-DDD is important both because the chemical can build up to toxic concentrations in the animal's tissues and because it serves as a source of toxic levels of 4,4-DDD to higher trophic levels. The classic example, as reported by the USEPA [7], occurred at Clear Lake, California. This lake was treated three times from 1949 to 1957 with 4,4-DDD at concentrations of 14 and

20 ppb to control gnats. The deaths of numerous grebes (aquatic birds), found to contain up to 1,600 ppm 4,4-DDD in their fatty tissue, prompted examination of 4,4-DDD levels in fish. Analysis of nine fish species from the lake showed concentrations of DDD in edible fish ranging from 5 ppm to 221 ppm, with DDD levels in visceral fat exceeding 2,000 ppm in some samples.

Wildlife. Toxicity of 4,4-DDD to non-human mammals is indicated by the human toxicity information presented earlier, which was based on studies of rodents and rabbits. In the body, 4,4-DDD accumulates chiefly in the adipose tissue, but is also found in significant concentrations in the liver, brain, and muscle tissues [11]. Tissue concentrations of 4,4-DDD in both wild rabbits and white-tailed deer collected at 4,4-DDT-treated system fields ranged up to approximately 1.5 ppm and averaged 0.32 ppm for rabbits and 0.62 ppm for deer [8].

Birds are also susceptible to 4,4-DDD poisoning. Studies summarized in Micromedex Inc. [8] showed that mallards, ring-necked pheasant, bobwhite quail, and Japanese quail had 5-day LD_{50}s for ingestion of 4,4-DDD ranging from 445 ppm to 4,800 ppm. Bioaccumulation also occurs in birds, as evidenced by the Clear Lake incident cited earlier. In other studies summarized by Micromedex, Inc. [8], dead or moribund bald eagles collected from 32 states had median carcass concentrations of 4,4-DDD of 10.7 ppm, while ospreys collected from six eastern states had maximum wet weight 4,4-DDD concentrations of 18 ppm in both brain and carcass. However, the greatest environmental threat to birds from 4,4-DDD is associated with eggshell thinning and related reproductive failure. Studies cited by Micromedex, Inc. [8] showed 89 percent of bald eagle eggs collected from 1969 to 1979 contained measurable concentrations of 4,4-DDD, as did 16 percent of black-crowned night heron eggs collected in 1979. Steep decline in populations of birds such as eagles, peregrine falcons, as preys, and brown pelicans that occupy upper trophic levels prompted the United States and many other developed countries to ban the use of 4,4-DDD and 4,4-DDT in the early 1970's.

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4,4'-DDT

CAS NUMBER

50-29-3

COMMON SYNONYMS

p,p' - DDT; 4,4-Dichlorodiphenyltrichloroethane, 1,1-(2,2,2-Trichloroethylidene)bis[4-chlorobenzene]

ANALYTICAL CLASSIFICATION

Pesticide (organic).

PHYSICAL AND CHEMICAL DATA

Water Solubility: insoluble (maximum 0.0034 mg/L at 25°C) [1]
Vapor Pressure: 5.5 x 10^{-6} mm Hg at 20°C [1]
Henry's Law Constant: 5.13 x 10^{-4} atm-m^3/mole [1]
Specific Gravity: 0.98 - 0.99 gm/ml at 20°C [2]
Organic Carbon Partition Coefficient: 243,000 [1]

FATE DATA: HALF-LIVES

Soil: 2 - 15.6 years [3]
Air: 17.7 hours - 7.4 days [3]
Surface Water: 7 - 350 days [3]
Groundwater: 16 days - 31.3 years [3]

NATURAL SOURCES

None.

ARTIFICIAL SOURCES

Contact insecticide, pesticide [2].

FATE AND TRANSPORT

Like 4,4-DDD and 4,4-DDE, 4,4-DDT is a highly stable compound and is considered a persistent pollutant in soils and waters. It is generally resistant to photodegradation and/or oxidative processes [4]. Given the high K_{oc} value, 4,4-DDT is expected to adsorb very tightly to soils, sediments and suspended solids in waters. In addition to the high K_{oc} value, the low level of solubility suggests little probability of groundwater infiltration via leaching. The low values associated with this compound for vapor pressure and Henry's Law constant suggest little tendency to volatilize from soils or waters. The bioconcentration factor (54,000) associated with this compound suggests a readiness to bioconcentrate in aquatic organisms [5]. Biodegradation, aerobic or anaerobic, is expected to be slow [1].

HUMAN TOXICITY

General. Typically, individuals are exposed to a mixture of 4,4-DDT, 4,4-DDE and 4,4-DDD, and not to the compounds individually. Both 4,4-DDE and 4,4-DDD are contaminants, as well as degradation and metabolic products, of 4,4-DDT [1]. Most of the available toxicity data deal with 4,4-DDT. The major targets of the three compounds are the central nervous system and the liver [1]. Data regarding the genotoxicity of the compounds are equivocal [1,2]. The USEPA placed 4,4-DDT, 4,4-DDE and 4,4-DDD in weight-of-evidence Group B2, indicating that they are probable human carcinogens [6].

Oral Exposure. A chronic oral RfD of 0.0005 mg/kg/day is based on a NOEL of 0.05 mg/kg/day for liver lesions in a subchronic oral study in rats [6]. 4,4-DDT is readily absorbed following oral exposure [1]. Oral LD_{50} values in animals ranged from 87 mg/kg in rats to 400 mg/kg in guinea pigs [1,2]. The human oral LD_{50} value has been estimated at 250 mg/kg [2]. The initial symptoms of oral poisoning include a burning or prickling sensation of the mouth and face, tremor of the extremities, confusion, malaise, headache, fatigue and delayed vomiting [2]. These symptoms can occur as soon as 30 minutes after the ingestion of a large dose or as long as 6 hours after the ingestion of a small dose. Recovery is usually complete within 24 hours after poisoning. Several longer-term studies have been conducted in humans [2]; no adverse effects were observed following treatment with up to 35 mg daily (0.5 mg/kg/day) for 21.5 months. Pathological lesions of the liver and kidneys were reported in chronic studies in animals [2]. There is no evidence that 4,4-DDT affects reproduction or development in humans [1]. There is no evidence that 4,4-DDT causes cancer in humans, but studies in animals suggest that oral exposure results in liver cancer [1]. The USEPA derived an oral slope factor of 0.34 $(mg/kg/day)^{-1}$ based on the incidence of liver tumors in mice [6].

Inhalation Exposure. A chronic inhalation RfC is not available for 4,4-DDT [6]. Inhalation of 4,4-DDT is considered to be a minor route of entry because 4,4-DDT is a large particle and, when inhaled, is trapped in the upper regions of the respiratory tract and eventually swallowed [1]. In occupationally exposed workers, no overt symptoms of exposure were reported, although an increase in neurological effects was suggested [2]. Daily intake in workers was estimated to be approximately 18 mg/man (0.25 mg/kg/day) [2]. Limited, short-term inhalation studies in animals indicate that the central nervous system is the target of 4,4-DDT toxicity [2]. An inhalation unit risk of 9.7×10^{-5} was calculated from the oral slope factor [6].

Dermal Exposure. Dermal LD_{50} values ranged from 300 mg/kg in rabbits to 3000 mg/kg in rats [1,2]. Dermal contact with 4,4-DDT does not appear to cause irritation or systemic effects [2].

ECOLOGICAL TOXICITY

General. 4,4-DDT was widely used as an insecticide until 1972, when its use in the United States was banned. However, it is still manufactured and used elsewhere in the world. As would be expected from this class of compounds, 4,4-DDT has a high environmental toxicity to invertebrates and is also quite toxic to fish, birds, and mammals. However, the primary concerns related to 4,4-DDT are its persistence in the environment, its ability to bioconcentrate in almost all classes of biota, and its capacity to biomagnify through the food chain.

Vegetation. Although no data were found on the phytotoxicity of 4,4-DDT, the toxicity of this compound to plants is probably low. Since the 1940's, more than 3.5 billion pounds of 4,4-DDT have been produced, which is an amount sufficient to cover all of the arable land in the world at the rate of 1.5 pounds per acre [7]. Because of the environmental persistence of DDT and its metabolities, this application rate would have resulted in a concentration of 4,4-DDT, 4,4-DDD, and/or 4,4-DDE of approximately 750 μg/kg in arable surface soils worldwide. Despite the abundance of these chemicals, the scientific literature is virtually devoid of information on phytotoxicity. This implies that 4,4-DDT, 4,4-DDD, and 4,4-DDE have low toxcicities to plants.

4,4-DDT bioconcentrates in many species of aquatic plants. Studies summarized by Micromedex, Inc. [7] show a bioconcentration factor in *Cladophora* (a green algae) of more than 21,000. Bioconcentration factors in aquatic vasuclar plants range from approximately 500 to 14,000. Although in-tissue concentrations of 4,4-DDT may not be toxic to the plants, they are important as sources of 4,4-DDT in higher trophic levels. Johnson and Finley [8] state that "Food seems to be more important than water as a source of body residues," while a study on DDE (a metabolite of 4,4-DDT with a similar chemical structure) summarized by the USEPA [9] found concentration factors of 10^4 in mosquito larvae and fish exposed in a food-chain microcosm, but only 10^2 through aquatic exposure where a food chain did not exist.

Aquatic Life. The federal aquatic life criterion for 4,4-DDT for the chronic protection of freshwater aquatic life is 0.001 μg/L [10].

These standards derive from the high toxicity of 4,4-DDT to aquatic invertebrates and fish. For example, studies cited in Johnson and Finley [8] and Micromedex, Inc. [7] show most 96-hour LC_{50}s (acute toxicities) for both invertebrates and fish between 1 and 10 μg/L.

Generally, an application factor of 0.01 is used to convert acute toxicities to criteria that provide for the chronic protection of aquatic life [11].

A major concern to aquatic life is the bioconcentration of 4,4-DDT. Numerous studies reported by the USEPA [9] and Micromedex, Inc. [7] show bioconcentration factors for invertebrates and fish generally ranging from 10^3 to 10^5. Residue accumulations in fish of up to 2 million have been reported [11]. Bioaccmulation of 4,4-DDT is important both because the chemical can build up to toxic concentrations in the animal's tissues and because it serves as a source of toxic levels of 4,4-DDT to higher trophic levels.

Wildlife. Toxicity of 4,4-DDT to non-human mammals is indicated by the human toxicity information presented earlier, which was based on studies of rodents and rabbits. In the body, 4,4-DDT and its metabolites accumulate chiefly in the adipose tissue, but are also found in significant concentrations in the liver, brain, and muscle tissues [12]. Cattle and swine fed 25 ppm in the diet for 28 days had 4,4-DDT levels in fat of 22 ppm and 10 ppm, respectively [12].

Birds are also susceptible to 4,4-DDT poisoning. Studies summarized by Micromedex, Inc. [7] showed that mallards, ring-necked pheasant, bobwhite quail, and Japanese quail had 5-day LD_{50}s for ingestion of 4,4-DDT ranging from 300 ppm to 4800 ppm. Bioaccumulation also occurs in birds, with mean wet weight concentrations in muscle tissue from gamebirds (goose, quail, and woodcock) in several Tennessee counties ranging from 2.9 mg/kg to 9.9 mg/kg [13]. Bald eagle carcasses showed 4,4-DDT concentrations as high as 25 ppm (lipid basis), while ospreys accumulated 4,4-DDT up to 5.7 ppm (wet weight) [7]. However, the greatest environmental threat to birds from 4,4-DDT and its metabolities is associated with eggshell thinning and associated reproductive failure. Studies cited by the USEPA [11] showed that dietary intake of 4,4-DDT at more than 3 mg/kg wet weight in natural food adversely affected reproduction in captive waterfowl. By the late 1960's, populations of birds occupying upper trophic levels, such as eagles, peregrine falcons, ospreys, and brown pelicans, had declined sharply because of eggshell thinning caused by 4,4-DDT and its metabolities in the natural diet. Concerned about these declining populations lead the United States and many other developed countries to ban to use of 4,4-DDT in the early 1970's.

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ENDOSULFAN

GENERAL

Endosulfan is a widely-used insecticide. It is a mixture of two isomers, known as endosulfan I (a-endosulfan) and endosulfan II (b-endosulfan) [1]. The information presented below pertains to the mixed isomers unless otherwise specified.

CAS NUMBERS

Endosulfan	115-29-7
Endosulfan I	959-98-8
Endosulfan II	33213-65-9

COMMON SYNONYMS

Endosulfan: Thiodan, [1].

Endosulfan I: a-Endosulfan, a-Thiodan, [1].

Endosulfan II: Endosulfan, b-endosulfan, b-Thiodan, [1].

ANALYTICAL CLASSIFICATION

Pesticide.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 0.45 to 0.51 mg/L at 20°C [2]
Vapor Pressure: 1.0×10^{-5} mm Hg at 25°C [2]
Henry's Law Constant: 1.0×10^{-5} atm-m^3/mole at 25°C [1]
Specific Gravity: 1.75 [3]
Organic Carbon Partition Coefficient: 3,162 [1]

FATE DATA: HALF-LIVES

For the technical-grade mixture of endosulfan (approximately 64-76% endosulfan I and 29-32% endosulfan II).

Soil: 4.5 hours to 9.1 days [4]
Air: 2.5 to 24.8 hours [4]
Surface Water: 4.5 hours to 9.1 days [4]
Groundwater: 4.5 hours to 9.1 days [4]

NATURAL SOURCES

None [1].

ARTIFICIAL SOURCES

Non-systemic, contact insecticide. [3,5]

FATE AND TRANSPORT

Endosulfan is a colorless-to-brown crystalline solid with a sulfur dioxide odor. Technical endosulfan is composed of a-endosulfan (64 to 76%) and b-endosulfan (29 to 32%). For releases of endosulfan to soil, the primary removal/transport mechanisms will be hydrolysis and biodegradation, especially under alkaline conditions. In addition, endosulfan deposited upon the soil surface may photolyze. Given the low level of water solubility and the low sorptive capability of endosulfan, volatilization and leaching to groundwaters are not expected to be significant. For releases to surface waters, hydrolysis under alkaline conditions is expected to proceed readily; neutral and acidic waters slow the rate of hydrolysis. Biodegradation and volatilization from surface waters should also be significant removal/transport mechanisms. Products of biodegradation and/or abiotic degradation include endosulfan sulfate (the primary metabolite) under aerobic conditions, and endosulfan diol and endosulfan-a-hydroxy ether under anaerobic (methanogic) conditions. Finally, oxidation of endosulfan in waters may also be expected, to a lesser degree. Given the high K_{oc} (values from 2,344 to 6,761) and BCF (values from 2,754 to 28,840) for endosulfan, its isomers, and the primary metabolite (endosulfan sulfate), bioconcentration in aquatic organisms is expected to be significant. Atmospheric concentrations of endosulfan are predicted to undergo reaction with photochemically-produced hydroxyl radicals. Adsorption of endosulfan onto particulate matter may increase the atmospheric residence time. In addition, photolysis may also prove to be a removal mechanism for atmospheric endosulfan.

Of the two isomers endosulfan I exhibits a greater potential for bioconcentration, sorption to organic matter, and, therefore, a more limited mobility from soils to groundwater or surface water (via leaching and runoff). The main product of degradation, endosulfan sulfate, exhibits this trait of immobility and bioconcentratibility as well [2].

HUMAN TOXICITY

General. Endosulfan has caused nervous system damage and death in humans and animals. Adverse effects to the liver, kidney, blood, immune system, and reproductive organs have also been observed in laboratory animals [1]. The USEPA has not evaluated endosulfan for evidence of human carcinogenicity [6,7].

Oral Exposure. A chronic RfD of 5×10^{-5} mg/kg/day is based on an LEL of 0.15 mg/kg/day determined for kidney toxicity following oral administration in a two-generation rat reproduction study [6]. There is indirect evidence that endosulfan is absorbed following ingestion by humans. Studies in mice indicated that absorption could be as high as 78% and 85% for a- and b-endosulfan, respectively. The acute oral LD_{50} in rats ranges from 76 mg/kg for a-endosulfan to 240 mg/kg for b-endosulfan. In laboratory animals ingestion has resulted in damage to the nervous system, lungs, blood, liver, kidney, immune system, and reproductive organs in both males and females. Adverse developmental effects have also been noted. A number of human deaths have been attributed to ingestion of endosulfan, but the amounts have not been quantified. The symptoms of exposure included gagging, vomiting, diarrhea, agitation, writhing, unconsciousness, cyanosis, dyspnea, foaming of the mouth, and noisy breathing. In one case of attempted suicide, approximately 60 mg (roughly 0.86 mg/kg) was ingested by a 20-year-old man. Tachycardia, hypertension, and cardiogenic shock followed. Respiratory distress lasted about 2 weeks. [1].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for endosulfan [6,7]. Indirect evidence indicates that endosulfan is absorbed following inhalation in both humans and animals. A 4-hour LC_{50} value of 350 mg/m^3 was reported for male rats. Details on this study are lacking. Adverse neurological effects have been observed in humans following inhalation of endosulfan. However, confounding factors in these studies (e.g., chronic alcohol consumption) limit their usefulness [1].

Dermal Exposure. Animal studies provide indirect evidence that endosulfan is absorbed following dermal exposure. The dermal LD_{50} in rabbits has been reported to range from 167 to 182 mg/kg. The most prominent signs of acute overexposure to endosulfan following dermal contact are neurological; that is, muscle tremors, hyperactivity, and convulsions. Adverse effects on the liver, kidney, and blood have also been noted following dermal exposure in experimental animals [1].

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ENDRIN
ENDRIN KETONE

GENERAL

Endrin is a pesticide that has been used to control insects and rodents. It is not currently produced or sold for general use in the United States. Endrin ketone is a breakdown product of endrin [1]. Little information pertaining to endrin ketone was located; therefore, all information in this profile applies specifically to endrin unless explicitly stated otherwise.

CAS NUMBERS

Endrin	72-20-8
Endrin ketone	53494-70-5

COMMON SYNONYMS

Endrex, hexadrin, mendrin, nendrin [2,3,4]

ANALYTICAL CLASSIFICATION

Pesticide

PHYSICAL AND CHEMICAL DATA

Water Solubility: 0.25 mg/L at 25°C [1]
Vapor Pressure: 7.0×10^{-7} mm Hg [2]
Henry's Law Constant: 5.0×10^{-7} atm-m^3/mole [2]
Specific Gravity: 1.7 at 20/4°C [1]
Organic Carbon Partition Coefficient: 8,318 [2]

FATE DATA: HALF-LIVES

Soil: 4 to 14 years [2]
Air: 0.06 hours [2]
Surface Water: 4 to 14 years [2]
Groundwater: ND

NATURAL SOURCES

None noted.

ARTIFICIAL SOURCES

Insecticide; avicide; rodenticide [3,4].

FATE AND TRANSPORT

Endrin is a white, odorless, crystalline solid when pure, or a light-tan solid with a faint chemical odor when at technical- grade purity. It is soluble in acetone, benzene, carbon tetrachloride, hexane, xylene, aromatic hydrocarbons, esters, and ketones, but only marginally soluble in water. Releases of endrin to soils are highly resistant to degradation of any form. Endrin sorbs strongly to organic matter in soils and, therefore, can be expected to be highly immobile in soils. Endrin has, however, been detected in groundwater samples; this suggests that leaching may be possible under certain conditions. In addition, small amounts of endrin may volatilize to the atmosphere. The most prominent mechanism for transport to surface waters, other than direct discharge, is via sorption to particulate matter and subsequent soil erosion after rainfall or irrigation incidents. The primary removal/degradation mechanism in surface waters is photoisomerization of endrin to endrin ketone. Endrin will adsorb strongly to suspended solids/sediments in waters; this strong sorption will reduce the rate of volatilization from surface waters. Endrin resists biodegradation in soils and aerated waters; biodegradation may occur in flooded soils and anoxic waters (anaerobic conditions) at a somewhat enhanced rate. Products of microbial degradation include aldehydes and ketones, of which endrin ketone was the only metabolite identified. Typically, though, endrin will prove highly persistent in soils and waters. Given the high BCF of 15,136 for endrin, bioconcentration in aquatic organisms should be expected to be significant. Endrin found in the atmosphere is expected to exist primarily associated with particulate matter (via sorption), with small amounts found in the vapor phase. The primary removal/degradation mechanism for endrin in the atmosphere is predicted to be photoisomerization to endrin ketone. Additionally, reactions with hydroxyl radicals may be expected [2,4].

HUMAN TOXICITY

General. Endrin is a central nervous system depressant and hepatotoxin in humans. There is evidence that endrin may cause chromosomal damage [5]. The USEPA does not currently provide any toxicity values for endrin ketone [5,6]. The USEPA has placed endrin in weight-of-evidence Group D, indicating that it is not classifiable as to carcinogenicity in humans [5].

Oral Exposure. A chronic RfD of 3×10^{-4} mg/kg/day is based on a NOEL of 0.025 mg/kg/day and a LOAEL of 0.05 mg/kg/day determined for histological lesions in the liver and occasional convulsions following dietary administration to dogs [5]. Human case studies have reported that endrin is absorbed following oral exposure. No quantitative data were available regarding absorption by humans or animals. The oral LD_{50} in male rats reportedly ranges from 28.8 to 43.4 mg/kg, while that for female rats ranges from 7.3 to 16.8 mg/kg. A number of human deaths have been linked to ingestion of endrin. In one case, flour containing 2,153 to 3,367 ppm was used to make bread, which was then consumed by up to 1,600 people. Twenty-six deaths occurred within 12 hours of the onset of symptoms [1]. A dose of 1 mg/kg may cause symptoms in humans [5]. Symptoms of oral exposure in humans and/or other mammals include central nervous system effects such as muscle contractions, hyperexcitability, and convulsions; degeneration of liver, kidney, and brain; and pulmonary edema. A single 1.5 mg/kg dose of endrin administered to pregnant hamsters had serious adverse effects on fetal development of the brain and spinal cord [1].

Inhalation Exposure. The USEPA does not currently provide an RfC for endrin [5,6]. Case reports of occupational exposure, as well as animal studies indicate that absorption takes place following inhalation exposure. However, no information was located on the rate and extent of such absorption. Six species of mammals were exposed to a concentration of 15 mg/m^3 for 7 hr/day, 5 days/week, for 130 exposures; 20% of the animals died. The dead animals were characterized by degenerative changes to the kidney, liver, and brain. Deaths in humans exposed occupationally have not been reported, although tonic-clonic contractions and seizures have been noted. Human and animal data suggest that death by inhalation is unlikely at typical concentrations encountered. Symptoms of exposure in humans are related to central nervous system effects, and include twitching and jerking of muscles, dizziness, mental confusion, and seizures [1].

Dermal Exposure. Endrin is rapidly absorbed through human skin. Symptoms appear between 20 minutes and 12 hours after exposure [5]. Rabbits exposed dermally experienced toxicity and death, indicating absorption. No quantitative data were available regarding absorption by humans or animals. A minimum lethal dose of 94 mg/kg and a NOAEL of 60 mg/kg was determined for rabbits by dermal exposure. Symptoms of intoxication following dermal application in rabbits include convulsions, tremors, twitching, salivation, lacrimation, shallow breathing, brain degeneration, fatty degeneration of the liver, and degenerative changes in the kidney [1].

ECOLOGICAL TOXICITY

General. Endrin was developed and widely used as an insecticide. As would be expected from this class of compounds, it has a high environmental toxicity for invertebrates and is also quite toxic to fish, birds, and mammals. It shows strong tendencies for bioaccumulation, with bioconcentration factors in aquatic systems on the order of 10^4 in invertebrates and fish, and 10^3 for algae [7,8,9].

Vegetation. Endrin is a very stable, chlorinated hydrocarbon insecticide with a soil half-life of 14 years or more [9]. It has a low water solubility and strongly adsorbs to the soil [9]. Therefore, endrin in soils would have a low bioavailability to plants.

Prager [8] included phytotoxicity information for terrestrial plants in a review article on endrin. Studies included in this review showed that endrin in the soil at concentrations of 1 to 30 ppm produced physiological effects in several crop species. At 100 ppm in soil, endrin significantly decreased the fresh weight of corn and bean plants. The growth rate of onion seedlings in soils containing approximately 1 ppm endrin was not affected. The use of 0.5 percent endrin as a coating for Douglas fir seeds had no significant effect on either germination or seedling growth. The use of 0.1 percent endrin to coat barley seeds had no effect on germination, but resulted in significantly reduced seedling height at 7 days and significantly higher pollen sterility in mature plants.

Toxicities of endrin to aquatic plants vary. Studies summarized by Prager [8] show inhibition of growth in freshwater algae at concentrations ranging from 0.475 mg/L to 20 mg/L. Endrin has been shown to bioaccumulate in freshwater algae, with bioconcentration factors ranging from 100 to 4,600 [8,9]. No data were found on the toxicity of endrin to freshwater vascular plants or its bioaccumulation in these life forms..

Aquatic Life. The federal criterion for endrin for the chronic protection of freshwater aquatic life is 0.0023 μg/L [10]. This standard derives from the high toxicity of endrin to aquatic invertebrates and fish. For example, studies cited in several review articles [7,8,9] show 96-hour LC_{50}s (acute toxicities) for invertebrates range from 0.08 to 64 μg/L, with most values between 1 and 10 μg/L. Acute (96-hour) LC_{50}s for fish were between 0.1 μg/L and 4 μg/L, with most values less than 1 μg/L. Generally, an application factor of 0.01 is used to convert acute toxicities to criteria that provide for the chronic protection of aquatic life [7].

A major concern for aquatic life is the bioconcentration of endrin. Studies have shown concentration factors ranging from 8,600 to 49,000 in snails, and from 7,000 to 15,000 in several species of freshwater fish [7,8,9]. However, endrin has been found to be eliminated quickly in aquatic vertebrates after termination of exposure. In studies cited by the USEPA [7], endrin levels in channel catfish and flagfish declined by 95 percent in 13 and 5 days, respectively, while tissue residues of 78 ppb in marine spot were reduced below detection levels in 13 days.

Wildlife. Toxicity of endrin to non-human mammals is indicated by the human toxicity information presented earlier, which was based on studies of rodents, dogs, and rabbits. Like other organochlorines, endrin tends to accumulate most heavily in adipose tissue [8]. However, as in aquatic vertebrates, nonlethal doses of endrin are rapidly excreted [8]. As a result, endrin does not bioconcentrate in the tissues of mammals as it does in lower animals. For example, dogs, cattle, and swine that were fed nonlethal doses of endrin from 4 weeks to 18 weeks had adipose tissue concentrations of endrin ranging from 0.25 to 8 times those in their diets [8]. However, these levels would be expected to decline rapidly. The biological tissue half-life of endrin in rats is 3 to 4 days, and in rabbits, more than 96 percent of radioactively labeled endrin was excreted in 49 days [8].

Birds are also susceptible to endrin poisoning. Studies summarize by Micromedex, Inc. [9] showed that mallards, ring-necked pheasant, bobwhite quail, and Japanese quail had 5-day LC_{50}s for ingestion of endrin ranging from 14 ppm to 22 ppm. However, as with mammals, bioaccumulation in bird tissues is limited by the ability of this biological class to excrete endrin. For example, after endrin was eliminated from their diets, mallard drakes with endrin tissue concentrations of 4.25 ppm eliminated 50 percent of the endrin in their tissues within 3 days, lost 50 percent of the remaining tissue endrin in the next 9 days, and had eliminated 90 percent of the original tissue burden of endrin in 33 days.

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HEPTACHLOR
HEPTACHLOR EPOXIDE

GENERAL

Heptachlor is a man-made insecticide. It is a component of the pesticide chlordane. Heptachlor epoxide is a breakdown product of heptachlor.

CAS NUMBERS

Heptachlor	76-44-8
Heptachlor Epoxide	1024-57-3

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Pesticide (organic).

PHYSICAL AND CHEMICAL DATA

Characteristic	Heptachlor	Heptachlor Epoxide
Water Solubility at 25°C (mg/L) [1]:	0.18	0.200
Vapor Pressure at 25°C (mm Hg) [1]:	4×10^{-4}	1.95×10^{-5}
Henry's Law Constant at 25°C (atm-m^3/mole) [1]:	1.48×10^{-3}	3.2×10^{-5}
Specific Gravity at 9/4°C [2]:	1.57	ND
Organic Carbon Partition Coefficient [2]:	21,878	2,188 to 23,442

FATE DATA: HALF-LIVES

Medium	Heptachlor	Heptachlor Epoxide
Soil [3]:	23.1 hr to 5.4 da	33 da to 1.5 yr
Air [3]:	59 min to 9.8 hr	6 hr to 2.5 da
Surface Water [3]:	23.1 hr to 5.4 da	33 da to 1.5 yr
Groundwater [3]:	23.1 hr to 5.4 da	1 da to 3.0 yr

NATURAL SOURCES

None [2].

ARTIFICIAL SOURCES

Heptachlor was manufactured in the past for use as an insecticide. Since 1983 its use has been restricted to termite control. Chemical and biological transformation of heptachlor in the environment produces heptachlor epoxide. Heptachlor epoxide is not produced commercially, nor is it normally present in commercial heptachlor [1,2,4].

FATE AND TRANSPORT

Heptachlor strongly adsorbs to soils and should not leach extensively to groundwater. In soil, heptachlor will degrade to 1-hydroxychlordene and heptachlor epoxide, among other species. Volatilization from soil surfaces will be significant. Significant biodegradation occurs under both aerobic and anaerobic conditions. The volatilization half-life of heptachlor in aquatic media is estimated to range from 2 to 10 days. Heptachlor is expected to exist almost entirely in the vapor phase in ambient air. Reactions with photochemically-produced hydroxyl radicals and ozone in the atmosphere may be important fate processes. The physical removal of heptachlor from air by rainfall is of limited importance [1].

Heptachlor epoxide adsorbs strongly to soils and sediments/suspended solids in waters. On the soil surface, heptachlor epoxide may slowly photodegrade or volatilize, although it is expected to persist for many years. This compound is not expected to leach significantly to lower soil layers or to groundwaters. Little or no biodegradation, under aerobic or anaerobic conditions, is expected to occur in either soils or waters. In surface waters, photolysis may occur significantly in the presence of photosensitizers. Slow volatilization may occur as well, but is not considered a primary loss mechanism. Heptachlor epoxide, given its vapor pressure value, is expected to be found in the vapor phase, as well as adsorbing to particulate matter, in ambient air. Atmospheric loss mechanisms include vapor-phase reactions with hydroxyl radicals (considered an important process), gravitational setting of particulate matter, and atmospheric washout of heptachlor epoxide via rainfall. Wet deposition of heptachlor epoxide is considered to be the primary contamination mechanism of lakes. Atmospheric photolysis of heptachlor epoxide is expected to occur, as well as photolytic reactions occurring on plant surfaces (degradation products are ketones). This photolytic rate is affected by the form of solid material and the intensity of illumination. Finally, bioconcentration of this material in aquatic organisms is expected to occur readily [1].

HUMAN TOXICITY

General. Humans and animals may take in heptachlor epoxide directly, or they may produce it themselves following exposure to the insecticide heptachlor. Tremors and convulsions have been observed in humans and animals exposed to heptachlor. No reports of human fatalities were located [2]. The USEPA has placed both heptachlor and heptachlor epoxide in weight-of-evidence Group B2, indicating that they are probable human carcinogens [5].

Oral Exposure. A chronic RfD for heptachlor of 5×10^{-4} mg/kg/day is based on a NOEL of 0.15 mg/kg/day and an LEL of 0.25 mg/kg/day determined for increased liver weight in a chronic rat feeding study. A chronic RfD for heptachlor epoxide of 1.3×10^{-5} mg/kg/day is based on an LEL of 0.0125 mg/kg/day determined for increased liver-to-body weight ratio following subchronic administration to dogs [5]. Both heptachlor and heptachlor epoxide are absorbed after oral administration to rats. The acute oral LD_{50} values for heptachlor in rodents range from 40 to 162 mg/kg. The acute oral LD_{50} values for heptachlor epoxide in rats, mice, and rabbits range from 39 to 144 mg/kg. No information was available on human fatalities resulting from the ingestion of heptachlor or heptachlor epoxide. Cataracts and decreased postnatal survival were reported in the progeny of rats fed diets containing heptachlor [2]. An oral slope factor of 4.5 $(mg/kg/day)^{-1}$ is based on hepatocellular carcinomas observed in mice following dietary exposure to heptachlor. An oral slope factor of 9.1 $(mg/kg/day)^{-1}$ is based on hepatocellular carcinomas observed in mice following dietary exposure to heptachlor epoxide [5].

Inhalation Exposure. The USEPA does not currently provide RfC values for heptachlor or heptachlor epoxide [5,6]. Heptachlor epoxide is absorbed following inhalation. Heptachlor and heptachlor epoxide inhalation may cause blood dyscrasias [2,4]. An inhalation unit risk of 0.0013 $(mg/m^3)^{-1}$ for heptachlor is based on hepatocellular carcinomas observed in mice following dietary exposure. An inhalation unit risk of 0.0026 $(mg/m^3)^{-1}$ for heptachlor epoxide is also based on hepatocellular carcinomas observed in mice following dietary exposure [5].

Dermal Exposure. Heptachlor is readily absorbed through the skin. The dermal LD_{50} for heptachlor is 195 to 250 mg/kg/day in rats. No information specifically on heptachlor epoxide was located [2].

ECOLOGICAL TOXICITY

General. Heptachlor was developed and widely used as an insecticide for more than 20 years. Heptachlor expoxide is a degradation product of heptachlor. As would be expected, these compounds have a high environmental toxicity to invertebrates and are also quite toxic to fish, birds, and mammals. Heptachlor epoxide also shows strong tendencies for bioaccumulation, with bioconcentration factors on the order of 10^4 in algae, snails, and mosquito larvae and 10^3 for mosquito fish and spot [7].

Vegetation. Heptachlor that enters the soil system is strongly adsorbed to soil particles and resists both further volatilization and leaching into surface or ground waters. This characteristic limits the bioavailability of heptachlor in the soils to plants. In moist soils, heptachlor is decomposed primarily by hydrolysis, although biodegradation may also be significant. The half-life of heptachlor in soils is calculated to range from 04. to 0.8 years. This was based on data collected in Mississippi, New Jersey and Beltsville, MD [8].

Heptachlor has been shown to inhibit the growth of simple plants like algae at concentrations of 26 to 2,260 $\mu g/L$ [8]. No information was found concerning phytotoxic effects on higher plants. However, despite the widespread application of this compound for agricultural purposes, including seed treatment, there are few reported adverse effects on crop germination, growth, or yields. Therefore, it is assumed that heptachlor has low toxicity to vegetation.

As discussed previously, heptachlor epoxide is a decomposition product resulting from the hydrolysis of heptachlor. According to Micromedex, Inc. [8], heptachlor epoxide adsorbs strongly to soil and is extremely resistant to biodegradation, persisting for many years in the soil. Its strong bonds to soil also make it unavailable for plant uptake.

Heptachlor epoxide has a relatively low toxicity to plants, Lichtenstein et al. [9] grew corn, oats, peas, and cucumbers in quartz sand (which has minimal sorptivity) that had been treated with 30 ppm (30,000 $\mu g/kg$ equivalent) of heptachlor epoxide. After 21 days, they found no significant differences in root or stem growth between the test plants and controls. Only oats had a significant decrease in respiration.

Aquatic Life. The federal aquatic life criteria for both heptachlor and heptachlor epoxide for the chronic protection of freshwater aquatic life are 0.0038 $\mu g/L$ [10].

These standards derive from the high toxicity of heptachlor and heptachlor epoxide to aquatic invertebrates and fish. For example, studies cited in the USEPA "Red Book" [12] show 96-hour LC_{50}s (acute toxicities) for invertebrates of less than 1 $\mu g/L$ and 96-hour LC_{50}s for fish usually between 1 $\mu g/L$ and 10 $\mu g/L$. Generally, an application factor of 0.01 is used to convert acute toxicities to criteria that provide for the chronic protection of aquatic life [11].

A major concern for aquatic life is the bioconcentration of heptachlor or its derivatives. Studies cited in the Red Book showed concentration factors ranging from 1,840 in bluegills to 21,300 in estuarine fish [12].

Wildlife. Toxicity of heptachlor and heptachlor epoxide to non-human mammals is indicated by the human toxicity information presented earlier, which was based on studies of rodents and rabbits. In the body, heptachlor is rapidly transformed into heptachlor epoxide, which accumulates chiefly in the adipose tissue, but which is also found in significant concentrations in the liver, brain, and muscle tissues [8].

The bioaccumulation and bioconcentration of heptachlor epoxide in the body is the primary concern. For example, two horses poisoned by heptachlor had bone marrow concentrations of heptachlor epoxide of 530 mg/kg of fat and 370 mg/kg of fat. Other tissue concentrations of heptachlor epoxide in these animals were as follows: renal fat - 550 mg/kg; brain - 49 mg/kg [8].

Birds are also susceptible to heptachlor poisoning. Studies summarized by Micromedex, Inc. [8] showed that mallards, ring-necked pheasant, bobwhite quail, and Japanese quail had 5-day LC_{50}s for ingestion of heptachlor ranging from 92 to 480 ppm. The Red Book cites data showing 100 percent mortality of woodcock with a dietary dosage of 0.72 ppm [11]. Bioaccumulation also occurs in birds, with a study cited by Micromedex, Inc. [8] showing that concentrations in the fat of broiler chickens plateaued at levels approximately five times those in their feed.

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POLYCHLORINATED BIPHENYLS
(PCBS)

GENERAL

Polychlorinated biphenyls (PCBs) represent a class of chlorinated aromatic compounds which, until they were banned in 1979, had widespread industrial application because of their stability, inertness, excellent dielectric properties, and excellent solvent characteristics [1]. There are 209 possible PCB congeners when biphenyl is chlorinated. Monsanto Corporation marketed mixtures of PCBs under the trade name Aroclor. The Aroclors are identified by a four-digit numbering code in which the first two digits indicate biphenyl (12 carbon atoms), and the last two digits indicate the average chlorine content by weight percent. For example, Aroclor 1260 has an average chlorine content of 60%. An exception to this system is Aroclor 1016, with an average chlorine content of 41% [2]. Given their extensive past usage history, PCBs may be expected to be found throughout the environment. This profile addresses four Aroclors and PCBs collectively, as listed below.

CAS NUMBERS

Aroclor 1242	53469-21-9
Aroclor 1248	12672-29-6
Aroclor 1254	11097-69-1
Aroclor 1260	11096-82-5
PCBs	1336-36-3

COMMON SYNONYMS

PCBs, Aroclors

ANALYTICAL CLASSIFICATION

Semivolatile organic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 6.00×10^{-3} to 2.40×10^{-1} mg/L at 24 to 25°C [3]
Vapor Pressure: 7.71×10^{-5} to 4.06×10^{-4} mm Hg at 25°C [3]
Henry's Law Constant: 5.60×10^{-4} to 2.70×10^{-3} atm-m^3/mole [3]
Specific Gravity: 1.38 to 1.62 at 25°C [2]
Organic Carbon Partition Coefficient: 5.13×10^{3} to 2.63×10^{6} [3]

FATE DATA: HALF-LIVES

Soil: 6 to > 365 days [1]
Air: 2 days to 4.7 years [1]
Surface Water: 9.5 hours to > 365 days [1]
Groundwater: persistent

NATURAL SOURCES

None noted.

ARTIFICIAL SOURCES

Electrical transformers; dielectric fluids; solvents.

FATE AND TRANSPORT

As a class of compounds, polychlorinated biphenyls exhibit a tendency to sorb strongly to soils and suspended solids/sediments in waters. PCB releases to the environment, then, will be expected to show very limited mobility and present only a slight danger of leaching to unprotected groundwaters. There is a wide distribution of a variety of microorganisms capable of degrading PCBs, mainly through dechlorination actions. The degradation rate/action of these microorganisms is lowered, however, as the number of chlorine ion substitutions on the biphenyl parent compound increases. In addition, biodegradation rates are slowed by the tight sorptive ability of PCBs, low ambient temperatures, low moisture content, extremes in pH, and available oxygen content (with no biodegradation evidenced under anaerobic conditions). The number of chlorine ion substitutions also affects volatilization and photoionization rates; as chlorine ion substitutions increase, so do these rates. PCBs volatilized to the atmosphere undergo two major modes of degradation: reaction with hydroxyl radicals and/or reaction with ozone. Reaction with hydroxyl radicals (resulting in substitution of OH^- for Cl^- on the biphenyl parent compounds) is the more important of these two processes. Hydrolysis and/or oxidative reactions are not considered to be important fate processes for PCBs. Generally, PCBs having a higher chlorine content exhibit greater persistency in the environment than do PCBs with lower chlorine content. Bioconcentration of PCBs in aquatic organisms is expected to be an important process for all PCBs, and shows an increase as the chlorine content increases [1].

HUMAN TOXICITY

General. PCBs are known to cause skin irritations, such as acne and rashes, in humans. Young children of women who ate foods containing high levels of PCBs, such as fish, before and during their pregnancies may experience learning difficulties. Consumption of contaminated food is presumed to be the major route of exposure for the general population

[2]. The USEPA has placed PCBs in weight-of-evidence Group B2, indicating that they are probable human carcinogens [4].

Oral Exposure. The USEPA does not currently provide an oral RfD for PCBs [4,5]. PCBs are readily absorbed by humans via the oral route. Absorption in rats reportedly ranges from 75% to 90% of the administered dose. Single-dose LD_{50} values determined for rats ranged from 1,010 mg/kg for Aroclor 1254 to 4,250 mg/kg for Aroclor 1242 [2].

Numerous studies have been done on human children born to mothers who consumed large quantities of PCB-contaminated fish while pregnant. In one such study, the concentrations in the fish consumed ranged from 168 ppb to 3,012 ppb. Overall consumption of fish and levels of total PCBs in cord serum were positively correlated with lower birth weight, smaller head circumference, and shorter gestational age. By 7 months of age the infants with the highest levels of PCBs in cord serum scored significantly lower on neurobehavioral tests. By 4 years of age the children with the highest levels of PCBs in cord serum exhibited poorer performance on tests involving short-term memory [2].

Occupational studies have indicated possible PCB-related cancers of the liver, gastrointestinal tract, hematopoietic system, and skin [2]. An oral slope factor of 7.7 $(mg/kg/day)^{-1}$ is based on hepatocellular carcinomas observed in rodents [4].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for PCBs [4,5]. Qualitative evidence exists that PCBs are absorbed via inhalation in humans and rats. NOAELs in rats, rabbits, guinea pigs, and mice exposed for up to 121 days ranged from 5.4 to 8.6 mg/m^3. A LOAEL of 1.5 mg/m^3 for liver and kidney degeneration was determined for rats exposed for 213 days. Upper respiratory tract and eye irritation, cough, and tightness of the chest were symptoms noted in humans exposed to 0.007 to 11 mg/m^3. Low birth weight and shortened gestational age has been correlated with occupational exposure of pregnant women to PCBs; however, confounding factors make these studies suspect [2]. The USEPA does not currently provide an inhalation slope factor or unit risk for PCBs [4,5].

Dermal Exposure. Hard data on dermal absorption of PCBs by humans and animals are lacking. Absorption efficiency in rhesus monkeys and guinea pigs ranged from about 15% to 34%. Median lethal doses for single dermal applications of PCBs to rabbits were as follows (mg/kg): <1,269 for Aroclors 1242 and 1248, <3,169 for Aroclors 1221 and 1262, and <2,000 for Aroclors 1232 and 1260. Liver and kidney damage were noted in rabbits treated dermally 5 days/week for up to 38 days with up to 44 mg/kg/day Aroclor 1260 [2].

ECOLOGICAL TOXICITY

General. Aroclor 1254 and Aroclor 1260 are the only two PCB cogeners of ecological concern at the OB Grounds. Therefore, this discussion is limited to these two compounds.

Environmental persistence of PCBs is determined by the degree of chlorination. Higher chlorobiphenyls, i.e., those with five or more chlorine atoms, are more persistent in the environment than those with three or fewer chlorine atoms. Aroclor 1254 has five chlorine atoms per moleclue, and Aroclor 1260 has six or more, making them among the most stable compounds in this chemical class [6].

Since 1979, the manufacture, processing, distribution, and use of PCB's has been banned in the United States [6]. However, because these chemicals are so stable, the major source of Aroclor 1254 and Aroclor 1260 release to the environment is an enviromental cycling process of these compounds previously introduced into the environment. The cycle involves volatilization from water and soil into the atmosphere with subsequent removal from the atmosphere via wet or dry deposition, followed by revolatilization [7]. Although biodegradation of Aroclor 1254 and Arolclor 1260 may occur very slowly in the environment, no other degradation mechanisms have been shown to be important in natural systems. Therefore, biodegradation may be the ultimate fate process [7].

PCBs have a significant environmental toxicity to invertebrates, fish, birds, and mammals. PCB toxicity is further enhanced by their ability to bioaccumulate and biomagnify in the food chain [6]. Their persistence in the environment, their ability to bioconcentrate in almost all classes of biota, and their ability to bioconcentrate and biomagnify through the food chain make PCBs a potentially significant hazard to fish, wildlife, and invertebrate resources [6].

Vegetation. CH2M Hill [8] summarized data that show that PCBs are not very toxic to terrestrial plants. Beets grown in soils with PCBs at a concentration of 100 mg/kg (dry weight) had no significant reduction in growth, while a significant reduction in growth of corn was noted at this concentration. Ostrich ferns growing on sediments with PCB residues of 26 mg/kg (mostly Aroclor 1254) showed five-fold increases in somatic mutations (genetic damage), but other plants in the contaminated area were not genetically damaged. While one source states that PCBs in the soil at concentrations of 100 mg/kg (dry weight) had no significant effect on growth of soybeans, another source identifies a 27 percent reduction in growth of soybean plants at this soil concentration and states that the NOEL is 2 to 3 mg/kg. Regardless, all of these values show low phytotoxicities for this class of compounds.

PCBs have been shown to bioconcentrate in both terrestrial and aquatic plants. Studies summarized in Eisler [6] showed dry-weight concentrations in foliage, grasses, aspen leaves, and goldenrod leaves of up to 0.29 ppm, 0.14 ppm, 0.12 ppm, and 0.32 ppm dry weight, respectively. Some of these values exceed the FDA limit of 0.2 ppm for PCBs in feeds for livestock [6]. Crop leaves (soybeans, string beans, and corn) grown on a contaminated site had PCB levels of 30 ppb to 50 ppb [7] BCFs of 10^4 to 10^5 were reported in various species of algae [6]. Although in-tissue concentrations of PCBs may not be toxic to the plants, they could be important as sources of PCBs in higher trophic levels.

Aquatic Life. The federal aquatic life criterion for PCBs for the chronic protection of freshwater aquatic life is 0.014 μg/L [9].

The chronic aquatic life standards derive in part from the toxicity of PCBs to aquatic invertebrates and fish. Studies show 96-hour LC_{50}s (acute toxicities) for freshwater invertebrates are usually between 50 μg/L and 800 μg/L. Most 96-hour LC_{50}s for warm water fish are between 100 μg/L and 600 μg/L [6,7,10,11]. Generally, an application factor of 0.01 is used to convert acute toxicities to criteria that provide for the chronic protection of aquatic life [10]. However, because of the extent to which PCBs bioaccumulate, more stringent criteria are appropriate [10].

A major concern to aquatic life is the bioconcentration of PCBs. Studies cited in virtually every summary article on PCBs showed concentration factors ranging from 10^3 to 10^5 in freshwater invertebrates and fish [6,7,10,11,12]. PCBs with the highest chlorination (which would include Aroclor 1254 and Aroclor 1260) were accumulated most readily [6]. This ability to bioaccumulate further enhances the toxicity of these compounds [6]. Diet contributes most of the total PCB body burdens of upper-level aquatic carnivores, with diet accounting for 90 percent of the total PCB body burden in brown trout and 51 to 83 percent in striped bass [6]. Elimination of accumulated PCBs is slow, with no elimination by codfish larvae after 12 days and 97.8 percent retention by chironomid (an invertebrate) larvae after 7 days [6].

Wildlife. Because of their ability to bioaccumulate, PCBs have been studied more extensively in wildlife than have most other chemicals. Studies summarized by Eisler [6] show that effects vary among PCB compounds. For example, tissues from cattle that had been dosed with Aroclor 1254 and fed to mink at levels as low as 0.64 ppm fresh weight of diet caused severe reproductive effects. However, Aroclors 1016 and 1221 at dietary concentrations of 2 ppm produced no adverse reproductive effects in mink over a 9-month period, nor did Aroclor 1242 at 5 ppm during a similar period.

Aroclor 1260 has relatively low oral toxicity, at least to rats. Micromedex, Inc. [7] cites several studies in which laboratory rats were fed Aroclor 1260 at concentrations of 100 ppm to 1,250 ppm in the diet for periods ranging from 2 months to 21 months. Although sublethal effects such as reduced reproductive success, liver tumors, and retarded growth were noted, these concentrations did not cause large-scale mortality.

Aroclor 1254 has been tested in a number of species of wildlife. LD_{50} data for dietary intake of Aroclor 1254 that were summarized in Eisler [6] and Micromedex, Inc. [7] are presented below.

Raccoon	>50 mg/kg, 8 days
Cottontail rabbit	>10 mg/kg, 12 weeks
Mink	4 mg/kg, no time given
Mink	6.7 mg/kg, 9 months
White-footed mouse	>100 mg/kg, 3 weeks
Norway rat	>75 mg/kg, 6 days
Mouse, PCB-resistant	>250 mg/kg, 18 weeks

Aroclor 1254 apparently is more toxic to rats than is Aroclor 1260. Rats fed Aroclor 1254 at the rate of 1,000 mg/kg in the diet all died in 53 days; mortality started at day 28 [6]. These and other feeding studies suggest that a total intake of about 500 to 2,000 mg of Aroclor 1254 per kg body weight is the lethal level in rats for dietary exposures of 1 to 7 weeks [6].

In the body, PCBs are accumulated primarily in the adipose tissue, skin, and liver [6,12]. More highly chlorinated congeners have longer half-lives, with a half-life of Aroclor 1260 in humans of 33 to 34 months [7].

Birds are generally more resistant to acutely toxic effects of PCBs than mammals [6]. Studies summarized in Eisler [6] and Micromedex Inc. [7] showed that mallards, ring-necked pheasants, bobwhite quail, and Japanese quail had 5-day LD_{50}s for ingestion of Aroclor 1254 and Aroclor 1260 ranging from 600 ppm to more than 2,000 ppm in the diet. Acute LD_{50}s for European starlings, red-winged blackbirds, and brown-headed cowbirds were all 1,500 mg/kg in the diet [6]. However, sublethal effects can occur at much lower concentrations. For example, 20 ppm in the diet of chickens caused a significant decrease both in the hatchability of eggs and in the viability of the surviving chicks [10]. Delayed reproduction and decreased numbers of eggs occurred in mourning doves fed 10 ppm Aroclor 1254 for 28 days [8].

Bioaccumulation also occurs in birds. Diet is an important route of PCB accumulation, with highest liver concentrations of PCBs in birds that fed on fish, followed by species that feed on small birds and mammals; and on worms and insects. Concentrations were lowest in herbivorous bird species [6]. In general, PCB accumulation is rapid and elimination is slow. For example, in common grackles, the biological half-life of Aroclor 1254 was calculated to be 89 days [6].

The Red Book [10] states, "Evidence is accumulating that PCBs do not contribute to shell thinning of bird eggs." However, this statement was contradicted by Prager [12] and Micromedex, Inc. [7], who indicate that PCBs cause eggshell thinning and reduced reproductive ability. Although Eisler [6] cited several PCB-related instances of eggshell thinning and associated reproductive failure in cormorants, peregrine falcons, bald eagles, and black-crowned night herons, he states, "At present, the evidence implicating PCBs as a major source of eggshell thinning is inconclusive."

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METALS
TOXICITY PROFILES

ALUMINUM

CAS NUMBER

7429-90-5

COMMON SYNONYMS

Alumina fibre, Metana [1]

ANALYTICAL CLASSIFICATION

Inorganic

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: 1 mm Hg at 1284°C [2]
Henry's Law Constant: NA
Specific Gravity: 2.70 [3]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Aluminum comprises approximately 8% of the earth's crust, making it the third most abundant element. Aluminum does not occur naturally in the metallic, elemental state, but is widely distributed in the earth's crust in combination with oxygen, fluorene, silicon, and the others. Its concentration in soils varies widely, ranging from about 700 mg/kg to over 100,000 mg/kg. The concentrations of dissolved aluminum in water vary with pH levels and the humic-derived acid content of the water. Since aluminum concentrations occur in surface water bodies only when the pH is less than 5, the aluminum concentration in most natural waters is negligible. In general, aluminum concentrations in surface waters at pH levels above 5.5 will be less than 0.1 mg/L. The background level of aluminum in the atmosphere of U.S. cities and industrial areas generally range from about 0.4 to 8 ug/m^3.[1]

FATE AND TRANSPORT

Aluminum is highly reactive and is not found as a free metal in nature. The transport of aluminum in the environment is determined by the chemical properties of the element and the characteristics of the environmental matrix that affect solubility. At a pH greater than 5.5, naturally occurring aluminum compounds exist predominantly in an undissolved form. Decreasing pH may result in an increase in mobility for certain forms of aluminum. In addition to the effect of pH on mobility, the type of acid entering environmental systems may also be important. In alpine soils, nitric acid was found to leach aluminum from soil columns. In soil, the adsorption of aluminum onto clay surfaces may be a significant factor in controlling aluminum mobility in the environment. In surface water, the presence of high levels of suspended solids resulted in higher concentrations of adsorbed aluminum than in the absence of suspended solids. [1]

Because aluminum is an element, it does not degrade in the environment, and only one trivalent oxidation state of aluminum is possible. Aluminum is found in plants, terrestrial food chairs, and aquatic food chains at low concentrations. Biomagnification of aluminum, however, does not appear to be significant in them. [1]

HUMAN TOXICITY

General Population is exposed to aluminum on daily basis, primarily through ingestion of food. Although aluminum is widely used in cooking utensils, antacids, and antiperspirants, it is not thought to be toxic to humans in these forms. However, exposure to aluminum is not beneficial and excess exposure may be harmful to certain segments of population. Sensitive subpopulations to aluminum may include pregnant mothers and Alzheimer's patients. The potential health risks associated with exposure to aluminum include respiratory problems from breathing the dust, and possibly neurological, teratogenic, and skeletal problems from drinking water or ingesting food containing high levels of aluminum. Aluminum is not known to cause cancer. [1]

Oral Exposure Despite the widespread occurrence of aluminum in foods and drinking water, there is little indication that it is toxic by oral route. Aluminum has not been known to cause death in humans. In laboratory animals, aluminum is fatal only at very high doses. The LD_{50} for aluminum (nitrate form) is 261 mg/kg for rats. Aluminum has been associated with neurodegenerative diseases such as Alzheimer's disease. It is, however, not known whether aluminum is a causal agent in these diseases. The only human data on developmental effects of aluminum come from infants with renal failure. Osteomalacia and increased bone and serum levels of aluminum were reported in three infants with kidney failure who had been treated orally with aluminum hydroxide from the 1st month of life. Their responses, however, are probably not indicative of responses expected in normal infants. The effects of aluminum on the development of laboratory animals are controversial. Some studies show decreases in pup growth and neurological development, while others do not. [1]

Inhalation Exposure No case of death in humans following inhalation exposure to aluminum alone has been reported. Increases in the respiratory problems (cough, fibrosis) and excess deaths from certain cancers have been observed among workers who have been exposed to high levels of aluminum dusts. These workers, were also exposed to a number of other toxicants that could have caused similar conditions. [1]

Dermal Exposure. Little information is available concerning adverse dermal effects of aluminum. The cases of skin sensitization on areas previously injected with aluminum-containing vaccines have been reported among sensitive population. [1]

ECOLOGICAL TOXICITY

General. Aluminum is found as a ubiquitous constituent of all soils and plant, and animal tissues. It occurs naturally, primarily in combination with silica and as an oxide. Aluminum is generally considered nontoxic, except under certain water and soil pH conditions that increase its solubility. Elemental aluminum is highly unstable in the normal pH range of soils and readily oxidizes to a trivalent form which readily bonds with any of several radicals.[3]

Vegetation. There is no evidence that aluminum is essential to plants. It bioaccumulates readily in some plant species but it does not biomagnify in terrestrial or aquatic food chains. Information regarding the phytotoxic effects of aluminum on terrestrial and aquatic vascular plants indicates that phytotoxic effects are due to the soluble form of aluminum, and not to total aluminum. Most information is derived from crops and other agriculturally important plants tested under laboratory conditions. Such testing has shown that plants are sensitive to concentrations of soluble aluminum at ranges exceeding 2 to 14 mg/kg.[4] There are some accumulator plants that can tolerate large amounts of aluminum. Accumulator plants that transport aluminum to above-ground parts include club moss, sweetleaf (*Symplocos trinctoria*), Australian silk oak, and hickory (*Juncus* sp.). Aluminum concentrations of 3.0 to 30 ppm have been reported for ash (*Fraxinus* sp.) and hickory tissues.[5] Soluble aluminum only occurs when soil pH conditions reach 4.5 or lower. Soil conditions above pH 4.7 result in formation of insoluble aluminum that is not bioavailable for plant uptake and phytotoxic reactions.[4] Aluminum poisoning is localized in roots and usually kills the plant's root system before aluminum can be transported to the leaves. Thus, except for accumulator species, plants will die before storing lethal concentrations of aluminum in leaves or stems. Aluminum in plant tissues does not biomagnify through the food chain.[4]

Aquatic Life. The toxicity of aluminum is due to soluble inorganic forms. Toxicity varies with pH and turbidity and increases greatly as pH drops below 5.0.[6] Aluminum has been reported to bioaccumulate in some algae and in both aquatic flora and fauna. Snyder and Snyder reported no evidence of aquatic ecosystem biomagnification.[7] Toxicity studies on fish indicated LD_{50} values ranged from 0.07 to 240 mg/L.[7] Chronic toxicity has been tested with *Daphnia magna*, which was found to have a chronic value of 1,388 $\mu g/L$ after 28 days.[8] The federal chronic aquatic life water quality criterion is 87 $\mu g/L$.[9]

Wildlife. Aluminum poses relatively little hazard to animals. Results from several laboratory studies on rats and mice indicate that aluminum probably constitutes a very low environmental hazard to small mammals.[4] Cattle and sheep can tolerate dietary levels of 1000 ppm, and poultry can tolerate levels of 200 ppm.[5] Aluminum toxicity in birds and mammals is generally expressed as a phosphorus deficiency. This is the result of the binding of aluminum with phosphorus in the intestine and thus making the phosphorus unavailable for absorption.[3] Ingestion by animals of about 1,400 ppm of aluminum lowered the level of inorganic phosphorus in their blood and bones, and chickens developed severe rickets.[8] Aluminum ingested by mammals does not bioaccumulate or biomagnify because it is readily eliminated by the kidneys.[4]

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ANTIMONY

CAS NUMBER

7440-36-0

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble (elemental) [1]
Vapor Pressure: Insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: Density: 6.68 at 20/4°C [1]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATION

Pure antimony is a silver-white, lustrous, hard brittle metal. Antimony was detected (in measurable quantities) in 66 of 354 soils samples from across the conterminous United States [2]. The concentration of antimony in minimally disturbed soils shows limited variations, with a range from <1 ppm up to a maximum of 8.8 ppm, and an overall geometric mean of 0.48. Of the samples collected, 81 percent showed antimony concentrations to be less than 1 ppm [2].

FATE AND TRANSPORT

Elemental antimony is relatively short-lived in the natural environment undergoing oxidation reactions to form antimony oxides and trihalides. Although not demonstrated, antimony may undergo biological methylation (forming organometals) as do those compounds surrounding it in the periodic table. Antimony oxides and trihalides are expected to volatilize readily, with $SbCl_3$ releasing HCl gas to the atmosphere when in the presence of moisture [1]. Antimony oxides are also expected to undergo photoreduction in aqueous environments. Organic antimony compounds are relatively mobile in all environments, while inorganic antimony compounds tend to be only slightly soluble or decompose in water [1]. Antimony, is not expected to bioconcentrate appreciably in fish or aquatic organisms [1].

HUMAN TOXICITY

General. The major targets of antimony toxicity are the respiratory system, the heart, the gastrointestinal system and the skin [1]. Antimony exposure, however, has beneficial as well as adverse effects. Antimony is currently used to treat two parasitic diseases, schistosomiasis and leishmaniasis. Side effects following treatment include altered EKG, anemia, vomiting, diarrhea, joint and/or muscle pain and even death [1]. Information regarding the genotoxicity of antimony is equivocal. Metallic antimony has not been placed in a weight-of-evidence cancer group by the USEPA [3].

Oral Exposure. A chronic oral RfD of 0.0004 mg Sb/kg/day is based on a LOAEL of 0.35 mg Sb/kg/day for longevity, decreased blood glucose levels and altered cholesterol levels in a chronic oral study in rats [3]. Antimony is poorly absorbed following oral exposure (< 10%) [1]. Ingested antimony has not been reported to be fatal to humans, and acute oral LD_{50} values in animals are not available [1]. In humans, gastrointestinal effects have been reported following exposure to oral doses of 0.53 mg Sb/kg/day [1]. In animals, long-term oral exposure to > 0.07 mg Sb/kg/day resulted in effects similar to those reported in humans [1]. There is no evidence that ingested antimony results in developmental or reproductive effects or cancer in humans or animals [1]. An oral Slope Factor for cancer is not available for antimony [3].

Inhalation Exposure. An inhalation RfC for antimony is not available [3]. Antimony is absorbed following inhalation exposure, but the extent of absorption in humans is not known [1]. Inhaled antimony has not been reported to be fatal to humans, and acute inhalation LC_{50} values in animals are not available [1]. The effects of antimony in occupationally exposed workers include pneumoconiosis, altered EKG readings, increased blood pressure, abdominal distress, ulcers, dermatosis, and eye irritation [1]. These effects were generally observed following the inhalation of > 2 mg Sb/m^3 [3]. In animals, long-term inhalation exposure to concentrations > 0.05 mg Sb/m^3 resulted in effects similar to those reported in humans [1]. There is no conclusive evidence that inhaled antimony effects human reproduction or development, but problems with fertility were observed in animals exposed to high levels (209 mg Sb/m^3) of antimony for 9 weeks [1]. Information regarding the carcinogenicity of inhaled antimony in humans is not available, but studies in animals indicate that inhaled antimony may cause lung cancer [1]. An inhalation Unit Risk for cancer is not available for antimony [3].

Dermal Exposure. Dermal exposure to antimony has not been reported to be fatal to humans, and acute dermal LD_{50} values in animals are not available [1]. Antimony is not a skin sensitizer in humans, but animal studies have shown that antimony is a skin and eye irritant [1].

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ARSENIC

CAS NUMBER

7440-38-2

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: insoluble [1]
Vapor Pressure: insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 5.727 at 25/5°C [2]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Arsenic is a naturally-occurring element. The concentration of arsenic in minimally disturbed soils varies tremendously. A collection of 1,257 soil samples from across the conterminous U.S. determined that 90 percent were less than or equal to 10 ppm, with a geometric mean of 5.2 ppm, but with a maximum value as high as 100 ppm [3].

FATE AND TRANSPORT

Elemental arsenic is extremely persistent in both water and soil. Environmental fate processes may transform one arsenic compound to another; however, arsenic itself is not degraded. Soluble forms of arsenic tend to be quite mobile in water, while less soluble species adsorb to clay or soil particles. Microorganisms in soils, sediments, and water can reduce and methylate arsenic to yield methyl arsines, which volatilize and enter the atmosphere. These forms then undergo oxidation to become methyl arsonic acids and are ultimately transformed back to inorganic arsenic [1].

Bioconcentration of arsenic occurs in aquatic organisms, primarily in algae and lower invertebrates. Biomagnification in aquatic food chains does not appear to be significant, although some fish and invertebrates contain high levels of arsenic compounds which are relatively inert toxicologically. Plants may accumulate arsenic, subject to various factors including soil arsenic concentration, plant type, and soil characteristics [1].

HUMAN TOXICITY

General. Arsenic is a long-recognized human poison capable of producing a lethal reaction and cancer. The major targets of arsenic toxicity are the respiratory system, gastrointestinal system, nervous system, hematological system and skin [1]. Studies in animals suggest that low levels of arsenic may be necessary to maintain good health, but this has not been shown in humans [1]. Arsenic is considered a weak mutagen and has been placed in weight-of-evidence cancer Group A, indicating that it is a human carcinogen [4].

Oral Exposure. A chronic oral RfD of 0.0003 mg As/kg/day is based on a NOAEL of 0.0008 mg As/kg/day for hyperpigmentation, keratosis and possible vascular complications in a chronic oral study in humans [4]. Arsenic is readily absorbed following oral exposure. Acute oral LD_{50} values of 26 mg/kg for mice and 15 to 110 mg/kg for rats are reported [1]. The fatal dose in humans is estimated to be 2 mg/kg [1]. Low-level oral exposure (> 0.01 mg As/kg/day) may cause irritation of the digestive tract, pain, nausea, vomiting, diarrhea, skin abnormalities, decreased production of blood cells, abnormal heart function, blood-vessel damage, liver damage, kidney damage, and impaired nerve function ("pins and needles" sensation). In animal studies, high doses of arsenic (> 14 mg As/kg/day) have resulted in effects on the developing fetus. These effects have not been observed in humans [1]. In humans, chronic, oral exposure to low doses of arsenic (> 0.01 mg As/kg/day) has been shown to cause cancer of the skin, liver, bladder, and lung. The most characteristic effect of long-term oral exposure to arsenic is a darkening of the torso and the appearance of small "corns" or "warts" on the palms, soles and torso. These "corns" or "warts" may develop into skin cancer [1]. An oral Unit Risk of 0.00005 (ug As/L)$^{-1}$ [1.75 (mg/kg/day)$^{-1}$] has recently been adopted by the USEPA [4]. The Unit Risk is based on the increased incidence of skin cancer in humans exposed to arsenic in the drinking water.

Inhalation Exposure. An inhalation RfC is not available for inorganic arsenic [4]. Approximately 40% of an inhaled concentration of arsenic is absorbed [1]. Inhalation of arsenic has not been reported to be fatal in humans, and acute inhalation LC_{50} values are not available [1]. Inhalation of arsenic at concentrations greater than 0.1 mg As/m^3 may result in irritation of the nose and throat, leading to laryngitis, bronchitis or rhinitis [1]. Effects on the skin, nervous system, and gastrointestinal system similar to those found following oral exposure have been observed in humans following inhalation exposure. Of much greater concern, however, is that inhaled arsenic has been found to increase the risk of lung cancer in humans [1]. An inhalation Unit Risk of 0.0043 (ug As/m^3)$^{-1}$ was derived by USEPA [4] based on the increased incidence of lung cancer in occupationally exposed workers. Several epidemiology studies have suggested an association between arsenic inhalation and an increased risk of developmental effects (congenital malformations, low birth weight, spontaneous abortion) [1]. Studies in animals support the view that arsenic is a developmental toxicant, but only at high doses (20 mg/m^3) [1].

Dermal Exposure. Arsenic has not been reported to be fatal following dermal contact [1]. Dermal contact with arsenic may result in mild to severe irritation of the skin and mucous membranes and could lead to dermal sensitization [1].

ECOLOGICAL TOXICITY

General. Arsenic is a relatively common element that is present in air, water, soil, plants, and all living tissues. At comparatively low doses, arsenic stimulates growth and development in various species of plants and animals [5]. Arsenic exists in the trivalent (III) and pentavalent (V) states, and its compounds may be either organic or inorganic [6]. Inorganic arsenic compounds are more toxic than organic compounds [5]. Background concentrations of arsenic in unpolluted river waters and soils in the United States are usually <5 $\mu g/L$ and <15 mg/kg dry weight, respectively [5]. Arsenic is bioconcentrated by organisms, but does not biomagnify in the food chain.

Vegetation. There is no evidence that arsenic is essential for plant growth [7]. Elemental arsenic is considered to be relatively nontoxic to plants [8]. In plants, arsenic concentrations vary between 0.01 and 1.0 ppm. Plants grown in soils contaminated with arsenic do not show higher concentrations of this element than plants grown on uncontaminated soil [7]. In cases of arsenic toxicity, the roots are usually severely affected and plant growth is limited before large amounts of arsenic are absorbed and translocated [8]. Arsenic in soils is most toxic to plants at the seedling stage where it limits germination and reduces viability [7]. The concentration of arsenic that is toxic to plants was determined to be >10 ppm by the National Academy of Sciences [9].

Aquatic Life. Arsenic is toxic to aquatic organisms within the range of 1.0 to 45.0 mg/L arsenite, which is considered more toxic than arsenate [8]. Arsenic is extremely mobile in the aquatic environment, and its fate depends largely on prevailing pH and Eh conditions [10]. Normal arsenic concentrations in fish are 0.52 ppm for bluegill and 0.14 to 1.95 ppm for minnows [9].

Arsenic can bioaccumulate in aquatic vertebrates and invertebrates from water and food, but concentration factors are relatively low [5,11]. The BCF of inorganic arsenic in most invertebrates and fish exposed for 21 to 30 days did not exceed 17 [5]. The biological half-lives of arsenic in green sunfish and bluegills are 7 days and 1 day, respectively [11]. The lethal threshold of arsenic for minnows has been reported to be 234 mg/L [6]. Micromedex, Inc. [12] reported the 36-hour toxic value for minnows was 11.6 ppm and the 16-hour toxic value was 60 ppm.

The USEPA acute freshwater criterion for arsenic (V) is 850 μg/L and because there is insufficient data to develop the criteria, the value presented is the LOEL. The acute freshwater criterion for arsenic (III) is 360 μg/L, and the chronic freshwater criterion for the trivalent form is 190 μg/L [13].

Wildlife. Chronic poisoning is infrequently seen in most animals because detoxication and excretion are rapid [5]. Normal arsenic concentrations in mice are 1.0 ppm, while hawks typically have body burdens of 0.4 ppm [9]. Adverse effects were noted in mammals at single oral doses of 2.5 to 33 mg/kg body weight and at chronic oral doses of 1 to 10 mg/kg body weight [5]. Acute waterfowl toxicity is reported at 0.05 ppm [12]. Median lethal concentrations in the diets of mallards were reported at 5,000 ppm [14]. The oral LD_{50} values are 15 mg/kg body weight for rats, 25 to 47 mg/kg body weight for mice, 4 to 19 mg/kg body weight for rabbits, and 6.5 mg/kg body weight for fowl [12]. Arsenic does not accumulate in mammals [10].

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BARIUM

CAS NUMBER

7440-39-3

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: decomposes [1]
Vapor Pressure: insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 3.51 at 20/20°C [1]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Barium is a naturally-occurring element. The concentration of barium in minimally disturbed soils varies tremendously. A collection of 1,319 soil samples from across the conterminous U.S. determined that 86 percent were less than or equal to 700 ppm, with a geometric mean of 440 ppm, but with a maximum value as high as 3,000 ppm [2].

FATE AND TRANSPORT

Barium is a highly reactive metal that occurs naturally only in the combined state. Most barium released to the environment from industrial sources is in forms that do not become widely dispersed. In the atmosphere, barium is likely to be present in the particulate form. Environmental fate processes may transform one barium compound to another; however, barium itself is not degraded. It is removed from the atmosphere primarily by wet or dry deposition [1].

In aquatic media, barium is likely to precipitate out of solution as an insoluble salt, or adsorb to suspended particulate matter. Sedimentation of suspended solids removes a large portion of the barium from surface waters. Barium in sediments is found largely in the form of barium sulfate. Bioconcentration in freshwater aquatic organisms is minimal [1].

Barium in soil may either be taken up to a small extent by vegetation, or transported through soil with precipitation. Barium is not very mobile in most soil systems. The higher the level of organic matter, the greater the adsorption. The presence of calcium carbonate will also limit mobility. Mobility is increased in the presence of high chloride concentrations. Barium complexes with fatty acids, for example, in acidic landfill leachate, will be much more mobile [1].

HUMAN TOXICITY

General. The primary target of barium toxicity is the cardiovascular system [1]. Information regarding the genotoxicity of barium are equivocal. Barium has not been placed in a weight-of-evidence cancer group by the USEPA [3].

Oral Exposure. A chronic oral RfD of 0.07 mg Ba/kg/day is based on a NOAEL of 0.21 mg Ba/kg/day for increased blood pressure in a long-term drinking water study in humans [3]. Barium is poorly absorbed following oral exposure (about 5%) [1]. In rats, acute oral LD_{50} values range from 132 to 277 mg/kg [1]. In humans, ingestion of very large amounts of barium (doses not reported) over a short period may cause paralysis or death. Ingestion of lower doses of barium over a short period may result in difficulties in breathing, increased blood pressure, changes in heart rhythm, stomach irritation, minor changes in blood, muscle weakness, changes in nerve reflexes, swelling of the brain, and damage to the liver, kidney, heart, and spleen [1]. Studies in animals report effects similar to those found in humans. Barium sulfate is sometimes given orally or rectally for the purpose of making X rays. This has not been shown to be harmful [1]. There is no evidence that oral exposure to barium affects human reproduction or development and developmental and reproduction studies in animals are inconclusive [1]. Barium has not been shown to cause cancer in humans or animals following oral exposure, therefore, an oral slope factor is not available [1,3].

Inhalation Exposure. The chronic inhalation RfC for barium of 5×10^{-4} mg/m^3 is based on a NOEL of 0.8 mg/m^3 for fetal toxicity in rats [4]. Approximately 65% of an inhaled concentration of barium is absorbed following inhalation exposure [1]. Barium has not been reported to be fatal to humans or animals following inhalation exposure [1]. Studies examining the toxicity of inhaled barium in humans and animals are extremely limited but suggest that exposure results in effects on the respiratory, cardiovascular, and gastrointestinal systems [1]. There is no evidence that inhaled barium affects human reproduction or development, but studies in animals suggest that barium may have adverse effects on these processes [1]. Barium is not known to cause cancer in humans or animals following inhalation exposure, therefore, an inhalation unit risk is not available [1,3].

Dermal Exposure. Dermal exposure to barium has not been reported to be fatal in humans or animals. Limited animal studies indicate that barium is a dermal and ocular irritant, but the results of this study are inconclusive [1].

ECOLOGICAL TOXICITY

General. Barium compounds are generally insoluble making them relatively unavailable for biological uptake [5]. All water- or acid-soluble barium compounds are poisonous. Barium is considered a nonessential element for plants and animals.

Vegetation. There are very few reports of barium toxicity to plants, except under conditions of acidic soils or with highly concentrated soil solutions where the bioavailable fractions are excessive (e.g., 2 mg/L soluble barium). Some authors report that concentrations of barium need to be extreme before toxicity occurs. Barium accumulation in plants is unusual except when the barium concentration exceeds calcium and magnesium concentrations in the soil, a condition which may occur when sulfate is depleted [6].

Aquatic Life. Barium ions in general are rapidly precipitated or removed from solution by chemical bonding, adsorption, and sedimentation. In most natural water, there is sufficient sulfate or carbonate to precipitate soluble barium present in the water, converting it to an insoluble nontoxic compound [6]. Experimental data indicate that soluble barium concentrations would have to exceed 50,000 μg/L before toxic effects to aquatic life might be observed [5]. Other data show the concentrations of barium lethal to half the test population of fish range from 150 to 10,000 mg/L [7]. Because barium represents little hazard under natural conditions, there are no federal aquatic life water quality standards [8].

Wildlife. Soluble barium compounds such as barium chloride, barium carbonate, barium sulfide, and barium oxide are highly toxic to animals when injested [9], although it is unlikely that suitable conditions would exist under natural conditions to accommodate exposure to these compounds. No reports of barium toxicity to wildlife under natural conditions were identified.

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8. U.S. Environmental Protection Agency. 1991. Water Quality Criteria Summary. Washington, D.C.

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BERYLLIUM

CAS NUMBER

7440-41-7

COMMON SYNONYMS

Glucinium.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: Insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 1.848 20/4°C [2]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATION

Beryllium is a naturally-occurring element. The concentration of beryllium in minimally disturbed soils varies tremendously. A collection of 1303 soil samples from across the counterminous U.S. determined that 86 percent were less than 2 ppm, with a geometric mean of 0.63 ppm and a maximum value of 15 ppm [3].

FATE AND TRANSPORT

Pure beryllium is a gray metal, resistant to attack by acids (due to formation of a thin oxide film). In nature, beryllium is present in much greater concentrations in soils and sediments than in water. Beryllium is tightly adsorbed to most types of soils because it displaces divalent cations that share common sorption sites. Consequently, beryllium has limited mobility in soil and is not likely to leach to groundwater. Beryllium will not volatilize from water or soil. In water, beryllium compounds may hydrolyze to form other beryllium compounds. In air, beryllium will probably be in the form of beryllium oxide. It is not known if beryllium will be transformed to more soluble compounds, which will be removed via precipitation. Bioconcentration of beryllium in aquatic organisms will not be significant [1].

HUMAN TOXICITY

General. The major target of beryllium toxicity is the respiratory system [1]. Information regarding the mutagenicity of beryllium are mixed. Beryllium has been placed in weight-of-evidence Group B2, indicating that it is a probable human carcinogen [4].

Oral Exposure. A chronic oral RfD of 0.005 mg Be/kg/day is based on a NOAEL of 0.54 mg Be/kg/day for no adverse effects in a chronic oral study in rats [4]. Beryllium is poorly absorbed following oral exposure. Information regarding the effects of oral exposure in humans are not available and animal studies are limited. Acute oral LD_{50} values in rodents ranged from 18 to 200 mg Be/kg/day [1]. Rats fed a diet containing high levels of beryllium (> 10 mg Be/kg/day) developed rickets. When the diet is deficient in calcium, beryllium will substitute for calcium in the bone, resulting in rickets; it is not known if this effect will occur in humans [1]. Information regarding the potential effects of ingested beryllium on reproduction and development in humans and animals are not available. There is no evidence that ingested beryllium causes cancer in humans, but animal studies suggest that beryllium may be carcinogenic following oral exposure [1]. An oral Slope Factor of 4.3 $(mg/kg/day)^{-1}$ has been derived based on an increase in the incidence of gross tumors at various sites in rats [4].

Inhalation Exposure. An inhalation RfC for beryllium is not available [4]. Beryllium is absorbed following inhalation exposure, but the extent of absorption is not known. Acute, 4-hour inhalation LC_{50} values in animals were 0.15 to 0.86 mg/m^3 in rats and 4.02 mg/m^3 in guinea pigs [1]. Occupational exposure of humans to beryllium dusts, including both inhalation and dermal exposure, is the primary route of beryllium exposure. The respiratory system is the target of beryllium toxicity following both acute and chronic exposure. Short-term exposure results a condition called chemical pneumonitis, which is characterized by cough, a burning in the chest, shortness of breath, anorexia and increasing fatigue. These effects are associated with concentrations > 0.1 mg Be/m^3 [1]. Chronic exposure to beryllium results in a condition known as berylliosis, or chronic beryllium disease, which is characterized by the presence of granulomas, fibrosis and emphysema in the lungs. Berylliosis has been found to occur at concentrations > 0.001 mg/m^3 [1]. The chemical pneumonitis occurs primarily with exposure to soluble beryllium compounds, while the berylliosis results primarily from exposure to insoluble beryllium compounds. Both conditions may be fatal. Effects on the heart, liver and kidney may also occur, but are probably secondary to the respiratory effects. There is no evidence that inhaled beryllium will cause developmental effects in humans, but studies in animals indicate that intratracheal exposure to beryllium may result in developmental effects [1]. Lung cancer has also been found in occupationally exposed workers [1]. An inhalation Unit Risk of 0.0024 $(ug/m^3)^{-1}$ has been derived based on an increase in the incidence of lung tumors in humans [4].

Dermal Exposure. Dermal exposure to beryllium has not been reported to be fatal to humans or animals. Dermal exposure to beryllium may result in allergic reactions in both humans and animals [1]. Skin granulomas (non-cancerous growths) may form on the skin of sensitized individuals [1].

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CADMIUM

CAS NUMBER

7440-43-9

COMMON SYNONYMS

None noted.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: Neglibible [2]
Henry's Law Constant: ND
Specific Gravity: 8.65 at 25/4°C [1]
Organic Carbon Partition Coefficient: ND

BACKGROUND CONCENTRATIONS

Pure cadmium is a silver-white, blue-tinged, lustrous metal with a distorted hexagonal close-packed structure; cadmium is easily cut with a knife. Cadmium can be found in zinc ores, as greenockite (CdS), and as otavite ($CdCO_3$). The estimated occurrence of cadmium in the earth's crust is from 0.1 to 0.2 ppm [1]. No data on cadmium was gathered as part of the 1984 Department of the Interior survey of conterminous United States soils [3].

FATE AND TRANSPORT

Elemental cadmium is insoluble in water [1], while cadmium compounds show varying degrees of solubility depending on the nature of the compounds and the aquatic environment [2]. Cadmium in the environment may be found as cadmium salts, hydrated cations, or organic/inorganic cadmium complexes. As hydrated cations or complexes, cadmium may be considered fairly mobile in water (relative to other heavy metals). Cadmium in soils may leach into water, especially under acidic conditions. It does not volatilize from either waters or soils, but does exhibit a tendency to adsorb strongly to clays, muds, and humic/organic materials in soils and waters. Complexation and sorbing with organic materials are the most important factors in aquatic fate and transport. The evidence indicates that cadmium bioconcentrates in all levels of the food chain. Cadmium accumulation has been reported in many animal and plant species. Reported BCFs range from 113 to 18,000 for invertebrates, and from 3 to 2,213 for fish. The pH and humus content of the water affect bioconcentration [2].

HUMAN TOXICITY

General. Breathing air with very high levels of cadmium severely damages the lungs and can cause death. High cadmium levels in the diet severely irritate the digestive tract, while lower levels consumed over a long period of time may cause kidney damage [2]. The USEPA has placed cadmium in weight-of-evidence Group B1, indicating that it is a probable human carcinogen [4].

Oral Exposure. A chronic oral RfD of 0.0005 mg/kg/day for water is based on a NOAEL of 0.005 mg/kg/day for proteinuria following chronic exposures in humans. A chronic oral RfD of 0.001 mg/kg/day for food is based on a NOAEL of 0.01 mg/kg/day for proteinuria following chronic exposures in humans [4]. It is estimated that humans absorb about 5 percent of ingested cadmium [2]. In rats and mice the acute oral LD_{50} values range from about 100 to 300 mg/kg. Two human deaths due to intentional ingestion of cadmium resulted from doses of 25 and 1,500 mg/kg [4]. Symptoms of acute toxic reaction to ingestion may include gastroenteritis, vomiting, diarrhea, abdominal pain, increased salivation, choking, anemia, hypotension, respiratory arrest, pulmonary edema, renal dysfunction, and death. Chronic oral overexposure symptoms may include renal dysfunction and/or failure, as well as anemia [1,2,5]. Cadmium has been implicated as a fetotoxin by the oral route in animal studies [2].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for cadmium [4,6]. It is estimated that humans rapidly absorb about 25 percent of inhaled cadmium. The 15-minute LC_{50} for rats exposed to cadmium oxide fumes is approximately 33 mg/m^3. It has been estimated that exposure to 1 mg/m^3 for 8 hours might be sufficient to cause death in humans [2]. Symptoms associated with acute cadmium poisoning via inhalation may include fever, headache, dyspnea, pleuritic chest pain, conjuctivitis, rhinitis, sore throat, cough, pulmonary edema, extreme restlessness, respiratory failure, and death. Chronic inhalation overexposure symptoms may include renal dysfunction and/or failure, dyspnea, emphysema, bronchitis, and anemia [1,2,5]. Cadmium has been implicated as a developmental toxin by the inhalation route in animal studies [2]. An inhalation unit risk of 0.0018 mg/m^3 is based on excess lung cancers observed in humans [4].

Dermal Exposure. Cadmium is poorly absorbed through the skin [2]. No other useful information regarding dermal exposure to cadmium was located.

ECOLOGICAL TOXICITY

General. Cadmium is considered nonessential for plants and animals. It is relatively mobile in the environment compared to most other heavy metals. Cadmium occurs naturally in close association with zinc, usually in concentrations directly related to zinc levels [7]. Its cumulative nature in organisms and its high toxicity makes it an extremely dangerous poison for most animals. Cadmium is accumulated through the food chain in sufficient quantities to be harmful to higher trophic levels. However, no evidence was found of biomagnification of this element through trophic levels [8].

Vegetation. The soil chemistry of bioavailable cadmium is controlled by pH. Brooks [9] reported that the general toxicity of cadmium to plants was moderate. Cadmium is usually more available in acidic, sandy soils than in neutral or alkaline soils with large amounts of clay and organic matter [7]. Absorption is strongly pH-dependent, increasing as conditions become more alkaline. It has been suggested that there is a 100-fold increase in cadmium absorption for each unit increase in pH [10]. Plants tissues normally contain <0.5 ppm cadmium, but many species may accumulate much higher concentrations (up to several hundred ppm) when they grow in soil with elevated cadmium concentrations. Cadmium levels in plant tissues may subsequently affect the balance of essential elements in the plant [7]. It has been noted that 3 mg/kg of cadmium in the tissues of plants depressed growth [11]. Tall fescue (*Festuca arundinacea*) had a reduced yield of 50 percent with a soil concentration of 320 mg/kg [10].

Aquatic Life. In aquatic systems, water hardness affects the biological toxicity of cadmium. The uptake of cadmium is faster in hard water than in soft water, but the total concentration of cadmium is greater in soft water [12]. Cadmium uptakes also increase with increasing water temperature and decreasing salinity [8]. The environmental mobility of cadmium is influenced by the pH levels in the water. Cadmium is less mobile in alkaline waters than in acid waters because it becomes chemically bound in alkaline waters [13]. Cadmium can be quite toxic to aquatic organisms, even in concentrations of less than 1 ppm [10]. Fish are quite susceptible to acute toxicity, with reported 4-day LC_{50} values ranging from 0.002 to 2.9 mg/L [8]. Cadmium has been reported to accumulate in the tissues of aquatic organisms at concentrations hundreds to thousands of times higher than in the water [12]. The federal chronic freshwater quality criterion for cadmium is 3.37 μg/L based on water hardness of 400 mg/L $CaCo_3$ [14].

Wildlife. Cadmium has been shown to have a toxic effect on a variety of mammals and birds. Mammals have no effective mechanism for the elimination of ingested cadmium; therefore, the cadmium tends to accumulate in the liver and kidneys. Its relative toxicity to mammals has been rated from moderate to high [15]. Toxic effects include decreased growth rates, anemia, infertility, fetus abnormalities, abortion, kidney disease, intestinal disease, and hypertension [11]. The known effects for mallards are all sublethal, primarily affecting the kidneys, testes, and egg production [8]. In mallards chronically dosed with cadmium contaminated food, significant effects on energy metabolism were found at 450 mg/kg, but not at 150 mg/kg [11]. In general, cadmium levels in excess of 20 ppm may reduce reproductive output of nesting waterfowl. More direct effects on individual mallards may occur as cadmium levels approach 200 ppm [8].

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CHROMIUM

CAS NUMBER

7440-47-3

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: insoluble [1]
Vapor Pressure: insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 7.2 at 28°C [2]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Chromium is a naturally-occurring element which is dispersed throughout the environment primarily as a result of anthropogenic activities [1]. The concentration of chromium in minimally disturbed soils varies tremendously. A collection of 1,319 soil samples from across the conterminous U.S. determined that 87 percent were less than or equal to 70 ppm, with a geometric mean of 37 ppm, but with a maximum value as high as 700 ppm [3].

FATE AND TRANSPORT

Two of the major forms of chromium are trivalent or chromium (III), and hexavalent or chromium (VI). Chromium is released into the atmosphere mainly by the combustion of coal and oil. The most toxic form is hexavalent chromium, which is due mainly to chemical manufacture, primary metal production, chrome plating, and cooling towers. Chromium is removed from the atmosphere by fallout and precipitation, but may be transported long distances before removal. The residence time of atmospheric chromium is expected to be less than 10 days. There are no known chromium compounds that can volatilize from water. Most of the trivalent form is expected to precipitate in sediments. Hexavalent chromium will be present predominantly in the soluble form. Hexavalent chromium will eventually be reduced to the trivalent form by the organic materials present in surface water. The residence time of chromium in lake water is estimated to be in the range of 4.6 to 18 years. Bioconcentration should be minimal [1].

Chromium in soil may become airborne due to fugitive dust emissions, while runoff and leaching may transport it to surface water and groundwater. Flooding of soils and the subsequent anaerobic decomposition of plant material may increase the mobilization of chromium from soils. The half-life of chromium in soils may be several years [1].

HUMAN TOXICITY

General. There are two forms of chromium that are of concern; trivalent chromium (chromium III) and hexavalent chromium (chromium VI). In general, chromium (VI) compounds are more toxic than chromium (III) compounds [1]. Trivalent chromium (chromium III) is considered an essential nutrient which helps to maintain normal glucose, cholesterol, and fat metabolism. A daily ingestion of 0.05 to 0.20 mg/day (0.0007 to 0.003 mg/kg/day) is estimated to be safe and adequate [1]. The major targets of chromium toxicity are the respiratory system and the gastrointestinal system. Chromium is considered to be genotoxic. The USEPA [4] has placed chromium (VI) in weight-of-evidence cancer Group A, indicating that it is a human carcinogen. Chromium (III) has not been placed in a cancer class by the USEPA [4].

Oral Exposure. A chronic oral RfD value of 1 mg Cr/kg/day for chromium (III) is based on a NOEL of 1468 mg Cr/kg/day for adverse effects in a chronic feeding study in rats [4]. An oral RfD of 0.005 mg Cr/kg/day for chromium (VI) is based on a NOAEL of 2.4 mg Cr/kg/day for adverse effects in a 1-year drinking study in rats [4]. Chromium is poorly absorbed following oral exposure. Acute oral LD_{50} values in rats ranged from 13 to 2365 mg Cr/kg, depending on the chromium compound [1]. Short-term oral exposure of humans to high doses of chromium (> 4.1 mg Cr (VI)/kg/day) has resulted in stomach upsets and ulcers, convulsions, liver and kidney damage and even death [1]. Information regarding potential effects of chromium on human reproduction and development are not available. Exposure of animals to chromium (VI) (57 mg Cr (IV)/kg/day) during pregnancy has been found to result in developmental effects on the fetus [1]. Treatment of male mice with chromium (III) and (VI) (> 3.5 mg Cr/kg/day) has caused effects on spermatogenesis [1]. There is no evidence that oral exposure to chromium (III) or (VI) causes cancer in humans or animals, therefore, an oral Slope Factor is not available [4].

Inhalation Exposure. Inhalation RfC values for both chromium (III) and chromium (VI) are currently under review by the USEPA [4]. Following inhalation exposure, approximately 53-85% of chromium (VI) compounds and 5-30% of chromium (III) compounds are absorbed into the blood [1]. Acute (4-hour) inhalation LC_{50} values in rats ranged from 29 to 137 mg/kg, depending on chromium compound [1]. In humans, acute inhalation of chromium has not been reported to be fatal. The respiratory system is the major target of toxicity for both forms of chromium following inhalation exposure. Respiratory effects include perforations and ulcerations of the nasal septum, bronchitis, pneumonoconiosis (inflammation of the lung leading to fibrosis), decreased pulmonary function, pneumonia, rhinorrhea (runny nose), nasal itching and soreness and epistaxis (nose bleed) [1]. These effects have occured at concentrations > 0.002 mg Cr (VI)/m^3. In some chromium-sensitive people, chromium exposure may trigger an allergic response manifested by asthma or a skin rash. There is no conclusive evidence that inhaled chromium causes reproductive or developmental effects in humans or animals [1]. Long-term inhalation exposure of workers to low levels of chromium compounds (> 0.04 mg Cr/m^3) has been associated with lung cancer. The form of chromium responsible for this effect has not been established, but only hexavalent chromium has been found to cause cancer in animal studies. An inhalation Unit Risk of 0.012 $(ug/m^3)^{-1}$ for chromium (VI) is based on an increase in the incidence of lung cancer in occupationally exposed workers [4]. An inhalation Unit Risk is not available for chromium (III) [4].

Dermal Exposure. Acute dermal LD_{50} values in rabbits ranged from 30 to 553 mg Cr/kg depending on chromium compound [1]. Dermal exposure to chromium has been found to be fatal in humans, but the exact exposure dose is not known [1]. Dermal exposure of humans to chromium can cause allergic reactions as well as skin burns, blisters and ulcers [1]. Exposure of animals to chromium results in effects similar to those found in humans.

ECOLOGICAL TOXICITY

General. Chromium is essential for mammals, but can be toxic at higher levels. It is beneficial but not essential to the growth in higher plants. Plants do not accumulate chromium, and animals apparently absorb little chromium from plant material in their digestive tract [5]. No biomagnification of chromium has been observed in food chains, and concentrations are usually highest at the lowest trophic levels [6]. The bioconcentration factors for freshwater fish, invertebrates, and plants are 200, 2,000 and 4,000, respectively [6].

Vegetation. The chromium content of plants is controlled mainly by the amount of soluble chromium in the soils. Chromium (VI) is the most soluble and available to plants, but it is also the most unstable form under normal soil conditions [7]. Chromium usually exists in soils as insoluble oxides, which are largely unavailable at pH's greater than 4.0 [7]. There is some indication that chromium is accumulated in plant roots. Some plants experience decreased yields at soil concentrations as low as 0.5 ppm. These data indicate that the phytotoxic concentration is greater than 10 ppm [8]. Translocation of chromium from roots to plant tops apparently is not a serious problem. Typical symptoms of chromium phytotoxicity are wilting of plant tops, root injury, chlorosis in young leaves, brownish-red leaves, and chlorotic bands on cereals [7]. The 96-hour LC_{50} for aquatic freshwater plants ranges from 2,500 μg/L to 25,000 μg/L for chromium (VI) [6].

Aquatic Life. The toxicity of chromium (III) and (VI) to aquatic species appears to increase as pH and/or water hardness decreases [9]. For chromium (VI), the 96-hour LC_{50} values for sensitive freshwater and marine species were between 445 and 2,000 ppb [6]. For chromium (III) the 96-hour LC_{50} concentrations were 2,000 to 3,200 ppb for sensitive freshwater organisms and 3,300 to 7,500 ppb for marine biota [6]. Sensitive freshwater organisms showed reduced growth, inhibited reproduction, and increased bioaccumulation at 10 μg/L of chromium (VI), and other adverse effects at 30 μg/L of chromium (III) [6]. The 96-hour LC_{50} values for bluegill and fathead minnow are 71,900 μg/L and 64,700 μg/L, respectively for chromium (III) [5]. The 96-hour LC_{50} value for bluegill range from 133,000 μg/L to 213,000 μg/L for chromium (VI) [6]. Fish rapidly eliminate chromium upon return to freshwater following exposure. Thus, fish exposed intermittently to high chromium levels would not experience cumulative chromium uptake [10]. The federal acute and chronic water quality criteria for aquatic life in freshwater are 16 μg/L and 11 μg/L, respectively for chromium (VI) and 1,700 μg/L and 210 μg/L, respectively for chromium (III) at 100 mg/L $CaCO_3$ [11].

Wildlife. In mammals, chromium (III) is less toxic than chromium (VI), probably because the former permeates biological membranes less readily [5]. Although chromium is highly toxic to invertebrates, it is only moderately toxic to higher animals, and most mammals can tolerate up to 1,000 ppm chromium in their diets [8]. Eisler found the toxic threshold in rats to be 1,000 ppm chromium (VI) in their diet and 100 percent survival when exposed to 134 ppm in their drinking water for three months [6]. It appears the primary source of uptake of chromium by small mammals is through ingestion of contaminated soil while grooming [6]. Dietary levels of 10 mg/kg of chromium (III) adversely affected young black ducks (*Anas rubripes*) [6].

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COBALT

CAS NUMBER

7440-48-4

COMMON SYNONYMS

Cobalt-59; ^{59}Co; CI77320. [1]

ANALYTICAL CLASSIFICATION

Metal.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: Insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 8.9 at 20°C [1]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Cobalt is a naturally-occurring element found widely distributed throughout the earth's crust and organisms. The abundance of cobalt in the earth's crust has been estimated at 0.001 - 0.002% [2]. The concentration of cobalt in minimally disturbed soils varies tremendously [3]. A collection of 1,311 samples from across the conterminous U.S. determined that 78% were less than or equal to 10 ppm, with a geometric mean of 6.7 ppm, but with a maximum value as high as 70 ppm. Of fifteen samples collected around Ohio, 60 percent were found to contain cobalt at levels ranging from 10 to 70 ppm [3].

FATE AND TRANSPORT

Cobalt is a gray, hard (although somewhat malleable), magnetic, ductile metal which appears essential to life (playing an important role in animal nutrition), and which exists in two allotropic forms: hexagonal and cubic. The hexagonal form is the more stable, although both can exist, at normal ambient temperatures. In addition, both are stable in air and towards water at normal ambient temperatures. Cobalt is readily soluble in dilute nitric acid, and is slowly attacked by hydrochloric acid or cold sulfuric acid.

Compounds and/or complexes of cobalt are not usually volatile. Therefore, the transport of cobalt probably results from particulate matter interactions. Dry and wet deposition accounts for the majority of transport to soils and surface waters. As with most metals, soils and sediments are the final repository for cobalt. Transport of cobalt in soils depends upon adsorption/desorption reactions. Cobalt is also retained in soils/sediments by oxides (e.g., iron/manganese oxides) and crystalline materials (e.g., aluminosilicate, geothite). Available data, however, suggest little adsorption of cobalt to organic matter (e.g., humic and/or fulvic matter) in waters. Mobility/transport of cobalt in soils is accelerated with decreasing soil pH. Leaching to groundwaters occurs only minimally, and is postulated to be the result of the formation of pseudo-colloidal suspensions and their subsequent migration/leaching to groundwaters. Generally, cobalt exhibits greater mobility in soils than does lead, chromium (+2 state), zinc, and nickel, but lesser mobility than cadmium. Bioaccumulation of this material in aquatic organisms may be great (log bioaccumulation factor = 3.60), but biomagnification through the trophic levels does not appear to be significant. [1]

HUMAN TOXICITY

General. Cobalt is part of vitamin B_{12}, which is essential to maintain good health. Toxic effects occur, however, when too much cobalt is taken into the body. The major targets of cobalt toxicity are the blood, the heart, and the gastrointestinal system following oral exposure, and the lungs following inhalation exposure [1]. Cobalt is considered to be genotoxic. Cobalt has not been placed in a weight-of-evidence cancer group by the USEPA [4].

Oral Exposure. A chronic oral RfD for cobalt is currently under review by the USEPA [4]. Absorption of cobalt through the gastrointestinal tract is dependent on the type and dose of cobalt given and on the nutritional status of the person [1]. More cobalt will be absorbed by an iron-deficient person than by a normal person. Acute oral LD_{50} values in rats ranged from 91 to 190 mg/kg [1]. In humans, deaths were reported following long-term ingestion of large quantities of cobalt-contaminated beer (0.04 to 0.14 mg/kg/day). Cobalt was added to the beer to stabilize the foam, but this practice has since been discontinued. The victims died from cardiomyopathy. Cobalt stimulates the production of red blood cells and, therefore, has been given as a treatment for anemia (0.16-1.0 mg/kg/day) [1]. Gastrointestinal effects were noted both in the beer-drinkers and in the anemic patients. In animals, effects on the testes (degeneration) were found in addition to the cardiovascular and hematological effects found in humans [1]. Cobalt has not been found to cause birth defects in people, but exposure of animals to high doses has resulted in effects on the fetus [1]. Cobalt is not known to cause cancer following oral exposure, therefore, an oral slope factor has not been derived by the USEPA [4].

Inhalation Exposure. A chronic inhalation RfC is not available for cobalt [4]. The amount of inhaled cobalt that is absorbed depends on the size if the dust particles; the smaller the particle, the more likely it is to be absorbed through the lungs [1]. An acute LC_{50} value of 165 mg/m^3 (30-minutes) was reported for rats [1]. There is no conclusive evidence that inhaled cobalt causes death in humans. The respiratory system is the target of inhaled cobalt. Short-term (6 hours) exposure of people to 0.038 mg/m^3 resulted in difficulty in breathing. More serious effects on the lungs (asthma, pneumonia, wheezing) have been found in workers exposed to 0.003 mg/m^3, while workers exposed to 0.007 mg/m^3 have also had allergic asthma and skin rashes [1]. The respiratory system is also the target of cobalt toxicity in animals. There is no information regarding potential effects of inhaled cobalt on reproduction, development, or cancer. An inhalation unit risk is not available for cobalt [4].

Dermal Exposure. There is no information regarding lethal dermal doses of cobalt in humans or animals. Dermal exposure to cobalt results in dermatitis that is the result of an allergic reaction to cobalt. Exposure levels associated with the dermatitis are not known [1].

ECOLOGICAL TOXICITY

General. Cobalt is an essential trace nutrient for animals and for some algae. Although growth and yield increases have been reported, it is considered non-essential to most higher plants [5]. Cobalt does not biomagnify in terrestrial or aquatic food chains.

Vegetation. The bioavailability of cobalt to plants is primarily regulated by soil pH with soil leaching and plant uptake enhanced by lower pH [6]. Phytotoxicity from soil containing 50 to 100 ppm occurs in plants and foliar symptoms resembling iron deficiency are apparent at these levels [6]. Plants exhibit a wide range of species-specific tolerances to cobalt. Symptoms of cobalt phototoxicity are white, dead margins and tips of leaves, chlorosis of new leaves, and stunted growth [7]. Cobalt at concentrations of 10 to 400 $\mu g/L$ inhibited seed germination and concentrations at 100 to 400 $\mu g/L$ reduced plant growth and leaf chlorophyll contents [8]. These results were noted for laboratory or culture experiments. Naturally occurring excess of cobalt in soils is improbable because of soil bonding characteristics.

Aquatic Life. Cobalt is water soluble when in the form of chloride, nitrate, and sulfate salts. At a pH of 7, cobalt is 50 to 80 percent soluble when it is associated with ammonium, magnesium, calcium, sodium and potassium [6].

Among invertebrates, *Daphnia* were immobilized by 3.1 to 21.0 mg/L of cobalt, while concentrations of 16.0 to 32.0 mg/L were lethal to aquatic insect larvae in four to eight days [9]. The 10-day lethal concentration for fish is about 10.0 mg/L [9]. There are no USEPA aquatic life water quality standards [10].

Wildlife. Cobalt is required by animals because it is the central atom in vitamin B12 [6]. Cobalt is relatively nontoxic to animals. No reports of cobalt toxicity attributed to consumption of natural forage were identified. Animal health can be affected by consumption of plants containing 100 ppm of cobalt [6]. Sheep can tolerate doses of 3 mg/kg body weight without adverse effects, and 200 mg/kg of cobalt in rats has been reported as toxic [11].

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COPPER

CAS NUMBER

7440-50-8

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: insoluble [1]
Vapor Pressure: insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 8.94 [2]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Copper is a naturally-occurring element. The concentration of copper in minimally disturbed soils varies tremendously. A collection of 1,311 soil samples from across the conterminous U.S. determined that 85 percent were less than or equal to 30 ppm, with a geometric mean of 17 ppm, but with a maximum value as high as 700 ppm [3].

FATE AND TRANSPORT

Copper is dispersed throughout the atmosphere primarily as a result of anthropogenic activities. Environmental fate processes may transform one copper compound to another; however, copper itself is not degraded. Most of the copper in the atmosphere occurs in the aerosol form, and long-distance transport may occur. Wet or dry deposition is expected to be the primary fate process in air.

Several processes determine the fate of copper in aquatic environments: formation of complexes, especially with humic substances; sorption to hydrous metal oxides, clays, and organic materials; and bioaccumulation. Organic complexes of copper are more easily adsorbed on clay and other surfaces than the free form. The aquatic fate of copper is highly dependent on factors such as pH, oxidation-reduction potential, concentration of organic matter, and the presence of other metals. In regard to the latter, it has been demonstrated that coprecipitation of copper with hydrous oxides of iron effectively scavenges copper from solution, although in most surface waters organic materials prevail over inorganic ions in complexing copper [4].

Generally, copper is considered to be among the more mobile of the heavy metals in surface environments. Seasonal fluctuations have been observed in surface water copper concentrations, with higher levels in fall and winter, and lower levels in the spring and summer. It is not expected to volatilize from water. Since copper is an essential nutrient, it is strongly accumulated by all plants and animals, but is probably not biomagnified [4].

The degree of persistence of copper in soil depends on the soil characteristics and the forms of copper present. For example, in soils of low organic content, soluble copper compounds may move into groundwater at a significant rate. On the other hand, the presence of organic complexing agents may restrict movement in soil, and copper may be immobilized in the form of various inorganic complexes. It is not expected to volatilize from soil.

HUMAN TOXICITY

General. Copper is an essential trace element; therefore, toxic effects can result if too much or too little is taken into the body. The Recommended Dietary Allowance (RDA) for copper is 2 to 3 mg/day (0.03 to 0.04 mg/kg/day) [5]. The major targets of copper toxicity are the gastrointestinal tract following oral exposure and the lungs following inhalation exposure [5]. Information regarding the genotoxicity of copper are equivocal. USEPA has placed copper in weight-of-evidence cancer Group D, indicating that it is not classifiable as to human carcinogenicity [6].

Oral Exposure. A chronic oral RfD of 1.3 mg/L (0.04 mg/kg/day) is based on a LOAEL of 5.3 mg/L for gastrointestinal irritation in humans [7]. Approximately 60% of an oral dose of copper is absorbed through the gastrointestinal tract [5]. Case studies of human suicides indicate that doses of 6 to 637 mg/kg have been fatal [5]. LD_{50} values are not available for animals. In humans, doses greater than 0.07 mg/kg have resulted in gastrointestinal effects including vomiting, diarrhea, nausea, abdominal pain and a metallic taste in the mouth [5]. Adverse effects were also noted in the liver (necrosis) and the kidneys (necrosis, tubular damage) of humans following oral exposure [5]. Chronic toxic effects due to copper are rarely seen except for individuals with Wilson's Disease. Wilson's Disease is a genetically determined condition in which the body absorbs and retains abnormally high copper concentrations [5]. It is not known whether exposure to copper will result in effects on reproduction or development in humans, but animal studies indicate that copper exposure may increase fetal mortality [5]. There is no evidence that copper causes cancer in humans or animals, therefore, an oral slope factor for cancer is not available [6].

Inhalation Exposure. A chronic inhalation RfC is not available for copper [6]. The extent of copper absorption following inhalation exposure is not known. Information regarding the fatal dose of copper following inhalation exposure was not located for humans or animals. In humans, copper is a respiratory irritant. Short-term inhalation exposure to copper dust or fumes (0.075-0.12 mg/m^3) results in a condition known as "metal fume fever". This condition is a 24-48 hour illness characterized by chills, fever, aching muscles, dryness in the mouth and throat and headache [5]. Respiratory effects have also been noted in animals [5]. Information is not available regarding potential effects on reproduction and development in humans or animals following inhalation exposure. There is no evidence that copper exposure causes cancer in human or animals, therefore, an inhalation unit risk for cancer is not available [6].

Dermal Exposure. Dermal exposure to copper may result in allergic contact dermatitis [5]. Other information regarding the toxic effects of dermal exposure to copper are not available [5].

ECOLOGICAL TOXICITY

General. Copper is an essential trace element or micronutrient for plants and animals. However, excessive amounts of the element are toxic [8]. Copper is accumulated by all plants and animals, but it has very little if any potential for biomagnification through the food chain [9].

Vegetation. Copper retention in soils and bioavailability to plants are dependent on pH. Sorption of copper increases with increasing pH [10]. Copper is held most securely at a pH range of 7.0 to 8.0 [11]. Several researchers have reported a decrease in plant copper when large amounts of organic matter are present. Copper is strongly chelated in plant roots. Phytotoxic concentration of copper ranges from about 70 to 640 ppm in the soil for most plants [12]. In vascular plants, toxic levels of copper can cause reduced growth, chlorosis, and stunted root development. Toxic copper concentrations also interfere with the uptake of iron and other heavy metals [8]. Copper salts have been used effectively to control aquatic vegetation, algae, and terrestrial plants invading sewer lines for many years.

Aquatic. The toxicity of copper to aquatic life varies with hardness (increases with decreased hardness), pH (increases with decreased pH), and temperature (increase with higher temperatures) [13]. Many studies have been published on the toxicity of copper to fish and other aquatic life forms. Relatively high concentrations of copper may be tolerated by adult fish for short periods of time. The critical effect appears to be its greater toxicity to young or juvenile fish [10]. Reproduction of fish is impaired at concentrations of 0.018 to 0.033 mg/L, growth is reduced at concentrations of 0.0025 to

0.0184 mg/L, and survival is reduced at 0.018 to 0.04 mg/L [8]. The maximum acceptable toxicant concentration for fathead minnows is 0.011 to 0.018 mg/L, as it affects embryo, larval, and early juvenile stages [13]. The 96-hour LC_{50} acute toxicity of copper sulfate in fathead minnows and bluegills was reported to be 1.4 mg/L and 10.2 mg/L, respectively, at a water hardness of 400 mg/L $CaCO_3$ and a pH of 8.2 [10]. The 96-hour LC_{50} acute toxicity of copper in fathead minnows and creek chub was 0.44 mg/L and 0.31 mg/L, respectively, with a water hardness of 200 mg/L $CaCO_3$ [10].

Concentrations of 0.015 mg/L produced sublethal effects in crayfish and a 4-day LC_{50} of 3.0 ppm [8]. The federal chronic freshwater quality criterion for copper is 38.7 μg/L based on a water hardness of 400 mg/L $CaCO_3$ [14].

Wildlife. Copper is an essential trace element for animals, with some species, such as sheep, being extremely sensitive to excessive concentrations of copper or to certain ratios of copper to molybdenum in their forage. Sheep have died after consuming plants and soils containing 15 ppm copper (dry weight) [15]. The maximum tolerable dietary level for turkey and chickens is 300 ppm [16]. However, copper toxicity in mammals and birds is of little significance because they possess barriers to copper absorption [17]. Mammals and birds are 100 to 1,000 times more resistance to toxic effects than aquatic biota.

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CYANIDE

CAS NUMBER

57-12-5

COMMON SYNONYMS

None noted.

ANALYTICAL CLASSIFICATION

Inorganic (wet chemistry).

PHYSICAL AND CHEMICAL DATA

Note: Data is for hydrogen cyanide (HCN).

Water Solubility: miscible [1]
Vapor Pressure: 264.3 mm Hg at)°C [1]
Henry's Law Constant: 5.1 x 10^{-2} atm-m^3/mole [1]
Specific Gravity: 0.6884 at 20°C (liquid) [1]
Organic Carbon Partition Coefficient: ND

FATE DATA: HALF-LIVES

Soil: ND
Air: ND
Surface Water: ND
Groundwater: ND

NATURAL SOURCES

Fruits, roots, and leaves of numerous plants [1].

ARTIFICIAL SOURCES

Vermicidal fumigants; insecticides; rodenticides; metal polishes; electroplating solutions; metallurgical processes [1,2].

FATE AND TRANSPORT

Cyanides may be found in the environment bound with organic and/or inorganic cations. The fate and transport of cyanide, therefore, is dependent upon the properties of the cyanide-bound material. Any discussion attempting to encompass all properties of cyanide-bound materials is beyond the scope of this assessment.

Cyanides may occur in soils as hydrogen cyanide, alkali metal salts, or immobile metallocyanide complexes. The fate of cyanides in soil will be largely dependent upon pH conditions of that soil. Volatilization of hydrogen cyanide from surface soils is expected to be a primary removal mechanism for soils having a pH of 9.2 or less. Though cyanide typically does not sorb strongly to soils (or organic matter therein), leaching to unprotected groundwaters is not expected to be significant due to the probability of cyanide fixation by trace metals found in soils, or transformation of cyanide via microbial action. However, if the initial cyanide loading proves toxic to soil-based microorganisms, leaching to groundwater may be expected. In water, cyanide occurs most commonly in the form of hydrogen cyanide. Hydrogen cyanide is removed from water primarily by volatilization. The rate of volatilization is also pH-dependent, with more rapid volatilization occurring at lower pH values [1].

Although simple metal cyanides and hydrogen cyanide are not expected to bioconcentrate in aquatic organisms, concentrations of simple metal cyanides have been detected in the tissues of fish exposed to waters containing silver and copper metal complexes. There is, as well, no evidence of biomagnification through trophic levels. Adsorption to suspended solids and sediments in waters will occur, but is expected to be a minor pathway in comparison to volatilization and biodegradation. [1]

Atmospheric concentrations of cyanide will exist almost exclusively as hydrogen cyanide, though small amounts of metal cyanides may exist associated with particulate matter. Given the relatively slow degradation rate of hydrogen cyanide in the atmosphere, this material has the potential to be transported for long distances. The most important removal mechanism for hydrogen cyanide in the atmosphere is via reaction with photochemically-produced hydroxyl radicals. Removal of hydrogen cyanide via either dry or wet deposition is expected to be a negligible mechanism. Metal cyanides (as particulates) will, however, be subject to deposition via gravitational settling and/or rainfall washout. [1]

HUMAN TOXICITY

General. Cyanide is highly toxic to humans following all routes of exposure. Cyanide acts by inhibiting enzymes that are needed to use oxygen efficiently, resulting in respiratory arrest. The major targets of cyanide toxicity are the central nervous system, the lungs and the heart [1]. Cyanide is not mutagenic and has been placed in weight-of-evidence cancer Group D, indicating that it is not classifiable as to human carcinogenicity [3].

Oral Exposure. A chronic oral RfD of 0.02 mg/kg/day is based on the NOAEL of 10.8 mg/kg/day for weight loss, thyroid effects and nervous system effects in a chronic study in rats [3]. Cyanide is readily absorbed following oral exposure. Acute oral LD_{50} values ranged from 2.7 to 11 mg/kg in rats, 2.34 to 2.70 mg/kg in rabbits and 4.3 mg/kg in mice

[1,2]. In humans, an average fatal dose of 1.52 mg/kg has been calculated based on case reports of intentional or accidental poisonings. The lowest reported fatal dose in humans was 0.56 mg/kg [1]. Acute oral poisoning results in effects on the gastrointestinal system (vomiting), the heart (atrial fibrillation, shallow pulse, inaudible heart sounds), kidneys (increased protein output) and nervous system (tremors, stupor, coma). These effects have occurred at doses above 15 mg/kg [1]. Similar effects have been found in animals. Information regarding potential effects of cyanide on reproduction and development in humans are not available, but studies in animals indicate that effects on development may result following oral exposure [1]. Cyanide is not known to cause cancer in humans or animals following any route of exposure, therefore, an oral slope factor is not available [3].

Inhalation Exposure. A chronic inhalation RfC is not available for cyanide [3]. Cyanide is readily absorbed following inhalation exposure. Acute inhalation LC_{50} values vary according to duration of exposure: in rats, values ranged from 3,417 ppm (10 seconds) to 142 ppm (60 minutes), and in rabbits, values ranged from 2,200 ppm (45 seconds) to 208 ppm (35 minutes) [1]. In humans, an average fatal concentration is estimated to be 546 ppm for a 10-minute exposure. Exposure to 110 to 135 ppm for greater than an hour can be life-threatening, while exposure to 18-36 ppm for the same time period may not cause any effects [1]. Acute exposures to approximately 6 ppm and above may result in effects on the respiratory system (dyspnea, nasal irritation), cardiovascular system (chest pain, heart palpitations), gastrointestinal system (abdominal pain, nausea, vomiting), and nervous system (lightheadedness, breathlessness, numbness, headaches, and, at higher concentrations, coma). Chronic inhalation exposure of workers to comparable concentrations results in effects similar to those reported following acute exposure. Information regarding the potential effects of cyanide on reproduction and development are not available in humans or animals [1]. Cyanide is not known to cause cancer in humans or animals following any route of exposure, therefore, an inhalation unit risk is not available [3].

Dermal Exposure. The average fatal dose of cyanide in humans following dermal exposure was estimated to be 100 mg/kg [1]. Acute dermal LD_{50} values in rabbits ranged from 1.0 to 8.93 mg/kg [1]. Toxic effects observed following dermal exposure are similar to those following other routes of exposure [1].

ECOLOGICAL TOXICITY

General. Cyanide is a highly lethal, but short-lived noncumulative poison. No evidence was found of either cyanide bioaccumulation or biomagnification [4]. Hydrogen cyanide is the most common and the most toxic of the cyanides. The environmental chemistry of cyanide is complex, with cyanide gas (HCN) and ionic cyanide (CN^-) representing the toxic chemical forms.

Vegetation. Cyanide seldom remains biologically available in soils because it is either complexed by trace metals, metabolized by various microorganisms, or lost through volatilization. In plants, elevated cyanide concentrations inhibit respiration [5]. Some plant species, such as arrowgrass (*Triglochin* sp.) wind wild cherry (*Prunus*), are natural producers of cyanocompounds and will have inherent high concentrations of these compounds in their tissues.

Aquatic. Cyanide in aquatic systems exists as simple hydrocyanic acid; as water-soluble alkali metal salts, such as potassium cyanide and sodium cyanide; and as metallocyanide complexes of variable stability [4]. Cyanide toxicity increases with decreasing pH and dissolved oxygen. Cyanide concentrations in the range from 50 to 100 μg/L have proven to eventually fatal to many sensitive fishes and levels above 200 μg/L probably are rapidly fatal to most fish species [6].

The 96-hour LC_{50} of cyanide for bluegill was 56.0 to 227.0 μg/L and the maximum toxicant concentration was 9.3 to 19.8 μg/L [5]. The 96-hour LC_{50} of cyanide for juvenile and adult fathead minnows was 117.0 to 157.0 μg/L and 121.0 to 129.0 μg/L, respectively [7]. During chronic exposure, cyanide inhibited spawning in bluegill at 5.0 μg/L and reduced growth rate in fathead minnows at 35.0 μg/L [5]. The federal chronic freshwater quality criterion for cyanide is 5.2 μg/L [8].

Wildlife. Cyanide is acutely toxic to birds and mammals in very small concentrations. Cyanide biomagnification in the food chain has not been reported, possibly due to rapid detoxification of sublethal doses by most species, and death at higher doses [5]. In mallards, a single oral dose of cyanide of 0.53 mg/kg body weight produced no deaths, but an LC_{50} result was produced at 1.43 mg/kg body weight [5]. In rabbits, a single oral dose of 10.0 to 15.0 mg/kg body wight produced a 100 percent kill in 14 to 30 minutes [5].

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LEAD

CAS NUMBER

7439-92-1

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: insignificant at 25°C [1]
Henry's Law Constant: Not applicable [1]
Specific Gravity: 11.34 at 20/4°C [2]
Organic Carbon Partition Coefficient: ND [1]

FATE DATA: HALF-LIVES

Note: Data for tetraethyl lead; CAS No. 78-00-2

Soil: 1 to 4 weeks [3]
Air: 2.3 to 9.0 hours [3]
Surface Water: 2.3 to 9.0 hours [3]
Groundwater: 2 to 8 weeks [3]

BACKGROUND CONCENTRATIONS

Lead is a naturally-occurring element which is dispersed throughout the environment primarily as a result of anthropogenic activities [1]. The concentration of lead in minimally disturbed soils varies tremendously. A collection of 1,300 soil samples from across the conterminous U.S. determined that 80 percent were less than or equal to 30 ppm, with a geometric mean of 16 ppm, but with a maximum value as high as 700 ppm [4]. Concentrations along roadways and adjacent to houses with exterior lead-based paints may be as high as 10,000 ppm [1].

FATE AND TRANSPORT

Lead is extremely persistent in both water and soil. Environmental fate processes may transform one lead compound to another; however, lead itself is not degraded. It is largely associated with suspended solids and sediments in aquatic systems, and it occurs in relatively immobile forms in soil. Lead which has been released to soils may become airborne as a result of fugitive dust generation. Tetraethyl lead may occur in the vapor phase [1].

HUMAN TOXICITY

General. The general human population is exposed to lead primarily via the oral route of exposure, with some contribution from the inhalation route. However, in some subpopulations, the predominant route of exposure is via inhalation. The effects of lead are the same regardless of whether it enters the body through breathing or ingestion. The major health threat from lead arises from the damage it causes to the brain, especially in fetuses, infants, and young children. Young and developing humans are highly sensitive to its effects. Also, young children are prone to ingest more lead as a result of normal mouthing behavior. Decreased IQ and reduced growth may result from childhood exposure. Fetal exposure may result in preterm birth, reduced birth weight, and decreased IQ [1]. The Federal Centers for Disease Control recently lowered the threshold at which children are considered to have lead poisoning from 25 to 10 micrograms of lead per deciliter of blood [5]. Some of the health effects of lead, particularly changes in the levels of certain blood enzymes and in aspects of children's neurobehavioral development, may occur at blood levels so low as to be essentially without a threshold [6].

Lead exposure may increase blood pressure in middle-aged men. High-level exposure can severely damage the brain and kidneys in adults or children. In addition, high doses of lead will cause abortion and damage the male reproductive system [1]. The USEPA currently does not provide any toxicity values for lead [6,7]. The USEPA has placed lead in weight-of-evidence Group B2, indicating that it is a probable human carcinogen [6].

Oral Exposure. Oral absorption of lead appears to be low in humans. The absorption of lead into the body is highly dependent on its state of complexation. In general, soluble lead compounds tend to be more readily absorbed into the body than insoluble compounds, and are therefore more toxic. Certain organic lead compounds are also readily absorbed. Gastrointestinal absorption is highly dependent on the form of lead and the amount of food present. For example, in one experiment 3 percent of lead chloride was absorbed when provided with a meal, but 60 percent was absorbed when animals were fasted. Lead absorption is higher in children than in adults. Oral LD_{50} values were not available. LD_{LO} values for various inorganic lead compounds reportedly ranged from 191 mg lead/kg in the dog to 20,500 mg lead/kg in the guinea pig. An LD_{LO} is the lowest dose causing death. The reported adverse effects of lead in laboratory animals following oral exposure include severe central nervous system damage, elevated blood pressure, impaired heme synthesis, liver damage, kidney damage, fetotoxicity, and damage to the reproductive organs in both males and females. Renal tumors have been observed in laboratory animals following oral administration of lead acetate [1].

Inhalation Exposure. Once deposited in the lower respiratory tract, lead is almost completely absorbed, and all chemical forms of lead also appear to be absorbed. Limited experimental evidence suggests that inhaled tetraethyl lead is rapidly absorbed by rats [1]. No other useful information was located regarding specific adverse health effects resulting from inhalation exposure to lead.

Dermal Exposure. Compounds such as lead acetate are poorly absorbed through skin, while tetraethyl lead appears to be rapidly absorbed [1]. No other useful information was located regarding specific adverse health effects resulting from dermal exposure to lead.

ECOLOGICAL TOXICITY

General. Lead is generally considered a highly toxic contaminant because it is not an essential nutrient to either plants or animals. Lead can be bioaccummulated, but it does not biomagnify in aquatic or terrestrial food chains. The tendency for lead to form complexes with naturally occurring organic material (e.g., humic and fulvic acids) increases its adsorption affinity for clays and other mineral surfaces, and decreases its bioavailability, except under acidic soil or water conditions. Benthic microbes can methylate lead to form tetramethyl lead, which is volatile and more toxic than inorganic lead [8].

Vegetation. Lead toxicity in plants under natural condition is uncommon even though field and laboratory studies have demonstrated lead's toxicity. Most of the lead in soils is insoluble and largely unavailable for plant uptake. Symptoms of lead toxicity are found only in plants grown on acid soils [9]. The amount of bioavailable lead taken up by plants decreases as soil pH, cation exchange capacity, and available phosphorus increase. Lead inhibits plant growth and reduces photosynthesis, mitosis, and water absorption. When taken up by plants, lead is rarely translocated because it becomes chelated in the roots [9]. Lead levels of approximately 500 mg/kg in soil reduced pollen germination by greater than 90 percent in two weed species. Normal germination rates were observed at soil levels of 46 mg/kg, but other adverse effects were observed at lead levels of 12 to 312 mg/kg [8].

Aquatic Life. The toxicity of lead in water is dependent on pH, organic materials, water hardness, and the presence of other metals [10]. Organolead compounds are more toxic than inorganic lead compounds to aquatic organisms [11]. Lead toxicity decreases with increasing water hardness [8]. Lead is more mobile in acidic waters than in higher pH waters. In alkaline and circumneutral waters, removal of lead by sorption and precipitation may occur relatively quickly [10]. The solubility of lead ranges from 500 μg/L in soft water to 3 μg/L in hard water [11]. In aquatic systems, most lead is found in bottom sediments. The toxicity of lead to fish varies from 0.1 to 542 mg/L. Generally, the medium tolerance limit for fathead minnows in hard water (360 mg/L $CaCO_3$) is 482 mg/L [12]. The federal chronic freshwater quality criterion for lead is 18.6 μg/L based on a water hardness of 400 mg/L $CaCO_3$ [13].

Wildlife. Lead bioaccumulates in animal tissues, but does not biomagnify in the food chain [10]. Evidence of lead poisoning in mammals and other wildlife have been reported from sites heavily contaminated by lead smelter emissions and other types of atmospheric fallout. Neurological effects in mallard ducks were observed within 24 hours of dosing them with lead shot for a total intake of 423.8 mg/kg body weight. Assuming a mallard weighs approximately 1.2 kg and consumes food equivalent to 10 percent of its body weight each day, dosage of 423.8 mg/kg body weight is equivalent to an approximate lead concentration in the food of 4,600 mg/kg [8]. It was found that 1,000 ppm dietary lead reduced egg production and caused soft-shelled eggs and 500 ppm inhibited growth and produced anemia [8].

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MANGANESE

CAS NUMBER

7439-96-5

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: decomposes [1]
Vapor Pressure: insignificant at 25°C [1]
Henry's Law Constant: Not Applicable [1]
Specific Gravity: 7.20 at 20/4°C [1]
Organic Carbon Partition Coefficient: Not Applicable [1]

BACKGROUND CONCENTRATIONS

Manganese is a naturally-occurring element. The concentration of manganese in minimally disturbed soils varies tremendously. A collection of 1,317 soil samples from across the conterminous U.S. determined that 89 percent were less than or equal to 700 ppm, with a geometric mean of 330 ppm, but with a maximum value as high as 7,000 ppm [2].

FATE AND TRANSPORT

Environmental fate processes may transform one manganese compound to another; however, manganese itself is not degraded. Elemental manganese and inorganic manganese compounds may exist in air as suspended particulate matter. Such particles are removed from the atmosphere primarily by dry deposition, and, to a lesser extent, by washout. In water, the metal may exist in any of four oxidation states (2+, 3+, 4+, or 7+). Mn(+2) predominates in most waters, and usually combines with carbonate to form a compound of low solubility. In extremely reduced water, poorly soluble sulfides are formed. Manganese is often transported in rivers as suspended sediments. Manganese in water may be significantly bioconcentrated at lower trophic levels. Bioconcentration may not be significant in predatory fish; thus biomagnification may not be significant [1].

Adsorption of manganese to soils may be highly variable, increasing with higher organic content and anion-exchange capacity. At low concentrations, manganese may be "fixed" by clays, and will not be readily released into solution. At higher concentrations, it may be desorbed by ion exchange. For example, the discharge of waste water into estuarine environments resulted in the mobilization of manganese from the bottom sediments. Also, microorganisms may increase the mobility of manganese under some circumstances [1].

HUMAN TOXICITY

General. The only adverse health effect identified following exposure to high levels of manganese is a condition known as "manganism," which results in psychomotor disturbances. Manganese in small amounts is believed to be an essential nutrient for humans [1]. The USEPA has placed manganese in weight-of-evidence Group D; that is, it is not classifiable as to human carcinogenicity [3].

Oral Exposure. A chronic RfD of 0.1 mg/kg/day is based on a NOAEL of 0.14 mg/kg/day for central nervous system effects determined from human chronic ingestion data [3]. The amount of manganese absorbed from the gastrointestinal tract typically averages 3 to 5%. Most animal studies indicate that manganese compounds have low acute oral toxicity. A NOAEL of 2,300 mg/kg/day in food for 6 months was determined for mice. On the other hand, single doses of highly concentrated solutions of various manganese compounds delivered to rats by gavage produced LD_{50} values ranging from 410 to 820 mg manganese/kg/day. Thus it was concluded that high doses delivered by gavage did not yield a model relevant for normal environmental exposure. Evidence for the onset of manganism in humans following oral exposure is inconclusive. In animals, changes in the brain have been observed following very high oral exposure [1].

Inhalation Exposure. An RfC of 0.4 mg/m^3 is based on a LOAEL of 0.97 mg/m^3 for increased prevalence of psychomotor disturbances observed in occupational exposure of humans [3]. The rate and extent of absorption of manganese following inhalation is unknown. A significant fraction of inhaled manganese-containing particles are carried via mucociliary transport to the gastrointestinal tract. Exposure of humans to high levels of manganese dust in air for a prolonged period of time (1 month to several years) may cause mental and emotional disturbances, and the impairment of locomotion and dexterity, a condition known as manganism. However, this condition has only been documented for workers in mines and foundries. Manganism occurs because excessive manganese injures a part of the brain that helps control body movements. Some of the symptoms of manganism can be reduced by medical treatment, but the brain injury is permanent [1].

Dermal Exposure. No information was located on the dermal absorption of manganese or adverse health effects resulting therefrom. It is reasonable to assume that intake via this pathway under normal circumstances is minimal.

ECOLOGICAL TOXICITY

General. Manganese is an essential trace element or micronutrient for plants and animals. Manganese does not occur naturally as a metal, but is found in various salts and minerals, frequently in association with iron compounds [4]. Manganese readily bioaccumulates in plants and animals, but does not biomagnify in food chains.

Vegetation. At pH values of 5.0 or less, manganese is rendered very soluble and excessive accumulation in plants can result. At pH values of 8.0 or above, precipitation results in the removal of bioavailable manganese from the soil [5].

Wetland plants, such as cattails, tend to maintain higher tissue concentrations of manganese than upland plants, probably because of greater availability of soluble manganese in wet soils or sediments [6]. Cattails can take up 779 mg/kg dry weight without injury [4]. Plants having more than 400 to 3,000 mg/kg of manganese (dry weight) in their tissues may exhibit toxic symptoms depending on the plant species [6]. Manganese toxicity in young plants is indicated by brown spotting on leaves [5]. Vegetation phytotoxic concentrations in soils and sediments are species specific and range widely.

Aquatic Life. Manganese ions are rarely found at concentrations above 1 mg/L, so manganese is not considered to be a problem in freshwater [7]. Manganese is toxic to fish in concentrations ranging from 1.5 to 1000 mg/L. Most toxic thresholds for fish are probably less than 50 mg/L [4]. Toxicity of manganese increases with decreasing pH [8]. Manganese has been shown to bioaccumulate in freshwater invertebrates [4]. There is no USEPA aquatic life water quality standard [9].

Wildlife. The divalent form of manganese has a low order of toxicity to biota, especially to vertebrate animals. The hexavalent form is highly toxic, but does not occur in nature. Toxic concentrations of divalent manganese is reported in the diets of the following species: birds, 4,800 ppm; rats greater than 2,000 ppm; and rabbits 1,250 to 6,000 ppm. Toxic levels of manganese in mammals can cause decreased feed intake, decrease growth, reduced hemoglobin, and even death [10]. Growing rats have had dietary intake as high as 1,000 to 2,000 mg/kg with no apparent ill effects [6]. Maximum tolerable levels of manganese recommended by the National Academy of Sciences was 15 mg/kg body weight for sheep and cattle, 16 mg/kg body weight for swine, and 250 mg/kg body weight for poultry [10].

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MERCURY

CAS NUMBER

7439-97-6

COMMON SYNONYMS

Hydragyrum; quicksilver

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: 0.56 mg/L [1]
Vapor Pressure: 2×10^{-3} mm Hg at 25°C [2]
Henry's Law Constant: ND
Specific Gravity: 13.534 at 25/4°C [2]
Organic Carbon Partition Coefficient: ND

BACKGROUND CONCENTRATIONS

Mercury is a naturally-occurring element. Elemental mercury is a silver-white, heavy, mobile, liquid metal exhibiting slight volatility at room temperature [2]. Concentrations of mercury at sampling points across the contiguous United States exhibit a limited, but varied range. A total of 1,267 soils samples were gathered by the United States Geological Survey for mercury concentration analysis. Of this total, 1,263 samples exhibited some concentration of mercury across a range of <0.01 ppm to a maximum of 4.6 ppm. Fourteen percent of the total samples gathered showed a mercury concentration of from less than 0.01 ppm up to 0.002 ppm; 16 percent showed concentrations between 0.002 ppm and 0.032 ppm, 33 percent between 0.032 and 0.051, 24 percent between 0.051 and 0.13, and 13 percent showed concentrations of mercury to be from 0.13 ppm up to a maximum value of 4.6 ppm; geometric mean concentration of mercury was 0.058 ppm [3].

FATE AND TRANSPORT

Mercury may exist as one of three forms: elemental mercury, inorganic mercury, and organic mercury. Elemental mercury will combine with sulfur at ordinary temperatures, and react with nitric acid and/or ammonia solutions in air (to form Hg_2NOH); it does not react with hydrochloric acid, sulfuric acid (when cold), or alkalies. Mercurous salt will be slowly degraded by sunlight [2]. Inorganic mercury compounds generally dissociate into the mercuric form (Hg^{2+}) rather than the mercurous form (Hg^{+}). Organic mercury compounds are generally divided into two broad classes: alkyl mercury (e.g., monomethyl mercury) and phenyl mercury (e.g., phenylmercury acetate). Organic mercury compounds are more easily absorbed than elemental and/or inorganic forms, but will readily undergo biodegradation with the ultimate release of inorganic mercury. Organomercury compounds, especially alkyl mercury compounds, are viewed as posing the greatest toxicological danger [4]. Given their high specific gravity/density values, elemental and inorganic mercury compounds are generally susceptible to gravitational deposition in sediments of aqueous environments. Given the relative values of water solubility and vapor pressure, mercury should be expected to be a fairly mobile material. Mercury entering surface waters can be microbially converted to methylmercuric ion given favorable conditions. Methylmercury accumulates in carnivorous fish to levels 10,000 times those concentrations found in the ambient water [1].

HUMAN TOXICITY

General. Long-term exposure to either organic or inorganic mercury can permanently damage the brain, kidneys, and developing fetuses. Short-term exposure can also have adverse health effects, but full recovery is more likely. Methylmercury is a potent neurotoxin [1]. The USEPA has placed inorganic mercury in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity [5].

Oral Exposure. The chronic RfD of 0.0003 mg/kg/day is based on kidney effects observed following oral administration in the rat [6]. Oral absorption of metallic mercury by humans has been estimated to be approximately 0.10%. Organic forms of mercury are readily absorbed by humans and animals via the oral route. For example, in one study approximately 95% of methylmercuric nitrate was absorbed. The oral LD_{50} for $HgCl_2$ ranged from 35 to 105 mg/kg in rats. The lethal dose of $HgCl_2$ in adult humans has been estimated to range from 10 to 42 mg/kg. Signs of acute mercury toxicity in humans and animals include gastrointestinal lesions and renal involvement. Death is usually caused by shock, cardiovascular collapse, acute renal failure, and severe gastrointestinal damage. A number of human deaths have resulted from organic mercury ingestion; the lethal dose is estimated to range between 10 and 60 mg/kg. A neurological syndrome in humans following the consumption of methylmercury-contaminated fish has been characterized by many symptoms including tingling in the extremities, impaired vision, hearing, taste, and smell, incoordination, weakness, slurred speech, irritability, memory loss, depression, and insomnia. Pregnant women who have ingested organic mercury have given birth to infants with severe brain damage. The evidence that the brain damage was caused by organic mercury is very strong [1].

Inhalation Exposure. The RfC of 0.0003 mg/m^3 is based on a NOAEL of 0.009 mg/m^3 determined for humans exposed by inhalation [6]. Metallic mercury diffuses rapidly across lung membranes into the blood. Studies have shown that about 74 to 80% of inhaled elemental mercury vapor is retained in human tissues. Exposure to a metallic mercury vapor concentration of 28.8 mg/m^3 for 1 to 30 hours reportedly caused death in rabbits. In humans, death reportedly occurred following exposure to about 1.1 mg/m^3 diethylmercury vapor for 4 to 5 months. Symptoms of exposure to metallic mercury vapor in humans include chest pains, dyspnea, cough, hemoptysis, impairment of pulmonary function, tremors, insomnia, decreased motor function, headaches, decreased libido, and irritability. Some kidney damage in humans may occur at vapor concentrations of elemental mercury of 0.1 mg/m^3. Inorganic mercury vapor has been reported to cause menstrual disturbances and spontaneous abortions in women, and congenital malformations and resorptions in the offspring of exposed female rats [1].

Dermal Exposure. Both inorganic and organic forms of mercury are absorbed by the skin, although the extent of absorption was not reported. Children exposed to inorganic mercury salts dermally, exhibited the following symptoms: tremor of face or extremities, sudden jerky movements, a lack of muscle tone, impaired reflexes, seizures, light sensitivity, deafness, insomnia, and irritability. Symptoms in an adult human exposed dermally to metallic mercury were reported to include headache, tinnitus, and vertigo [1].

ECOLOGICAL TOXICITY

General. Biologically, mercury is considered nonessential and nonbeneficial for plants and animals. It is a highly toxic element that can both bioaccumulate in biota and readily biomagnify through biological food chains, increasing by a factor of three to five at each higher trophic level [7]. Organic forms of mercury such as methylmercury and dimethylmercury are readily bioavailable; are produced by anaerobic bacteria in aquatic sediments; and are more toxic than inorganic mercury. Substantial environmental research has been conducted for this metal.

Vegetation. Mercury is not readily taken up by plants. Most higher vascular plants are resistant to mercury poisoning, although they may accumulate it to a limited degree [8]. Symptoms of toxicity include stunting of seedling growth and root development, and an inhibition of photosynthesis causing yield reduction [9]. Mercury concentrations in plant leaves range from 0.001 to 0.01 ppm [10]. The phytotoxic concentration of mercury in the soil was reported to be greater than 10 ppm (USEPA, 1983). Phytotoxic levels reported from four studies range from 0.3 to 5 mg/kg (soil dry weight) [9].

Aquatic Life. The most serious mercury contamination in the aquatic food chain occurs with methyl mercury. Methylmercury is very soluble in water, which means it is readily accumulated by aquatic organisms. Freshwater plants appear to be less sensitive than freshwater fish or invertebrates to methyl mercury. Bioaccumulation of mercury was markedly enhanced at elevated water temperatures, reduced water salinity or hardness, reduced water pH, increased age of the organism, and reduced organic matter content of the medium; in the presence of zinc, cadmium, or selenium in the solution; and after increased duration of exposure [11]. Mercury toxicity varies among species, with concentrations in water of 0.1 to 2.0 μg/L fatal to sensitive aquatic species and concentrations of 0.03 to 0.1 μg/L associated with significant sublethal effects [11]. Spawning in fathead minnows was inhibited by 0.00012 mg/L mercury, and the entire test population was killed by 0.0008 mg/L in 3 months [7]. Other studies with the same species, however, found only detrimental effects at 0.12 mg/L and no toxic effects at 0.07 mg/L [7]. Fish toxicity from mercury ranges from 30 μg/L (guppy) to 1,000 μg/L (*Mozambique tilapia*) [9]. In fish, the biological half-life of mercury is between 1 and 3 years [7]. Bioconcentration factors range from 5,000 for mercury to 4,000 to 85,000 for methylmercury [9]. For aquatic life protection, mercury water levels should not exceed 0.012 μg/L (4-day average) or 2.4 μg/L on an hourly average [11]. The federal chronic freshwater quality criterion for mercury is 0.012 μg/L [12].

Wildlife. Mercury in birds and mammals can adversely affect reproduction, growth and development, behavior, blood chemistry, coordination, vision, hearing, and metabolism [9]. Environmental concentrations of 0.1 ppm or greater would have significant detrimental effects on waterfowl population dynamics [7]. Intensive studies have been conducted on mallards. Studies of over three generations of mallards have shown that methylmercury fed in concentrations as low as 0.5 ppm resulted in reduced reproductive output and altered behavior in young ducklings. This concentration is calculated to be equivalent to 0.1 ppm in a wild diet [7]. Acute oral LD_{50} based on tests with five other bird species ranged from 2.2 to 37.8 mg/kg for methylmercury and 11.5 to 75.5 mg/kg for ethylmercury. The LD_{50} in mule deer for organomercury is 17.88 mg/kg [9]. Bowen [14] reported that a dietary intake of 800 ppm mercury (as HG^{+2}) was lethal to rats (study duration not provided). The biological half-life for mercury is 20 to 70 days in most species. The biological half-life of methylmercury in mammals is 70 to 80 days [7].

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NICKEL

CAS NUMBER

7440-02-0

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: insoluble [1]
Vapor Pressure: insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 8.90 [2]
Organic Carbon Partition Coefficient: NA [1]

BACKGROUND CONCENTRATIONS

Nickel is a naturally-occurring element. The concentration of nickel in minimally disturbed soils varies tremendously. A collection of 1,318 soil samples from across the conterminous U.S. determined that 81 percent were less than or equal to 20 ppm, with a geometric mean of 13 ppm, but with a maximum value as high as 700 ppm [3]. Levels as high as 24,000 ppm have been found in soils near metal refineries [1].

FATE AND TRANSPORT

Nickel is dispersed throughout the atmosphere primarily as a result of anthropogenic activities. The primary source of nickel in the atmosphere is from the burning of fuel oil. Most of the nickel in the atmosphere occurs in the aerosol form, and is believed to be nickel sulfate. The average residence time for nickel in the atmosphere is 7 days, during which time long-distance transport may occur. Wet or dry deposition is expected to be the primary fate process in air [1].

Nickel is extremely persistent in water. Any nickel found in surface water or groundwater at moderate to high concentrations is probably of anthropogenic origin. In pristine environments, nickel tends to precipitate or be sorbed, leading to decreases in mobility and bioavailability. In polluted waters containing more organic matter, organic materials will keep nickel solubilized by complexation. In water under anaerobic conditions, and in the presence of sulfides, nickel will precipitate out as nickel sulfide. Nickel is not believed to volatilize from water, or undergo biotransformation by microorganisms in water. Nickel is bioaccumulated by some aquatic plants, but not fish [1].

The average residence time of nickel in soil is estimated to be 2,400 to 3,500 years. Although it is extremely persistent in soil, it can leach to groundwater. Organic complexing agents appear to restrict movement in soil. Nickel may be immobilized in soil as various inorganic complexes. It is not expected to volatilize from soil. It is reasonably mobile in low pH and cation exchange capacity mineral soils, but less mobile in basic mineral soils and soils with high organic content. Acid rain can facilitate leaching. Some terrestrial plants accumulate nickel [1].

HUMAN TOXICITY

General. The primary targets of nickel toxicity are the respiratory, gastrointestinal and immunological systems [1]. Studies in animals suggest that low levels of nickel may be necessary to maintain good health, but this has not been shown in humans [1]. Nickel is considered to be genotoxic. Metallic nickel has not been placed in a weight-of-evidence cancer group by the USEPA, but both nickel refinery dust and nickel subsulfide have been placed in Group A, indicating that they are human carcinogens [1].

Oral Exposure. A chronic oral RfD of 0.02 mg Ni/kg/day is based on a NOAEL of 5 mg Ni/kg/day for decreased body and organ weights in a chronic oral study in rats [4]. Nickel is poorly absorbed following oral exposure [1]. Acute oral LD_{50} values in rodents ranged from 66 to 136 mg Ni/kg [1]. A fatal oral dose in humans of approximately 570 mg Ni/kg has been reported [1]. Information regarding the effects of nickel in humans following oral exposure are limited. Gastrointestinal distress and effects on the blood were noted in workers who drank nickel-contaminated water from a drinking fountain (approximately 7 mg Ni/kg) [1]. Animal studies indicate that oral exposure to nickel ($>$ 0.7 mg Ni/kg/day) can result in adverse effects on the blood, lungs, kidneys and sperm and decreases in body and organ weights [1]. There is no evidence that oral exposure to nickel causes developmental effects in humans, but animal studies suggest that nickel may be fetotoxic [1]. Oral exposure to metallic nickel has not been reported to cause cancer in humans or animals, therefore, an oral Slope Factor is not available [4].

Inhalation Exposure. An inhalation RfC for nickel is currently under review by the USEPA [4]. Approximately 35% of inhaled nickel is absorbed into the blood [1]. Acute inhalation exposure to nickel has not been reported to be fatal in humans, and acute LC_{50} values in animals are not available [1]. The respiratory system is the target of nickel toxicity in people employed in nickel refineries or in nickel processing plants. Respiratory effects reported in occupationally exposed workers include chronic bronchitis, emphysema and reduced lung capacity. Of greater concern, however, is the production of cancer of the lung and nasal cavity. Recent studies indicate that cancer usually occurred when the workers were exposed to > 1 mg Ni/m^3 of soluble nickel compounds (such as nickel sulfate or nickel chloride) or to > 10 mg Ni/m^3 of insoluble nickel compounds (such as nickel oxide) [1]. An inhalation Unit Risk for cancer is not available for the soluble salts of nickel, but are available for nickel subsulfide and nickel refinery dust [4]. Inhaled nickel has not been associated with developmental or reproductive effects in humans, but testicular effects have been found in animal studies [1].

Dermal Exposure. Dermal exposure to nickel has not been reported to be fatal in humans or animals [1]. The most prevalent effect of nickel to the general population is the production of skin allergies that result in dermatitis [1]. These allergies can be elicited in sensitive individuals following exposure to nickel via any route [1].

ECOLOGICAL TOXICITY

General. Nickel is suspected to be an essential trace element for both plants and animals [5]. Nickel produces toxic effects in many species of plants, and mammals have shown a low to moderate toxicity. Nickel can be accumulated by aquatic vascular plants and has been found in elevated concentrations in fish [5]. Bioconcentration factors for nickel for freshwater fish, invertebrates, and plants are 40,100, and 100, respectively [6]. There is no evidence that nickel biomagnifies through the food chain.

Vegetation. Nickel uptake and phytotoxicity has been found to be much greater in acidic soil [8]. Normally the nickel content of plant material is about 0.1 ppm to 1.0 ppm of dry matter. Toxic limits of nickel are considered to be 50 ppm in plant tissues [7]. Nickel in water is generally toxic to plant life at concentrations above 0.5 mg/L [8]. Vascular aquatic plants have apparently developed a high nickel tolerance. Sedge can absorb 2.46 mg/kg dry weight, while bulrush, cattail, and reed absorb 1.71 mg/kg, 1.83 mg/kg, and 1.53 mg/kg dry weight, respectively [5]. The early stages of nickel toxicity are expressed by stunting in the affected plant [7]. Nickel interferes with the uptake of iron, and sufficient levels of iron appear to reduce the toxicity of nickel to plants [9].

Aquatic Life. Nickel toxicity to aquatic life varies widely, and is influenced by pH, hardness, species tested, and chemical form [8]. Nickel combines readily with cyanide to form a nickel-cyanide complex that is relatively stable. It can be present in water concentrations greater than 100 mg/L as cyanide without harm to fish life if the water is moderately alkaline [10]. Toxicity of nickel to freshwater organisms decreases with increasing water hardness [13]. In fish, the 4-day LC_{50} values are 4.58 mg/L to 9.82 mg/L in soft water and 39.2 mg/L to 42.4 mg/L in hard water [8]. The acute no effect level for fathead minnow is 0.38 ppm in hard water and the lethal limit is 10 ppm [12]. The LC_{50} value for *Daphnia* ranges from 0.13 mg/L to 0.51 mg/L [8]. The federal acute and chronic criteria for freshwater aquatic life are 1,400 $\mu g/L$ and 160 $\mu g/L$, respectively for water hardness of 100 mg/L $CaCO_3$ [13].

Wildlife. Nickel is not highly toxic to mammals when injested. The oral LD_{50} value for nickel is 136 mg/kg in mice and 116 mg/kg in rats [14]. No adverse effects were reported in cattle fed 50 ppm nickel for up to 6 weeks and this is the maximum tolerable level for cattle recommended by NAS [14]. At higher levels (100 ppm) decreased food intake was observed in young cattle, and decreased growth rate occurred at 1,000 ppm [14].

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SELENIUM

CAS NUMBER

7782-49-2

COMMON SYNONYMS

Vandex; CI77805; selenium base; selenium dust; colloidal selenium; selenium homopolymer [1].

ANALYTICAL CLASSIFICATION

Metal.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: Insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 4.81 at 20°C [2]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Selenium is a naturally-occurring element. The concentration of selenium in minimally disturbed soils varies tremendously. A collection of 1,267 soil samples from across the conterminous U.S. determined that 80 percent were less than or equal to 0.5 ppm, with a geometric mean of 0.26 ppm, but with a maximum of 5 ppm [3].

FATE AND TRANSPORT

The behavior of selenium in the environment is dependent upon its oxidation state, and the behavior of the chemical compounds formed as a result of the differing oxidation states. In addition, the oxidation state of selenium in the environment is dependent upon a number of environmental factors, including pH, Eh, and biological activity, etc. For releases of selenium to soils, pH and Eh will be the primary determining factors for its fate and transport. Elemental and/or inorganic selenium may undergo microbial methylation (to dimethyl selenide and dimethyl deselenide), ultimately being volatilized to the atmosphere. Temperature, however, will moderate the methylation of selenium; reductions in temperature from 20°C to 4°C resulted in a methylation rate reduction of 90%. Acidic soil conditions favor the predominance of selenides. Selenides are insoluble and are expected to be immobile in the soils. Neutral to alkaline soil conditions favor the predominance of selenates. Selenates are expected to be very mobile in soils, given their high solubility and low sorption potential, and represent a potential for leaching to unprotected groundwaters. For water-soluble selenium compounds (i.e., selenates), terrestrial plant uptake represents a removal/transport mechanism of concern, but will be influenced by a variety of environmental factors (e.g., pH, soil type, reduction oxidation (redox) potentials, etc.) [1].

Selenium released to surface waters is expected to be found in the form of salts of selenic and selenious acids. Salts of selenic acid (such as sodium selenate) are generally found in aerobic, alkaline waters, and are expected to be highly mobile in the aquatic environment. Salts of selenious acid (selenite salts) are found in neutral to acidic waters, and show less environmental mobility than do selenate salts. Under acidic conditions, however, selenite is readily reduced to elemental selenium; selenate, as well, is converted to elemental selenium, but more slowly. Elemental selenium will be stable over a wide range of pH and redox conditions. Aquatic organisms, however, will convert selenium to selenoamino acids and, subsequently, methylated selenium compounds. Neither metabolic product is expected to exist long in the aquatic environment, with the methylated forms volatilizing rapidly to the atmosphere. Selenium in the aquatic environment has been demonstrated to bioaccumulate ($\log_{BAF} = 3.60$), bioconcentrate ($\log_{BCF} = 3.27$), and, potentially, biomagnify in aquatic organisms [1].

Atmospheric concentrations of selenium are generally found as inorganic compounds such as selenium dioxide and hydrogen selenide, and organic compounds such as dimethyl selenide and dimethyl diselenide. Dry and/or wet deposition of selenium compounds is expected to account for some removal of these materials from the atmosphere [1].

HUMAN TOXICITY

General. Selenium is considered an essential element. Toxic effects may occur, however, when too much selenium is taken into the body. The major target of selenium toxicity is the lungs, with the heart, liver and kidneys also being affected. Selenium is considered to be genotoxic [1]. The USEPA placed selenium in weight-of-evidence cancer Group D, indicating that it is not classifiable as to human carcinogenicity [4].

Oral Exposure. A chronic oral RfD of 0.005 mg/kg/day is based on a NOAEL of 0.015 mg/kg/day for clinical selenosis in a human epidemiology study [4]. Selenium is readily absorbed following oral exposure. Acute oral LD_{50} values of 4.8 - 7 mg/kg in rats, 3.2 - 3.5 mg/kg in mice, 2.3 mg/kg in guinea pigs and 1.0 mg/kg in rabbits have been reported for selenium [1]. In humans, selenium exposure has resulted in death, but the fatal dose is not known. Following accidental ingestion of selenium, effects on the lungs (pulmonary edema, breathing difficulties), upset stomachs and muscular weakness have been noted. The dose resulting in these effects is not known. Symptoms reported in people who ingested selenium over a long period of time include loss of hair, loss of and poorly formed nails, problems with walking, reduced reflexes and some paralysis. These effects occurred at doses greater than or equal to 0.053 mg/kg/day [1]. Selenium has not been found to cause developmental effects in humans or mammals, but birth defects have been found in birds [1]. Most epidemiological studies indicate that selenium is not carcinogenic to humans. In fact, some animal studies suggest that oral selenium may inhibit cancer. An oral Slope Factor for cancer is not available for selenium [4].

Inhalation Exposure. A chronic inhalation RfC is not available for selenium [4]. Selenium is readily absorbed following inhalation exposure. Acute inhalation LC_{50} values in guinea pigs ranged from 1-12.7 mg/m^3 for 2 to 8 hours [1]. Inhaled selenium has not been reported to be fatal in humans. In both humans and animals, the respiratory system is the primary target of inhaled selenium because selenium is an irritant when it comes in contact with water. Short-term exposure to high concentrations of selenium (exact levels not known) results in pulmonary edema, bronchial spasms, symptoms of asphyxiation, and persistent bronchitis [1]. Neurological effects (headaches, dizziness, malaise) have also been noted following short-term inhalation of selenium. Occupational exposure to low concentrations (0.007-0.05 mg/m^3) has resulted in slight tracheobronchitis [1]. Information regarding the potential effects of inhaled selenium on reproduction and development are not available. Inhaled selenium has not been reported to cause cancer in humans or animals, therefore, an inhalation Unit Risk is not available [4].

Dermal Exposure. Contact dermatitis and skin rashes have been reported following both acute and chronic exposure to selenium [1]. This is due to the irritative properties of selenium. Other information regarding the toxicity of selenium following dermal exposure are not available.

ECOLOGICAL TOXICITY

General. Selenium is considered a non-essential trace element for most plants and a required trace element or micronutrient for most animals. Selenium has a comparatively short biological life in various species of organisms for which data are available: 10 days in pheasant; 13 days in voles; 15 days in ants; 28 days in leeches; and 64 days in earthworms [5]. Recent studies suggest that selenium biomagnifies in aquatic and terrestrial food chains. It usually magnifies from two to six times in aquatic food chains [6].

Vegetation. Selenium is readily absorbed in high quantities in some plants, apparently without injury. Selenium bioaccumulation is typically associated with arid and semi-arid soil regions of the western United States where selenium-containing geologic deposits are abundant and alkaline soils are common. Because soil parent materials are low in selenium most forage and grain crops would typically contain <0.05 ppm selenium in their tissues [7]. A suggested maximum concentration value of selenium in plants is given at 3 to 10 ppm to avoid animal health problems [8]. Selenium in soil is more soluble under alkaline conditions. Selenium accumulators can tolerate extremely high selenium concentrations without injury. The primary indication of selenium injury in nontolerant plants is growth inhibition. A symptom of selenium toxicity in grains is white chlorosis of some or all of the leaves [7].

Aquatic Life. Impacts of selenium in surface waters on aquatic animal species have been noted at concentrations of 0.8 mg/L [8]. The lowest concentration of selenium that results in the impairment of mature fish is 0.25 mg/L and selenium at 0.003 mg/L has harmful effects on fish fry [9]. Field and laboratory data suggest that selenium at concentrations greater than 0.002 to 0.005 mg/L can be bioconcentrated in food chains and cause toxicity and reproductive failure in fish [6]. Two- to 4-day LC_{50}s for fish range from 2.0 to 80.0 mg/L [10]. Selenium toxicity of fathead minnows has LC_{50} values of 0.37 to 1.0 mg/L and at 20 mg/L 100 percent mortality occurred [8]. The 48-day LC_{50} for bluegill larvae was 0.4 mg/L at a water hardness of 330 mg/L [6], whereas 100 percent mortality of juvenile bluegills was achieved with a dietary exposure equivalent to 45 ppm selenium (hardness was 18 mg/L). The 96-hour LC_{50} for fathead minnow fry was 2.9 mg/L, and for bluegill juveniles was 40.0 mg/L [7]. Selenium accumulation is affected by water temperature, age of organism, organ or tissue specificity, mode of administration, and other factors [5]. It is noteworthy that selenium in the diet is known to exert a protective influence against mercury poisoning [11]. The federal aquatic life chronic freshwater quality criterion are 5.0 μg/L for warmwater and modified warmwater habitats [12].

Wildlife. Selenium protects mammals and some birds against the toxic affects of mercury, cadmium, arsenic, thallium, and the herbicide paraquat [5]. There is a danger of selenium toxicity in the diets of terrestrial animals at concentrations in excess of 5 ppm [8]. In terrestrial systems, Byers [13] suggested 4 ppm (dry weight) of selenium in plants as a tolerance limit for animals that consume them and reported 5 ppm to be potentially dangerous. Lemly and Smith [6] suggested that environmental exposures to waterfowl from water, diet, and sediments should not exceed 0.005 ppm in water and 3 ppm (dry weight) in food and sediments to protect waterfowl from reproductive failures and/or mortality through food chain biomagnification effects. Studies with adult mallards indicated that 100 ppm dietary selenium (as sodium selenite) was fatal within 1 month, but that survival was high at 25 ppm after 3 months. Poor egg hatchability was recorded at 25 ppm, but not at 10 ppm [5].

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SILVER

CAS NUMBER

7440-22-4

COMMON SYNONYMS

Argentum; Argentum crede; CI77820; shell silver; silver atom; silver colloidal; silflake; silber. [1]

ANALYTICAL CLASSIFICATION

Metal.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: Insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 10.49 at 15/4°C [2]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Silver is a naturally-occurring element whose average abundance is 0.1 ppm in the earth's crust and 0.3 ppm in soil [1].

FATE AND TRANSPORT

Silver is a white metal with a face-centered cubic structure. With the exception of gold, no other metal is more malleable or ductile. Silver is not appreciably attacked by water, atmospheric oxygen, or most acids (with the exception of dilute nitric acid and hot concentrated sulfuric acid). It is insoluble in water, but solubilizes in fused alkali hydroxides (in the presence of air), in alkali cyanides (in the presence of air), and in fused alkali peroxides. Additionally, most salts of silver are photosensitive [2].

Silver released to soils under oxidizing conditions will be found primarily in compounds with bromide, chloride, and/or iodide; silver released to soils under reducing conditions will be primarily in the form of free silver metal and/or silver sulfide. The fate and transport, then, of silver released to soils is a function of the form of silver-containing material/compound released (i.e., elemental silver versus silver nitrate). In addition, the mobility of silver through soils is influenced by: the drainage rate of the soil (silver is readily removed from well-draining soils); the reduction-oxidation (redox) potential and pH of the soil, which affects the ability of manganese and iron (among others) to immobilize silver; and organic matter, which tends to form complexes with silver. Plants account for another mechanism of silver removal from soils since plants will take silver from soils into the root system. Biodegradation and/or biotransformation of silver is expected to be very restricted since silver proves toxic to most microorganisms [1].

Silver released to waters will be found primarily as sulfates, bicarbonates, sulfate salts, chlorides, and particulate-associated matter. Sorption appears to be the primary process affecting partitioning of silver through sediment layers in waters, with silver being sorbed readily by compounds such as manganese dioxide. The redox potential and pH of waters will affect the ability of silver to sorb to organic matter therein. Bioconcentration of silver in aquatic organisms represents another fate/transport process of significant concern, given the bioconcentration factor ($\log_{BCF} = 4.82$) for silver. In addition, silver is slowly bioaccumulated by aquatic organisms ($\log_{BAF} = 1.41$). Biomagnification through the trophic levels is expected to be minimal, however. As with silver released to soils, silver released to waters is not expected to undergo significant biodegradation/biotransformation given its inherent toxicity [1].

Atmospheric concentrations of silver will primarily be found as particulate-associated matter and/or fine particles of metallic silver. The major forms of atmospheric silver include: metallic silver, silver sulfide, silver sulfate, silver carbonate, and silver halides. Silver found in any of these forms may be subject to long-range transport, and will eventually be removed from the atmosphere via dry or wet deposition; up to 50% of silver released to the atmosphere from industrial operations has been demonstrated to travel up to 100 km prior to deposition [1].

HUMAN TOXICITY

General. The major targets of silver toxicity are the respiratory system following inhalation exposure and the skin following inhalation, oral and dermal exposure [1]. Data suggest that silver is a mutagen. The USEPA has placed silver in weight-of-evidence cancer Group D, indicating that it is not classifiable as to human carcinogenicity [3].

Oral Exposure. A chronic oral RfD of 0.005 mg/kg/day is based on a LOAEL of 0.014 mg/kg/day for argyria in a long-term study in humans [3]. Approximately 20% of an oral dose of silver is absorbed through the gastrointestinal tract [1]. Ingested silver has not been reported to be fatal to humans, and LD_{50} values are not available for animals. Short- and long-term ingestion of silver results in argyria (grey or blue-grey discoloration of the skin) in humans. The dose associated with argyria is not known. Argyria is considered to be more of a cosmetic problem rather than a health problem. Information is not available regarding the potential effects of silver on reproduction or development in humans. There is no evidence that silver causes cancer in humans or animals and, therefore, an oral Slope Factor is not available [3].

Inhalation Exposure. A chronic inhalation RfC is not available for silver [3]. Silver is absorbed through the respiratory tract, but the extent of absorption is not known. Inhaled silver has not been reported to be fatal to humans, and LC_{50} values are not available for animals. Occupational exposure to 0.039 to 0.378 mg/m^3 has resulted in effects on the respiratory system (sneezing, stuffiness, runny nose, sore throat, cough, wheezing, chest tightness) and on the gastrointestinal system (abdominal pain) [1]. Occupational exposure also results in argyria. Information is not available regarding the potential effects of silver on reproduction or development in humans. There is no evidence that silver causes cancer in humans or animals, and therefore, an inhalation Unit Risk is not available [3].

Dermal Exposure. Silver has not been reported to be fatal in humans or animals following dermal exposure. Argyria and mild allergic responses are the only known effects of dermal exposure to silver [1]. The doses that elicit these effects are not known.

ECOLOGICAL TOXICITY

General. Silver is not an essential element for plants or animals. Silver toxicity ranks second only to mercury among the heavy metals [4]. Many of its salts, such as silver chloride, sulfide and arsenate, are insoluble [5].

Vegetation. No reports of silver toxicity in plants growing under natural conditions were found. Under man-induced conditions, silver toxicity to corn was reported at 0.0098 μg/ml and 0.0049 μg/ml was fatal to lupines [6]. Silver tends to be retained in surface soil at a pH greater than 4, especially in soils with a high concentration of organic matter. In plants, silver has a tendency to accumulate in the root [7]. The ratio of silver content in plants to soil has been given as 1:1.5. Such a ratio must be used with caution because the silver content of plants has a very wide range [7].

Aquatic Life. Silver nitrate and sulfate are relatively soluble compounds of silver and are considered toxic to aquatic life. Silver is not present in aquatic animals at very high concentrations because most of its compounds are virtually insoluble in water and because silver has a very short biological half-life [5]. Extremely low concentrations of silver, as low as 0.0000001 mg/L, have been found to be harmful to sensitive fish species. LC_{50} values for fish range from 0.003 mg/L for silver nitrate to 250 mg/L for silver thiosulfate. However, most reported LC_{50}s were between 0.003 and 0.1 mg/L [5]. Fish are capable of accumulating silver from water, however, the food chain is not an important route of silver accumulation for animals at higher trophic levels [4]. The federal chronic freshwater quality criterion for silver is 0.12 μg/L based on water hardness of 400 mg/L $CaCO_3$ [8].

Wildlife. No references have been found which discuss or report toxic effects of silver on wildlife under natural conditions. Silver is a general microconstituent of many animals. Although the presence of silver in most animals suggests that it might serve some purpose, its role in animal metabolism is still unknown [7]. Longterm experiments with rats and rabbits concluded that ingestion of silver in drinking water at a dose of 0.0025 mg/kg body weight did not produce any detrimental effects. Doses of 0.025 mg/kg body weight affected the rats' reflexes and rabbits' immunological activity [7]. Field studies exposing sheep ewes to as much as 10 mg/kg/day failed to produce clinical signs of toxicity [9].

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THALLIUM

CAS NUMBER

7440-28-0

COMMON SYNONYMS

None.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: Negligible at 25°C [2]
Henry's Law Constant: ND
Specific Gravity: 11.85 [1]
Organic Carbon Partition Coefficient: ND

BACKGROUND CONCENTRATIONS

Thallium is a naturally-occurring element. It can be found as crookesite in Sweden, as lorandite in Greece, and as hutchinsonite in Switzerland. The estimated occurrence of thallium within the Earth's crust is 0.7 ppm [1]. No data on thallium were gathered as part of the 1984 Department of the Interior survey of conterminous United States soils [3].

FATE AND TRANSPORT

Elemental thallium is a bluish-white, very soft, inelastic, easily fusible, heavy metal. It will oxidize superficially in air forming a coat of thallium oxide. It will react with nitric and/or sulfuric acids, but only slightly so with hydrochloric acid [1]. Thallium exists in either monovalent (thallous) or trivalent (thallic) forms; thallous being much more common. Thallic salts are readily reduced to thallous salts; virtually all are chemically reactive with air and moisture. Volatilization of thallium and its salts is not expected to occur at ambient temperatures and pressures. Elemental thallium is insoluble in water; thallium salts show a moderate to high degree of solubility (i.e.: thallium sulfide exhibiting solubility to 200 mg/L; and thallium fluoride exhibiting solubility to 780 g/L) [2]. Therefore, thallium is expected to be relatively mobile in aquatic environments and/or moist-to-wet soils. Thallium shows some tendency to bioconcentrate in aquatic organisms [4].

HUMAN TOXICITY

General. In humans, ingestion of large amounts of thallium can affect the nervous system, lung, heart, liver, and kidney [4]. The USEPA currently provides no toxicity values for thallium [5,6].

Oral Exposure. Animal studies indicate that thallium is completely absorbed when ingested. Evidence also suggests that thallium is well absorbed in humans. Estimates of the oral LD_{50} for rats vary from 32 to 39 mg/kg. A NOAEL (for death) of 0.2 mg/kg/day for 90 days was determined in rats. Male rats receiving 0.7 mg/kg/day (the LOAEL) for 60 days experienced adverse reproductive effects. The most likely route of human exposure is via direct ingestion. Indirect ingestion of dust may occur following inhalation [4].

Numerous human deaths have occurred following oral exposure to thallium. Damage to several systems have been reported, including the nervous system, cardiovascular system, liver, kidney, and muscles [4]. At physiological pH, thallium is soluble. The exact mechanism of toxicity is unclear; inhibition of enzymatic reactions and/or oxidative phosphorylation are the most likely toxic actions. Thallium poisoning in humans is insidious with four generalized stages. They are as follows:

(1) Immediate (3-4 hours): nausea, vomiting, diarrhea, and possibly hematemesis.

(2) Intermediate (hours to days): central nervous system dysfunction, peripheral nervous system dysfunction, autonomic nervous system dysfunction, ophthalmologic effects, and dermal effects.

(3) Late (2-4 weeks): dry and scaly skin, white stripes across nails, and scalp/facial hair loss;

(4) Residual (months): central/peripheral nervous system abnormalities (ataxia, tremor, foot drop, memory loss).

Thallium is an acknowledged cumulative, homicidal poison with an average lethal adult dose of 1 g (total) of soluble thallium salts [7]. Elemental thallium has shown lethality at a dosage of 4.4 mg/kg [8].

Inhalation Exposure. No reliable information was located on pulmonary absorption of thallium [4]. Occupational studies indicate that thallium may adversely affect the human nervous system following inhalation [4].

Dermal Exposure. No reliable information was located on the dermal absorption or adverse health effects of thallium following dermal contact [4].

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VANADIUM

CAS NUMBER

7440-62-2

COMMON SYNONYMS

None noted.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble at 20°C [1]
Vapor Pressure: ND
Henry's Law Constant: ND
Specific Gravity: 6.11 at 18.7/4°C [1]
Organic Carbon Partition Coefficient: ND

BACKGROUND CONCENTRATIONS

Vanadium is a naturally-occurring element. The earth's crust is estimated to be comprised of 0.01 percent vanadium (by weight). Elemental vanadium does not occur in nature [2], but may be found in over 65 known minerals including patronite (polysulfide), vanadinite, roscoelite, and carnotite [3]. In a 1984 United States Geological Survey (Department of the Interior), 1,319 total soils samples were gathered from across the conterminous United States and analyzed for vanadium content. Of the total samples gathered, 1,294 showed vanadium content in some concentration ranging from less than 7 ppm up to 500 ppm. Fourteen percent of the total soils samples gathered showed vanadium concentrations to be from less than 7 ppm up to 20 ppm; 28 percent showed concentrations of vanadium to be greater than 100 ppm up to a maximum of 500 ppm; geometric mean concentration of vanadium was 58 ppm. Sixteen soils samples were gathered in (or on a shared border of) Ohio: one showed vanadium concentrations from less than 7 ppm up to 20 ppm; two showed concentrations from >20 ppm up to 50 ppm; seven showed concentrations from >50 ppm to 70 ppm; three showed concentrations from >70 ppm up to 100 ppm; and three showed vanadium concentrations from >100 ppm up to 500 ppm [4].

FATE AND TRANSPORT

Elemental vanadium may be found in the following forms: light gray or white lustrous powder; fused hard lumps; or, body-centered cubic crystals. Vanadium does not tarnish in air, nor does it appreciably react with air or moisture at ambient temperatures. It may exist in any of six oxidation states (1^-, 0, 2^+, 3^+, 4^+, and 5^+). In the natural environment, elemental vanadium exhibits a strong reducing ability, and will reduce mercuric and/or ferric salts to mercurous/ferrous salts (among others). It is not readily attacked by acids at ambient temperatures, but will react with heated acids [3]. Elemental vanadium can be expected to be relatively immobile in the environment, owing to its negligible solubility and vapor pressure. Vanadium compounds and complexes, however, exhibit varying degrees of solubility, volatility, etc., and therefore have varying degrees of mobility. The most likely way for it to get into the air is when fuel oil and coal are burned, as it is naturally present in both [1,3].

HUMAN TOXICITY

General. Elemental vanadium is considered to be nontoxic; however, some compounds of vanadium, especially the oxides, are toxic [2]. Inhalation of concentrated vanadium-containing dusts can cause coughing, sore throat, and eye irritation [1]. The USEPA has not placed vanadium in any weight-of-evidence group [5,6].

Oral Exposure. A chronic RfD of 0.007 mg/kg/day is based on a NOAEL of 5 ppm determined for rats in a chronic drinking water study [5]. The absorption of vanadium through the gastrointestinal tract is low. No more than 2.6% was absorbed from the GI tract of rats after 3 days. The acute oral LD_{50} for sodium metavanadate in rats is 41 mg/kg. The LOAEL in humans for vanadium pentoxide is 0.1 mg vanadium/kg (respiratory irritation). Some minor birth defects were observed in the offspring of rats receiving vanadium in drinking water while pregnant. Information on any possible carcinogenic effects following oral exposure were deemed inadequate [1].

Inhalation Exposure. The USEPA does not currently provide an inhalation RfC for vanadium [5,6]. The primary route of human exposure to vanadium is via inhalation (of vanadium pentoxide dust/fume) and subsequent pulmonary absorption [7]. Studies in rats indicate that rapid absorption of vanadium in humans may occur following acute inhalation exposure [1]. Once in the body, the most commonly found form of vanadium is vanadate (VO_3^-, 5^+ oxidation state). In this form, vanadate acts as an oxidizing agent and is one of the most potent oxidative-phosphorylase pump reaction inhibitors. Common symptoms of acute vanadium toxicity include, but are not limited to: respiratory tract irritation, rhinitis, wheezing, nasal hemorrhage, cough, sore throat, and chest pain. Chronic toxicity symptoms include: bronchitis, conjunctivitis, pneumonia, green discoloration of the tongue, and, metallic taste on the tongue [7]. Response to inhalation of vanadium (ore) was demonstrated at a dose as low as 4 mg/kg. Vanadium pentoxide dust/fumes do not exhibit as intense a degree of toxicity by comparison [8].

Dermal Exposure. Dermal absorption of vanadium is thought to be very low [1]. No other information was available regarding adverse health effects resulting from dermal exposure to vanadium.

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ZINC

CAS NUMBER

7440-66-6

COMMON SYNONYMS

None noted.

ANALYTICAL CLASSIFICATION

Inorganic.

PHYSICAL AND CHEMICAL DATA

Water Solubility: Insoluble [1]
Vapor Pressure: Insignificant at 25°C [1]
Henry's Law Constant: Not Applicable
Specific Gravity: 7.14 at 25/4°C [2]
Organic Carbon Partition Coefficient: NA

BACKGROUND CONCENTRATIONS

Zinc is a naturally occurring element essential to many life forms [1]. It is widespread in nature and may be found in many known compounds. The estimated occurrence of zinc in the earth's crust is 0.02 percent by weight [2]. The concentration of zinc in minimally disturbed soils varies tremendously. A collection of 1,248 soils samples from across the conterminous U.S. determined that 87 percent were less than or equal to 74 ppm, with a geometric mean of 48 ppm, but with a maximum as high as 3500 ppm [3].

FATE AND TRANSPORT

Elemental zinc is a bluish-white, lustrous metal having a distorted hexagonal close-packed structure [2]. It is stable in dry air, but upon exposure to moist air will form a white coating composed of basic carbonate. Zinc loses electrons (oxidizes) in aqueous environments [2]. In the environment, zinc is found primarily in the 2+ oxidation state. Elemental zinc is insoluble; most zinc compounds show negligible solubility as well, with the exception of elements (other than fluoride) from Group VIIa of the Periodic Table compounded with zinc (i.e., $Zn\ Cl_2$, ZnI_2) showing a general 4:1 compound to water solubility level. In polluted waters, zinc often complexes with a variety of organic and inorganic ligands. Therefore, the overall mobility of zinc in an aqueous environment, or through moist-to-wet soils, may be accelerated by compounding/complexing reactions [1].

Zinc has a tendency to adsorb to soils and sediment/suspended solids in waters. Adsorption to sediments/suspended solids is the primary fate for zinc in aqueous environments, and will greatly limit the amount of solubilized zinc. Zinc is an essential element and, therefore, is accumulated by all organisms. Zinc concentrations in air are relatively low except near industrial sources. Volatilization is not an important process from soil or water [1].

HUMAN TOXICITY

General. Zinc is an essential trace element, therefore, toxic effects can result if too much or too little is taken into the body. The Recommended Dietary Allowances (RDAs) for zinc are 15 mg/day for men and 12 mg/day for women [1]. The major targets of zinc toxicity are the gastrointestinal tract following oral exposure and the lungs following inhalation exposure [1]. Zinc is not mutagenic and has been placed in weight-of-evidence Group D, indicating that it is not classifiable as to human carcinogenicity, by the USEPA [4].

Oral Exposure. A chronic oral RfD of 0.2 mg/kg/day is based on a LOAEL of 2.14 mg/kg/day for anemia in humans [5]. Approximately 20-30% of an oral dose of zinc is absorbed by the gastrointestinal tract [1]. Zinc has not been reported to be fatal to humans and oral LD_{50} values in animals are not available [1]. In humans, gastrointestinal effects (vomiting, abdominal cramps, diarrhea) and hematological effects (anemia) have resulted from oral exposure to doses greater than 2 mg zinc/kg/day. Long-term administration of zinc can result in copper deficiency [1]. In animals, effects on the liver and kidneys, as well as the gastrointestinal and hematological systems, have been reported [1]. Studies in animals indicate that exposure to high doses of zinc (200 to 500 mg/kg/day) results in reduced fetal growth and altered concentrations of zinc and copper in both the mother and fetus [1]. There is no evidence that exposure to zinc affects development or reproduction in humans. There is no evidence that zinc causes cancer in humans or animals following oral exposure, therefore, an oral Slope Factor is not available [4].

Inhalation Exposure. A chronic inhalation RfC is not available for zinc [4]. Zinc is absorbed through the respiratory tract, but the extent of absorption is not known. In humans, death has resulted from exposure to high concentrations (estimated at 97,635 mg/m^3) of zinc-containing smoke [1]. In mice, the reported LCT_{50} (product of lethal concentration and time to kill 50% of the animals) of zinc chloride was 11,800 mg-min/m^3 [1]. Short-term exposure to zinc dust and zinc fumes results in "metal fume fever". This condition is characterized by an acute impairment of pulmonary function. Acute (10-12 minutes) inhalation of 600 mg zinc/m^3 as zinc oxide has resulted in nasal passage irritation, cough, chest pain, lung rales, and decreased vital capacity. No symptoms of metal fume fever were reported following exposure to zinc oxide at 14 mg/m^3 for 8 hours, 45 mg/m^3

for 20 minutes, or occupational exposure to 8-12 mg/m^3 [1]. Information is not available regarding effects on reproduction or development in human or animals following inhalation exposure. There is no evidence that inhaled zinc causes cancer in humans or animals, therfore, an inhalation Unit Risk is not available [4].

Dermal Exposure. Zinc has not been reported to be fatal in humans or animals following dermal exposure. Topical application of zinc (in the form of zinc oxide or calamine lotion), however, is used to promote healing of burns and wounds [1].

ECOLOGICAL TOXICITY

General. Zinc is an essential trace element for plants and animals. It is the most mobile of the metals in surface water systems, but only moderately mobile in soil/water systems [6]. Zinc is bioaccumulated by all organisms, but it does not biomagnify in terrestrial or aquatic food chains.

Vegetation. Studies of bulrush, sedge, cattail, and reeds indicate relatively high zinc absorption ability [7]. Bioavailable zinc is readily accumulated in the leaves of many plants; however, it is of low availability to animals, probably due to the formation of insoluble complexes of zinc with calcium and phytic acid in the plants [8]. The phytotoxic level of zinc in the soil ranges from 500 to 2000 ppm, with toxicity being enhanced under acidic soil conditions. The normal range of zinc in leaves of various plants is 15 to 150 ppm, and the maximum suggested concentration in plants to avoid phytotoxicity is 300 ppm [9]. Plant species exhibit a wide range of tolerances to zinc concentrations in soils.

Aquatic Life. Extensive test data are available for zinc effects on aquatic life. The acute lethal toxicity of zinc is greatly affected by water hardness, with soft water being more toxic than hard water. Both an increase in temperature and a reduction in dissolved oxygen also increase zinc toxicity [7]. Zinc is most toxic in aquatic biota at a pH of 8.0, and least toxic at a pH of 6.0 [6]. Fish growth was inhibited by zinc at a concentration of 0.05 to 0.08 mg/L, swimming was impaired at 0.06 to 0.3 mg/L, and reproduction was reduced at 0.05 to 0.88 mg/L [7]. The 96-hour LC_{50} for fathead minnows was 33,000 $\mu g/L$ at a water hardness of 360 mg/L $CaCO_3$ [10]. The federal chronic freshwater quality criterion for zinc is 343 $\mu g/L$ based on a water hardness of 400 mg/L $CaCO_3$ [11].

Wildlife. Animals are generally protected from zinc poisoning through plant consumption because high concentrations of zinc are phytotoxic before they accumulate in toxic concentrations in plant tissues eaten by animals [9]. Zinc compounds are relatively nontoxic to animals, particularly mammals, because animals can physiologically regulate the absorption and excretion of this metal. For example, a dietary intake of 2,500 ppm zinc produced no discernable effects in rats, while 10,000 ppm is required to induce high mortality. A zinc concentration of 2.2 g/kg in rats and 1.9 to 2.2 g/kg in rabbits was lethal [8].

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APPENDIX L
WETLAND DELINEATION DATA SHEETS

Flags A1 - A-9

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): R. Olsen Date: 11/21/91
Project/Site: Ash Landfill State: NY County: Seneca
Applicant/Owner: ACOE Plant Community #/Name: A Common Reed @ top of site map off (road)
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes ____ No X (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ____ (If yes, explain on back) not recently

VEGETATION

Dominant Plant Species	Indicator Status	% Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Phragmites australis	FACW	80-90	11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC > 80 %
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale:

SOILS

Series/phase: ____ Subgroup:[2] ____
Is the soil on the hydric soils list? Yes ____ No ____ Undetermined ____
Is the soil a Histosol? Yes ____ No ____ Histic epipedon present? Yes ____ No ____
Is the soil: Mottled? Yes ____ No ____ Gleyed? Yes ____ No ____
Matrix Color: ____ Mottle Colors: ____
Other hydric soil indicators:
Is the hydric soil criterion met? Yes ____ No ____
Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ____ No X Surface water depth: ____
Is the soil saturated? Yes ____ No ____ moist @ surface
Depth to free-standing water in pit/soil probe hole: ____
List other field evidence of surface inundation or soil saturation.

Is the wetland hydrology criterion met? Yes X No ____
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ____
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

Flags B1- thru B-15

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): R. Olsen Date: 11/21/91
Project/Site: Ash Landfill State: NY County: Seneca
Applicant/Owner: ACOE Plant Community #/Name: B - Common Reed near tracter
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes ____ No X (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ____ (If yes, explain on back)

VEGETATION

	Dominant Plant Species	Indicator Status	Stratum		Dominant Plant Species	Indicator Status	Stratum
1.	Phragmites australis	FACW	40-88%	11.			
2.	Rhynchospora capitellata	OBL	5	12.			
3.	Panicum sp.		20	13.			
4.	Salix nigra	FACW+	one area	14.			
5.	Equisetum fluviatile	OBL	one area	15.			
6.				16.			
7.				17.			
8.				18.			
9.				19.			
10.				20.			

Percent of dominant species that are OBL, FACW, and/or FAC >50% - 88%
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale:

SOILS

Series/phase: ____ Subgroup:[2] ____
Is the soil on the hydric soils list? Yes ____ No ____ Undetermined ____
Is the soil a Histosol? Yes ____ No ____ Histic epipedon present? Yes ____ No ____
Is the soil: Mottled? Yes ____ No ____ Gleyed? Yes ____ No ____
Matrix Color: ____ Mottle Colors: ____
Other hydric soil indicators: ____
Is the hydric soil criterion met? Yes ____ No ____
Rationale:

HYDROLOGY

Is the ground surface inundated? Yes X No ____ Surface water depth: ____
Is the soil saturated? Yes X No ____
Depth to free-standing water in pit/soil probe hole: ____
List other field evidence of surface inundation or soil saturation.
series of furrows which show some signs of recent wet surface open soil areas were recently inundated - Equisetum flattened on surface
Is the wetland hydrology criterion met? Yes ____ No ____
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ____
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

C-1 thru C-11

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): R. Olsen   Date: 11/21/91
Project/Site: Ash Landfill   State: NY   County: Seneca
Applicant/Owner: ACOE   Plant Community #/Name: C-Common Reed patches near trailer & off road
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes ____ No X (If no, explain on back) on ash landfill area
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ____ No X (If yes, explain on back)

VEGETATION

Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Phragmites australis	FACW	50-95	11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC > 50-95%
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale:

SOILS

Series/phase: ____ Subgroup:[2] ____
Is the soil on the hydric soils list? Yes ____ No ____ Undetermined ____
Is the soil a Histosol? Yes ____ No ____ Histic epipedon present? Yes ____ No ____
Is the soil: Mottled? Yes ____ No ____ Gleyed? Yes ____ No ____
Matrix Color: ____ Mottle Colors: ____
Other hydric soil indicators:
Is the hydric soil criterion met? Yes ____ No ____
Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ____ No X Surface water depth: ____
Is the soil saturated? Yes ____ No X
Depth to free-standing water in pit/soil probe hole: Did not do hole since ash landfill is soil base
List other field evidence of surface inundation or soil saturation.

Is the wetland hydrology criterion met? Yes ____ No ____
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ____
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

Flags D1 - thru D-6

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): R. Olsen Date: 11/27/91
Project/Site: Ash Landfill State: NY County: Seneca
Applicant/Owner: AOE Plant Community #/Name: D emergent wetland swamp area on map
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes ___ No X (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ___ No X (If yes, explain on back) survey lines cut through part of the area.

VEGETATION

Dominant Plant Species	Indicator Status	% Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Typha latifolia	OBL	30	11.		
2. Rhynchospora capitellata	OBL	40	12.		
3. Polygonum sp.	–	15	13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC > 70 %
Is the hydrophytic vegetation criterion met? Yes X No ___
Rationale:

SOILS

Series/phase: Subgroup:[2]
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined ___
Is the soil a Histosol? Yes ___ No ___ Histic epipedon present? Yes ___ No ___
Is the soil: Mottled? Yes ___ No ___ Gleyed? Yes ___ No ___
Matrix Color: Mottle Colors:
Other hydric soil indicators: clay soil @ 10", Topo - lowest pt. in field collects runoff from fields
Is the hydric soil criterion met? Yes X No ___
Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface water depth:
Is the soil saturated? Yes ___ No X was wet last week in spots
Depth to free-standing water in pit/soil probe hole: no down to 12"
List other field evidence of surface inundation or soil saturation.

Is the wetland hydrology criterion met? Yes ? X No ___
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

Flags E-1 thru E-15

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): R. Olsen Date: 11/21/91
Project/Site: Ash Landfill State: NY County: Seneca
Applicant/Owner: ACOE Plant Community #/Name: E - Purple Loosestrife area in middle of Field
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes ____ No X (If no, explain on back) Ash Landfill - very hard surface - shale
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ____ (If yes, explain on back)

VEGETATION

Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Lythrum salicaria	FACW+	55	11.		
2. Rhynchospora capitellata	OBL	15	12.		
3. Sphagnum palustre	OBL	10	13.		
4. Typha angustifolia	OBL	10	14.		
5. Eleocharis obtusa	OB	5	15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 95%
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale:

SOILS

Series/phase: Subgroup:[2]
Is the soil on the hydric soils list? Yes ____ No ____ Undetermined ____
Is the soil a Histosol? Yes ____ No ____ Histic epipedon present? Yes ____ No ____
Is the soil: Mottled? Yes ____ No ____ Gleyed? Yes ____ No ____
Matrix Color: Mottle Colors:
Other hydric soil indicators:
Is the hydric soil criterion met? Yes ____ No ____
Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ____ No X Surface water depth:
Is the soil saturated? Yes X No ____ in spots
Depth to free-standing water in pit/soil probe hole:
List other field evidence of surface inundation or soil saturation.
open soil areas show soil saturation, sphagnum moss damp movement over moss
Is the wetland hydrology criterion met? Yes ____ No ____
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ____
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

Flags 7-1 thru 7-7

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): R. Olsen Date: 11/16/91
Project/Site: Ash Landfill State: ______ County: Seneca
Applicant/Owner: ______ Plant Community #/Name: F - Ditch w wetland plants
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes ____ No X (If no, explain on back) Ditch
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ____ (If yes, explain on back)

VEGETATION

	Dominant Plant Species	Indicator Status	Stratum		Dominant Plant Species	Indicator Status	Stratum
1.	Phragmites australis	FACW	40	11.			
2.	Lythrum salicaria	OBL	20	12.			
3.	Typha augustifolia	OBL	5	13.			
4.				14.			
5.				15.			
6.				16.			
7.				17.			
8.				18.			
9.				19.			
10.				20.			

Percent of dominant species that are OBL, FACW, and/or FAC 65
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale: ______

SOILS

Series/phase: ______ Subgroup:[2] ______
Is the soil on the hydric soils list? Yes ____ No ____ Undetermined ____
Is the soil a Histosol? Yes ____ No ____ Histic epipedon present? Yes ____ No ____
Is the soil: Mottled? Yes ____ No ____ Gleyed? Yes ____ No ____
Matrix Color: ______ Mottle Colors: ______
Other hydric soil indicators: ______
Is the hydric soil criterion met? Yes ____ No ____
Rationale: ______

HYDROLOGY

Is the ground surface inundated? Yes ____ No X Surface water depth: ______
Is the soil saturated? Yes ____ No X
Depth to free-standing water in pit/soil probe hole: ______
List other field evidence of surface inundation or soil saturation.
Topo - Old field Slopes toward this area + ditch
Is the wetland hydrology criterion met? Yes ____ No ____
Rationale: ______

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ____ ditch only
Rationale for jurisdictional decision: ______

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

Flags R-1 thru R-9 (R=ref. wet

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): R. Olsen Date: 11/22/91
Project/Site: Ash landfill State: NY County: Seneca
Applicant/Owner: ACOE Plant Community #/Name: #A Common Reed @ top of site map off road.
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes _____ No X (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No _____ (If yes, explain on back) not recently

VEGETATION

	Dominant Plant Species	Indicator Status	~~Stratum~~ %		Dominant Plant Species	Indicator Status	Stratum
1.	Phragmites australis	FACW	65	11.			
2.	Sphagnum sp.	OBL	10	12.			
3.				13.			
4.				14.			
5.				15.			
6.				16.			
7.				17.			
8.				18.			
9.				19.			
10.				20.			

Percent of dominant species that are OBL, FACW, and/or FAC 75%
Is the hydrophytic vegetation criterion met? Yes X No _____
Rationale: _____

SOILS

Series/phase: _____ Subgroup:[2] _____
Is the soil on the hydric soils list? Yes _____ No _____ Undetermined _____
Is the soil a Histosol? Yes _____ No _____ Histic epipedon present? Yes _____ No _____
Is the soil: Mottled? Yes _____ No _____ Gleyed? Yes _____ No _____
Matrix Color: _____ Mottle Colors: _____
Other hydric soil indicators: _____
Is the hydric soil criterion met? Yes _____ No _____
Rationale: _____

HYDROLOGY

Is the ground surface inundated? Yes _____ No X Surface water depth: _____
Is the soil saturated? Yes X No _____
Depth to free-standing water in pit/soil probe hole: In spots not done
List other field evidence of surface inundation or soil saturation.
Sphagnum moss in hussocks
Is the wetland hydrology criterion met? Yes X No _____
Rationale: _____

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No _____
Rationale for jurisdictional decision: _____

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

APPENDIX M
US FISH AND WILDLIFE SERVICES LETTER
ON ENDANGERED OR THREATENED SPECIES

United States Department of the Interior

TAKE PRIDE IN AMERICA

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, New York 13045

June 21, 1994

Mr. Michael Duchesneau
Project Manager
Engineering-Science, Inc.
Prudential Center
Boston, MA 02199

Dear Mr. Duchesneau:

This responds to your letter of May 12, 1994, requesting information on the presence of endangered or threatened species in the vicinity of the Seneca Army Depot located at Romulus, Seneca County, New York.

Except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the project impact area. Therefore, no Biological Assessment or further Section 7 consultation under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required with the U.S. Fish and Wildlife Service (Service). Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered. A compilation of Federally listed and proposed endangered and threatened species in New York is enclosed for your information.

The above comments pertaining to endangered species under our jurisdiction are provided pursuant to the Endangered Species Act. This response does not preclude additional Service comments under the Fish and Wildlife Coordination Act or other legislation.

For additional information on fish and wildlife resources or State-listed species, we suggest you contact:

New York State Department of Environmental Conservation Region 8 6274 East Avon-Lima Road Avon, NY 14414 (716) 226-2466	New York State Department of Environmental Conservation Wildlife Resources Center - Information Serv. New York Natural Heritage Program 700 Troy-Schenectady Road Latham, NY 12110-2400 (518) 783-3932

The National Wetlands Inventory (NWI) maps of the Dresden, Geneva South, Ovid, and Romulus Quadrangles are now available in draft form and there may be wetlands in the project vicinity. Copies of NWI maps may be obtained through:

CLEARS
Cornell University
464 Hollister Hall
Ithaca, NY 14853
(607) 255-6520

An order form listing the topographic quadrangles that have been mapped in New York State is enclosed for your information. However, while the NWI maps are reasonably accurate, they should not be used in lieu of field surveys for determining the presence of wetlands or delineating wetland boundaries for Federal regulatory purposes.

Work in certain waters and wetlands of the United States may require a permit from the U.S. Army Corps of Engineers (Corps). If a permit is required, in reviewing the application pursuant to the Fish and Wildlife Coordination Act, the Service may concur, with or without stipulations, or recommend denial of the permit depending upon the potential adverse impacts on fish and wildlife resources associated with project implementation. The need for a Corps permit may be determined by contacting Mr. Paul Leuchner, Chief, Regulatory Branch, U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, NY 14207 (telephone: (716) 879-4321).

If you have any questions regarding this letter, contact Tom McCartney at (607) 753-9334.

Sincerely,

Mark W. Clough

ACTING FOR

David A. Stilwell
Acting Field Supervisor

Enclosures

cc: NYSDEC, Avon, NY (Regulatory Affairs)
NYSDEC, Latham, NY
COE, Buffalo, NY
EPA, Chief, Marine & Wetlands Protection Branch, New York, NY

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES IN NEW YORK

Common Name	Scientific Name	Status	Distribution
FISHES			
Sturgeon, shortnose*	*Acipenser brevirostrum*	E	Hudson River & other Atlantic coastal rivers
REPTILES			
Turtle, green*	*Chelonia mydas*	T	Oceanic summer visitor coastal waters
Turtle, hawksbill*	*Eretmochelys imbricata*	E	Oceanic summer visitor coastal waters
Turtle, leatherback*	*Dermochelys coriacea*	E	Oceanic summer resident coastal waters
Turtle, loggerhead*	*Caretta caretta*	T	Oceanic summer resident coastal waters
Turtle, Atlantic ridley*	*Lepidochelys kempii*	E	Oceanic summer resident coastal waters
BIRDS			
Eagle, bald	*Haliaeetus leucocephalus*	E	Entire state
Falcon, peregrine	*Falco peregrinus*	E	Entire state - re-establishment to former breeding range in progress
Plover, piping	*Charadrius melodus*	E T	Great Lakes Watershed Remainder of coastal New York
Tern, roseate	*Sterna dougallii dougallii*	E	Southeastern coastal portions of state
MAMMALS			
Bat, Indiana	*Myotis sodalis*	E	Entire state
Cougar, eastern	*Felis concolor couguar*	E	Entire state - probably extinct
Whale, blue*	*Balaenoptera musculus*	E	Oceanic
Whale, finback*	*Balaenoptera physalus*	E	Oceanic
Whale, humpback*	*Megaptera novaeangliae*	E	Oceanic
Whale, right*	*Eubalaena glacialis*	E	Oceanic
Whale, sei*	*Balaenoptera borealis*	E	Oceanic
Whale, sperm*	*Physeter catodon*	E	Oceanic
MOLLUSKS			
Snail, Chittenango ovate amber	*Succinea chittenangoensis*	T	Madison County
Mussel, dwarf wedge	*Alasmidonta heterodon*	E	Orange County - lower Neversink River

* Except for sea turtle nesting habitat, principal responsibility for these species is vested with the National Marine Fisheries Service.

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FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES IN NEW YORK (Cont'd)

Common Name	Scientific Name	Status	Distribution
BUTTERFLIES			
Butterfly, Karner blue	*Lycaeides melissa samuelis*	E	Albany, Saratoga, Warren, and Schenectady Counties
PLANTS			
Monkshood, northern wild	*Aconitum noveboracense*	T	Ulster, Sullivan, and Delaware Counties
Pogonia, small whorled	*Isotria medeoloides*	E	Entire state
Swamp pink	*Helonias bullata*	T	Staten Island - presumed extirpated
Gerardia, sandplain	*Agalinis acuta*	E	Nassau and Suffolk Counties
Fern, American hart's-tongue	*Phyllitis scolopendrium* var. *americana*	T	Onondaga and Madison Counties
Orchid, eastern prairie fringed	*Platanthera leucophea*	T	Not relocated in New York
Bulrush, northeastern	*Scirpus ancistrochaetus*	E	Not relocated in New York
Roseroot, Leedy's	*Sedum integrifolium* ssp. *Leedyi*	T	West shore of Seneca Lake
Amaranth, seabeach	*Amaranthus pumilus*	T	Atlantic coastal plain beaches

E=endangered T=threatened P=proposed

APPENDIX N
HEALTH RISK ASSESSMENT FROM CONSUMPTION OF DEER MUSCLE AND LIVER FROM JOLIET ARMY AMMUNITION PLANT STUDY

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

HSHB-MO-T

DRAFT

EXECUTIVE SUMMARY
HEALTH RISK ASSESSMENT FROM CONSUMPTION OF DEER MUSCLE AND LIVER FROM JOLIET ARMY AMMUNITION PLANT

Joliet Army Ammunition Plant (JAAP) is a Government-owned, contractor-operated installation currently maintained in a nonproducing standby status. The JAAP was constructed in the early 1940's and was operational until 1977. The primary activities included the production of explosive materials and their constituent materials, munitions assembly, munitions storage, and munitions demilitarization. As a result of past manufacturing activities and pesticide use, a number of sites are contaminated with munitions and their byproducts, metals, organochlorine pesticides, and polychlorinated biphenyls (PCBs). The JAAP spans over 23,000 acres divided into two areas: the manufacturing area and the load, assemble, and pack area. Both areas are currently on the National Priorities List and are in the Remedial Investigation and Feasibility Study phase of the Installation Restoration Program.

Previous investigations conducted by the U.S. Army Environmental Center (USAEC) revealed areas of potential contamination from past activities such as the groundwater, soil, sediment, and surface water (see ref 1 and 2). Public concern arose concerning the safety of consuming deer from JAAP just prior to the 1992 hunting season. Annually, about 200 deer are harvested from JAAP as part of the hunting program. Limited information existed as to the potential of bioaccumulation of explosives in deer. As part of the human health risk assessment, the U.S. Army Environmental Hygiene Agency was requested by USAEC to conduct a study to investigate the potential risk of consuming deer from JAAP.

During the 1992 hunting season, 48 deer were sampled. Muscle, liver, kidney, fat, and bone were analyzed for the contaminants of concern (explosives, PCBs, metals, and organochlorine pesticides). Twelve deer from an offpost reference site were sampled as well. Several statistical strata were represented to include sex, age, and site.

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EXSUM, Health Risk Assessment, JAAP

This report focuses on the risk of consuming deer muscle and liver from JAAP and the offpost reference site. Data from the chemical analysis revealed no bioaccumulation of explosives, organochlorine pesticides, nor PCBs. However, significant levels of metals were identified in muscle, liver, kidney, and bone.

A human health risk assessment following the U.S. Environmental Protection Agency's Risk Assessment Guideline was performed addressing the potential risk of consuming muscle and liver from JAAP deer. A hunter's survey was conducted to better quantify the exposure intake factors. No statistically significant differences between sex and age were evident. Slightly elevated carcinogenic risks were determined for consumption of muscle from one JAAP site (2.1×10^{-4}) and the offpost reference site (3.5×10^{-4}). Noncarcinogenic consumption risks were slightly elevated for the same sites (1.1 and 1.7 respectively). The offpost reference site exhibited the higher values in both cases. There were no risks associated with consuming liver from any study sites.

Arsenic levels from JAAP and the reference site are driving both the carcinogenic risk and the noncarcinogenic risk with average muscle levels ranging from 0.043 to 0.61 mg/kg. However, the Food and Drug Administration (FDA) has set permissible food levels for arsenic of 1.0 mg/kg (see ref 3). None of the averages from any of the study sites exceed this FDA level.

This study concludes that the risk from consuming muscle and liver tissue from JAAP deer is minimal and modifications of current harvesting polices are not necessary.

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DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
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HEALTH RISK ASSESSMENT FROM CONSUMPTION OF DEER MUSCLE AND LIVER FROM JOLIET ARMY AMMUNITION PLANT

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I. INTRODUCTION. The objectives of this study were to determine if the contaminants found in soil, water, and sediments at Joliet Army Ammunition Plant (JAAP) have bioaccumulated either directly or through the food chain in the resident deer population and to identify, if any, the associated human health risk from consumption of these deer.

II. BACKGROUND.

A. Installation Description. The JAAP is a Government-owned, contractor-operated installation currently maintained in a nonproducing standby condition by the operating contractor, Alliant Tech Systems, Inc.

B. Site History. The JAAP was constructed in the early 1940's in Will County, Illinois, approximately 17 miles southwest of Joliet. The production output at JAAP has varied according to the fluctuating demand for munitions. The plant was used extensively during World War II and all explosives production was halted in August 1945. The sulfuric acid and ammonium nitrate plants were leased out, and the remaining production facilities were put in lay away status. The explosive manufacturing area was reactivated from 1953 to 1957 during the Korean War, again between 1965 and 1969 during the Vietnam War, and stopped completely in 1977 (see ref 4).

1. The JAAP is divided by U.S. Highway 53 into two major functional areas: The Manufacturing Area and the Load, Assemble, and Pack (LAP) Area. The Manufacturing Area lies west of U.S. Highway 53, and covers approximately 14 square miles. Explosive materials and their constituent chemicals were produced in this area. These production facilities are located in the northern half of the Manufacturing Area. An extensive bunker area is located in the southern half of the area. The LAP Area lies east

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B. Literature Review. An extensive literature review of both the TOMES and the DIALOG databases were conducted to compile information on past studies and findings of the likelihood of environmental contamination in game mammals specifically deer. Also, a review of the existing human health risk assessments based on consumption of deer tissue was completed.

1. Contaminants of Concern. Several studies exist in the literature addressing bioaccumulation of contaminants, mainly of metals, pesticides, and PCBs, in the white tailed deer (Odocoileus virginianus). However, previous to this study, only two small studies of bioaccumulation of explosives in white tailed deer existed.

2. Explosives. According to the literature, explosives do not bioaccumulate significantly at the concentrations typically seen in the environment. Shugart, et al. (see ref 8) investigated accumulation of trinitrotoluene (TNT) and nine potential metabolites in deer, rabbit, and quail tissues (muscle and liver) from the Alabama Army Ammunition Plant (AAAP), Childersburg, Alabama. There was no accumulation of these compounds above the detection limit 0.2 mg/kg (see ref 9).

Shugart, et.al. (see ref 10) also investigated the potential of explosives contamination in deer tissue from Badger Army Ammunition Plant, Baraboo, Wisconsin. The analytes of concern were 2,4- and 2,6-dinitrotoluene (DNT). Again, none of the tissue analyzed exceeded the detection limit of 0.1 mg/kg.

3. Metals. Several tissues serve as reservoirs for metal deposition such as bone and hair for arsenic and kidney for cadmium. However, muscle does not play an important role in metal bioaccumulation. Seasonal, sex, and age variations may have an impact on bioaccumulation of metals as noted in the literature, but these findings are inconsistent (see ref 11).

4. Organochlorine Pesticides. The organochlorine pesticides DDT, DDE, and DDD are no longer manufactured in the U.S.; however, due to the widespread use and persistence in the environment, they remain a potential threat to wildlife. Because of the bioconcentration properties, they pose one of the most serious problems in terms of biomagnification in the food chain. Generally, these pesticides bioaccumulate in adipose tissue (fat) of mammals (see ref 12), providing a potential route of exposure

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for humans.

5. Polychlorinated Biphenyls (PCBs). Like organochlorine pesticides, PCBs are persistent and ubiquitous to the environment. Bioaccumulation of PCBs in mammalian tissue is well known, also having an affinity for adipose tissue (see ref 13).

6. Health Risk Assessments. A human health risk assessment based on actual data from hunter-killed deer from New Jersey was found in the literature (see ref 14). The livers from these deer were analyzed for cadmium and the results showed that there was a significant difference in cadmium levels among deer from different areas and among different age groups. As a result, a health advisory was issued recommending people not consume liver from adult deer from specific areas.

IV. DATA COLLECTION.

A. Sampling Areas.

1. JAAP Sampling Areas.

a. Study Sites. The JAAP spans 23,544 acres and 16,900 (71.8%) acres are used annually during the shotgun hunting season (3 days in late November and 4 days in early December). Currently, there are approximately 2,000 deer residing on JAAP (see ref 15). In 1992, 328 permits were issued and deer stands were assigned in preselected areas of both the **load, assemble, and pack area (Site 1)** and the **manufacturing area (Site 2)** of JAAP as well as an area located just outside the perimeter of JAAP near the manufacturing side (see figures 1 and 2). A total of 148 deer were harvested during the entire JAAP hunting season weighing an average of 118 lb.

b. JAAP Onpost Reference Site (Site 3). Eight deer were harvested from an area just outside the JAAP perimeter near the west side of the manufacturing area. This forested area is separated from JAAP by a 6-foot fence and presumably, these deer have limited access. This parcel of land has no history of manufacturing use, and no contamination has been identified. Currently, this parcel of land is leased for grazing purposes (see ref 16).

2. Offpost Reference Site (Site 4). A total of 12 deer were sampled from hunters for background levels of contaminant from the outside perimeter of Goose Lake Prairie State Natural Area, Morris, Illinois. Goose Lake Prairie is located approximately 15 miles southwest of JAAP across the Kankakee

River. The prairie remains nearly in its original state with only a history of minimal agriculture activity since the early 1800's (see ref 17). Presumably, these deer have no access to JAAP and therefore, represent an offpost reference population.

B. Field Sampling. For this study, every hunter was required to harvest fat and portions of the liver and the kidney while field dressing their deer. Each morning at the check-in station, the hunters were issued a field sampling pac containing a set of instructions, a small styrofoam ice chest, ice pacs, aluminum foil, pre labeled whirl pac bags, and gloves for tissue collection and storage. The hunters were directed to handle the tissue cleanly, wrap the tissues in the aluminum foil and place them in the pre-labeled whirl pac bags.

C. Animal Sampling. At the mandatory JAAP check point station, every deer was identified as to the location of the kill (hunter/deer stand #), sexed, and weighed. The deer was aged by visual inspection of the lower fourth premolar. A portion of the chest muscle was harvested for explosive and metal residue analysis, and a portion of the lower jaw was harvested for metal analysis. Also, the bagged tissues (liver, kidney, and fat) were logged in for explosive, metal, pesticide, and PCB residue analysis.

D. Determination of Sample Size. From the collected population of 148 deer, 40 from JAAP were selected for tissue residue analysis. An attempt was made to select and group the sample by different strata: site, sex, and age. These strata included 10 males and 10 females from the manufacturing side and 10 males and 10 females from the LAP side. Also, each sex was stratified by age, five yearlings and five adults of each sex from each area. Yearlings were determined by presence of a tricuspid lower fourth premolar.

E. Quality Control. All samples were handled appropriately to prevent cross contamination. Gloves were changed and implements were cleaned with deionized water between samples. Each of the tissues collected by the hunters was identified and checked for cleanliness. The tissues harvested at the check station were wrapped in aluminum foil and placed in its pre-labeled whirl pac bag. Samples from each deer were stored together in their respective bag and immediately frozen in a 0°C freezer until shipping. The project officer accompanied the tissues back to USAEHA laboratory where they were stored at -32 °C until analysis.

F. Logistics.

1. Hunters Permitting. The Commander of JAAP mandated as a permit requirement that every hunter would participate in this study.

2. Hunter's Meeting. Prior to hunting season, a mandatory meeting for the hunters was conducted. This meeting addressed the details of the study including the hunter's role, a description of the anatomy of the white-tailed deer identifying the location of the required organs, and a description of how to collect and store the tissue during field dressing. Also, a hunter's survey was distributed to gather specific consumption information. This information was used to characterize exposure factors in the health risk assessment. See Table 3 for the hunter's survey questionnaire and responses.

G. Analytical Methodology.

1. Quality Control. All tissue samples were processed through the Quality Assurance (QA) office, assigned Quality Control (QC) numbers and distributed to the various laboratories. The analyses were performed by the USAEHA Directorate of Laboratory Services: The Special Analysis Branch, the Metals Analysis Branch, and the Pesticide Analysis Branch. Attention was paid to chain of custody as well as Good Laboratory Practices throughout the study.

2. Methodology.

a. **Project Reporting Limits (PRLs)**. These values represent the lowest value that can be routinely and reliably detected in the specific matrix. The explosives, organochlorine pesticides, and PCBs were reported in this manner. Metal residue data was reported as the **Detection Limits (DLs)**. These values represent the lowest amount that can be distinguished from the normal "noise" of an analytical instrument or method. The chemicals of concern, the PRLs, and the DLs are listed in Table 1.

b. Analytical Procedures.

(1) Explosives. The analysis for explosives was performed by the Special Analysis Branch of the Organic Environmental Chemistry Division using USAEHA-OECD SOP 51.2. The method involved extraction of a 2 gram tissue sample with acetonitrile followed by an extract cleanup to remove biological interferences. The extracts were analyzed using a high performance liquid chromatograph for analyte separation and an ultraviolet detector for quantification. All potentially positive samples were re-extracted and evaluated using a gas

chromatograph/mass spectrometer system set to select ion monitoring mode. See Appendix C for a detailed standard operating procedure.

(2) Metals. Metals were analyzed by the Metals Analysis Branch of the Radiological and Inorganic Chemistry Division using USAEHA-RICD SOP-MDP-23 and MAB-MDP-10. A 2 gram aliquot of frozen homogenized tissue was digested in nitric acid and hydrogen peroxide. The digested portion was then analyzed using one of the following: Inductively Coupled Plasma (ICP), Graphite Furnace Atomic Absorbance, or ICP-Atomic Emission Spectrometry for arsenic, cadmium, chromium, and lead. For mercury analysis, a 0.5 gram sample of the initial aliquot was digested in nitric acid using a Paar Bomb procedure. This aliquot was then processed using dilute potassium permanganate-potassium persulfate solutions and oxidized at 95 °C for 2 hours. Mercury in the digested sample was then reduced with stannous chloride to elemental mercury and measured by the Conventional Cold Vapor Atomic Absorption Spectroscopy technique. See Appendix D for a detailed standard operating procedure.

(3) Organochlorine Pesticides and PCBs. Both organochlorine pesticides and PCBs analyses were performed by the Pesticide Analysis Branch of the Organic Environmental Division using SOP 37.1 and 51.2. Ten grams of ground adipose tissue, mixed with sodium sulfate, was extracted in a high-speed blender jar with successive portions of petroleum ether. The combined petroleum ether extracts were passed through a drying column, concentrated to 10 mL in a water bath and transferred to a 50 mL beaker. All solvent was removed, and the resulting fat weight was determined. Two grams or less of the resulting fat was dissolved in petroleum ether, and then the pesticide/PCB residues were partitioned from the petroleum ether solution into acetonitrile. The acetonitrile extract was diluted with NaCl-containing water and the residues extracted back into petroleum ether. The petroleum ether extract was dried, concentrated to about 4 to 5 mL, placed on a florisil cleanup column and the residues then eluted with a series of increasingly more polar mixed ether and petroleum ethers. The eluate fractions were individually concentrated and transferred into Isooctane before analysis by electron-capture gas chromatography. A detailed SOP and modifications are described in Appendix E.

V. DATA EVALUATION. Included below are short descriptions of the tables and statistical methods used to interpret the results.

A. <u>Field Sampling Table 2</u>. Deer Field Sampling Data represents a summary of the field notes including identification of the deer, stand #, location, sex, age, and weight.

Age estimation was determined by lower 4th premolar characterization. See Appendix A for actual field data.

B. Residue Data. Muscle and liver data are included in this section. Other tissue data are included in the Appendices and will be addressed in the JAAP Ecological Risk Assessment.

1. Statistical Evaluation. The data (metals) were initially analyzed using a multiway analysis of variance (ANOVA) considering site and gender as independent variables was used for data analysis. This analysis did not indicate a significant interaction between site and gender.

a. In the original statistical analysis, the data did not demonstrate a significant interaction between site and gender. For the analysis presented here, the data were re-analyzed with a one-way ANOVA with site as the independent variable. Significant differences were further evaluated using a Newman Kuels multiple comparison post hoc test. In order to provide a complete data set for analysis, half of the detection limits were used in the calculations for those samples falling below the detection limits. A probability of $p < 0.05$ was considered significant.

b. A second method for quantifying exposure was used in order to evaluate uncertainty in these calculations and ultimately, provide a range of risk estimates. This technique involved a Monte Carlo simulation of the intake expression. Rather than using discrete values for each variable, ranges are given. Output from this methodology provides average values of the simulation as well as probability distributions (see Tables 10 and 11).

2. Explosive Data Tables 4a and 4b. These sets of tables illustrate the explosive residue analysis of deer muscle (4a) and liver (4b). Tissues were analyzed for the major explosives found in soil at JAAP as well as several breakdown products of these materials. The major explosives included 2,4,6-TNT, 2,4-DNT, 2,6-DNT, RDX, HMX; and TNT's breakdown products included 1,3-DNB, 1,3,5-TNB, 2-A-4,6-DNT, and 4-A-2,6-DNT. These data are reported using the PRLs. Explosives residues were not detected in either the deer muscle or the deer liver. Methods and raw data are included in Appendix C.

3. Metals Data Table 5a, 5b, and 5c. These sets of tables illustrate the heavy metal analysis of deer muscle (5a) and liver (5b). The data are presented by tissue type and site comparisons. In contrast to the explosive data, various metal constituents were found in one or more of all tissues analyzed.

Shaded values represent those samples falling below the DLs. Half of the detection limit was used in the statistical calculations for these samples. Means and standard deviations are summarized in Table 5c. Methods and raw data are included in Appendix D. For cadmium, chromium, mercury, and lead, no statistically significant difference between any of the sites was found. Arsenic residues in muscle from deer taken at the offpost reference site (site 4) were higher than deer from the JAAP (sites 1, 2, and 3). There were no statistically significant differences between sex and age.

4. Organochlorine Pesticides and PCBs Data Table 6. These sets of tables illustrate the pesticide and PCB residue analysis of deer fat. These data are reported using the reporting limits. Neither pesticides nor PCBs residue were detected by the methods described in Appendix E.

VI. HEALTH RISK ASSESSMENT AND DISCUSSION.

A. Overview. Risk Assessment is defined as "the characterization of the potential adverse health effects of human exposures to environmental hazards," (see ref 18). The process of risk assessment consists of several elements:

1. Evaluation of the potential adverse health effects of a chemical, mixture of chemicals, or process, based on epidemiologic, clinical, toxicologic, and environmental research;

2. Extrapolation from those results to predict the type and estimate the extent of health effects in humans under given conditions of exposure;

3. Judgements as to the number and characteristics of persons exposed at various intensities and durations;

4. Summary judgements on the existence and overall magnitude of the public health problem;

5. Characterization of the uncertainties inherent in the process of inferring risk.

B. Summary. A summary of the risk assessment methodologies used in this study is given below. For a more detailed description of the Risk Assessment process, refer to Appendix A.

1. Exposure Assessment. An exposure assessment attempts to quantify human exposure to a chemical contaminant. Exposure assessments identify the population at risk and considers the magnitude, frequency, duration, and route of exposure.

a. **Exposure Factors.** Exposures to the contaminants of concern were quantified using the following expressions:

Life time average daily intake(INTAKE): A measure of exposure expressed as mass of a substance contacted per unit body weight per unit time, averaged over a lifetime.

$$\text{INTAKE(mg/kg-d)} = \frac{CF \times IR \times FI \times EF \times ED}{BW \times AT}$$

CF = concentration in meat (mg/kg)...........	DL (mg/kg)
IR = ingestion rate (kg/meal) 95% UCL........	0.227(kg/meal)
FI = fraction ingested from contaminant source (unitless)............	1
EF = exposure frequency (meals/year)	
meat..................	60(meals/year)
liver	5(meals/year)
ED = exposure duration (years) 90% UCL	30 years
BW = body weight (kg) average adult..........	70kg
AT = average time of exposure (days)	
noncarcinogenic effects	ED x 365(d/yr)
carcinogenic effects	70 yrs x 365(d/yr)

b. **Facts and Assumptions.** Values for the above variables were derived in two ways. In order to obtain a single intake value for each contaminant of concern for use in the risk calculation, an attempt was made to develop a Reasonable Maximum Exposure (RME) scenario. For this, maximum estimates of the variables were derived based on the following data:

(1) In 1992, the average dressed weight of deer harvested was 118 lb.

(2) The average number of deer harvested per hunter per year is 1.43; however, 2 was the value used in the intake calculation to be conservative. This data was derived from hunter's survey; see Table 3.

(3) Generally, about one half of the dressed weight of the deer is available for meat consumption; therefore, in this case 59 lb is the yield. Also, approximately 5 lb of liver is available for consumption.

(4) The assumption was made that one-half of a pound of deer meat or liver is consumed per meal per person.

Therefore, the ingestion rate is 0.227 kg of deer meat or liver per meal.

(5) Therefore, a total of 120 meals/deer muscle and 10 meals/deer liver are available for consumption.

(6) Assume that the hunter shares the meat among a family of four, yielding an exposure frequency of 30 meals per deer for muscle and 2.5 meals per deer for liver.

(7) Assuming that the average number of deer harvested from JAAP is 2 per hunter, the final exposure duration frequency per person is 60 meals per year for deer meat and 5 meals per year for deer liver.

(8) The second approach for generating intake values is described in the uncertainty analysis section 4.5.

2. Toxicity Assessment. The purpose of the toxicity assessment is to weigh evidence regarding the potential for particular contaminants to cause adverse effects in exposed individuals and to provide, where possible, an estimate of the relationship between the extent of exposure to a contaminant and the increased likelihood and/or severity of adverse effects (see ref 19). Generally, toxicity assessments are accomplished in two steps: hazard identification and dose-response assessment. The following are part of the toxicity assessment and are defined as in U.S. Environmental Protection Agency (EPA) Risk Assessment Guidance for Superfund Sites 1989:

a. **Hazard Identification.** The process of determining whether exposure to a chemical can cause an increase in the incidence of a particular adverse effect and whether the adverse health effects likely to occur in humans. In this case, we evaluated the contaminants defined on the RI (see ref 20) on JAAP and identified several explosives, heavy metals, organochlorine pesticides, and PCBs as our contaminants of concern.

b. **Dose-Response Evaluation.** The process of quantitatively evaluating toxicity information and characterizing the relationship between the dose of a contaminant administered or received and the incidence of adverse health effects in the exposed population. From the qualitative dose-response relationship, toxicity values are derived that are used in the risk characterization step to estimate the likelihood of adverse effects occurring in humans are different exposure levels. The toxicity values used in this risk assessment are listed in Table 1.

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(1) Information generated from dose-response evaluations include toxicity values for carcinogenic and noncarcinogenic effects. For noncarcinogenic effects, a **reference dose (RfD)** is determined and represents an estimate of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime (see ref 21). The RfD values for each compound are listed in Table 1.

(2) For carcinogenic effects, a **slope factor (SF)** is used to represent an upper bound probability of developing cancer per unit of intake. It is derived from a mathematical extrapolation of toxicity dose response data.

(3) Also, the EPA classifies carcinogens by the extent to which the available data indicate that an agent is a human carcinogen; this is the **weight of evidence (WOE).** The weight of evidence categories are as follows: A = human carcinogen; B1 = probable human carcinogen, limited human data are available; B2 = probable human carcinogen, sufficient evidence in animals and inadequate or no evidence in humans; C = possible human carcinogen; D = not classifiable as to human carcinogenicity; E = evidence of noncarcinogenicity for humans (see ref 22). The WOE values for each compound are listed in Table 1.

3. <u>Risk Characterization</u>. Risk Characterization is the final step of the health risk assessment process and involves summarizing and integrating the toxicity and exposure assessments into quantitative and qualitative expressions of risk. To characterize potential noncarcinogenic effects, comparisons are made between projected intake of substances and toxicity values. To characterize potential carcinogenic effects, probabilities that an individual will develop cancer over a lifetime of exposure are estimated from projected intake and chemical-specific dose-response information. Major assumptions, scientific judgments, and to the extent possible, estimates of the uncertainties embodied in the assessment are also presented (see ref 23).

a. **Carcinogenic Risk.** Carcinogenic risks may be estimated by multiplying the INTAKE factor derived from the exposure assessment by the carcinogenic SF. The cancer risk also represents an upper bound estimate of developing cancer as a result of the exposure in question.

(1) It should be noted that the cancer risk estimates represent probabilities of developing cancer above the background cancer rate which is approaching 1 person in 4 or 0.25

(see ref 24).

(2) Carcinogenic risks from ingestion of muscle and liver are shown in Tables 6 and 7. Since no explosives, pesticides, and PCBs were found in either deer muscle or liver, these estimates are based on the heavy metals. The only metal which is believed to be carcinogenic on ingestion is arsenic, and these calculations are based on this substance. Estimates of carcinogenic risk for muscle ranged from 2.5E-5 to 3.5E-4. For liver, carcinogenic risks were in the 1.0E-6 to 2.0E-6 range. Deer from the control site (site 4) exhibited the highest arsenic levels in muscle and showed correspondingly higher estimates of carcinogenic risk.

b. **Non-carcinogenic Risk.** Noncarcinogenic risks are evaluated by comparing the intake estimates from the exposures assessment to the RfD.

(1) This comparison is called a **hazard quotient (HQ).** For mixtures of compounds found in different environmental media, the assumption was made that the chemicals interact in an additive fashion.

(2) The individual HQs are typically added to yield an overall **hazard index (HI).**

(3) Since the HQ and HI simply represent comparisons of intake levels to levels that are considered to be safe, they do not show a probability of developing an adverse effect. The HI scores of less than 1 indicate that exposure to all contaminants in a mixture falls within the safe level (see ref 25). The HIs between 1-5 indicate some potential for concern. In this instance, contaminants may be reevaluated and grouped by target organ toxicity; HI scores could then be re-calculated on this basis.

(4) Noncarcinogenic HIs for muscle and liver are shown in Tables 8 and 9. All of the HI scores for ingestion of liver from JAAP and control deer were much less than one. The HI scores for ingestion of deer muscle from sites 1 and 3 were less than or equal to 1.

(5) However, the HI scores for the JAAP site 2 and 4 exceeded 1. Again, arsenic was the primary contaminant contributing to noncarcinogenic risk of consumption of deer muscle from the control site and site 2.

4. Uncertainty Analysis. The process of quantifying potential health risks resulting from exposures to environmental

contaminants has been in use for a number of years and the techniques are continually being refined. Despite major advances in this area, there are still many uncertainties in both exposure assessment and the quantitative risk assessment. For the current study, an attempt was made to show quantitatively, some of the uncertainty associated with the exposure assessment. This was accomplished using a Monte Carlo simulation technique. The carcinogenic and non-carcinogenic risk values shown in Tables 7-10 were based on **"reasonable maximum" exposure (RME)** estimates. This was not a worst case estimate but used exposure variables which could occur. Typically when appropriate data were available, upper 90 or 95 percentile values were chosen rather than mean or 50th percentile values. Table 11 presents the results of the same calculations using the Monte Carlo simulation. This technique performs the same risk calculation repeatedly. For each iteration, a separate series of values are chosen at random by the program. These variables are chosen from the distribution ranges provided to the program. Appendix A describes the types of distributions and ranges for these variables used in the Monte Carlo simulations. Table 11 presents risk calculations based on mean values as well as minimum and maximum values. All of these estimates track fairly well with the values presented for the RME.

a. The toxicity values used to characterize carcinogenic and noncarcinogenic risks are also uncertain. For carcinogens, a major area of uncertainty is in the mathematical extrapolation of the low dose range of the dose-response curve. The current method assumes a linear relationship such that any finite exposure is associated with a carcinogenic risk. There is active scientific debate on this issue, and for many carcinogenic compounds, there may be exposure levels that do not cause cancer. The SFs derived from the current extrapolations actually represent the upper 95 percent confidence interval of the extrapolated curve, and this introduces further conservatism in these estimations.

b. The carcinogenic risks determined for sites 2 and 4 were based on the arsenic levels in muscle. However, there has been much controversy within the risk assessment community as to the potential carcinogenicity of arsenic. Although arsenic has been linked to both skin and lung cancer in humans via the drinking water and inhalation exposure routes, carcinogenicity has been difficult to confirm in experimental animals. This fact alone in contrast to most other human carcinogens has lead to the extensive review of this metal. Another area of uncertainty is that of the form of arsenic available in deer tissue.

c. Arsenic can exist in the environment as naturally

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occurring, or as man made. Arsenic is widely distributed in the environment and all animals and humans are exposed to low levels of this metal. It occurs in both the inorganic and organic form, and the organic form is the least toxic. In general, the inorganic form of arsenic undergoes methylation in the liver resulting in the less toxic organic form and is then readily excreted in the urine (see ref 26). Since total arsenic was measured in the deer, an uncertainty exists as to the form of arsenic in the tissue. Most likely it is the less toxic organic form of arsenic.

d. Finally, referring to the wide distribution of arsenic in the environment, the EPA has reported various levels in foods. For meats, eggs and milk, the average values ranged from 0.01 to 0.03 mg/kg while for finfish and shellfish the means range from 0.07 to 1.47 mg/kg (see ref 27). The Food and Drug Administration (FDA) has set permissible levels of arsenic in food. For muscle meats and edible meat by-products, 0.5 ppm and 1.0 ppm are allowed respectively. Thus none of the average arsenic levels for any site in this study exceeded these permissible values (see ref 28).

VII. SUMMARY. Analytical data from the JAAP deer study revealed that explosives, organochlorine pesticides, and PCBs from JAAP are not a risk to hunters consuming the resident deer population. Some metals were reported, and as a result, slightly elevated cancer risks due to muscle arsenic levels from sites 2 and 4 were determined using the standard EPA risk assessment methodology. However, the levels in deer from JAAP were less than those from the offpost reference site (site 4). Also, noncarcinogenic risks of consuming muscle were slightly elevated for sites 2 and 4. For liver intake, the carcinogenic risks were within the acceptable EPA range of 1×10^{-4} to 10^{-6} range for all sites and no noncarcinogenic risks were evident.

A. Information from the Monte Carlo simulation revealed similar results to the above point estimations. Carcinogenic risks and noncarcinogenic risks are slightly elevated for muscle from sites 2 and 4.

B. Although carcinogenic risks and HI levels for sites 2 and 4 are slightly elevated, there are sufficient safety factors incorporated into the toxicity values such that this probably does not indicate a severe health hazard. Exposure estimates also tend to over-estimate intake values. Additionally, arsenic seems to be the primary COC; however, as explained above there is much uncertainty with determining risk from arsenic exposure in deer tissue. Finally, none of the arsenic levels exceeded the FDA's permissible levels for meat and meat by-products.

C. In general, we found nothing to raise a concern from eating deer from JAAP's deer. The risk from consuming muscle and liver from JAAP deer is minimal, and modifications of current harvesting polices is not necessary.

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Health Risk Assessment, JAAP

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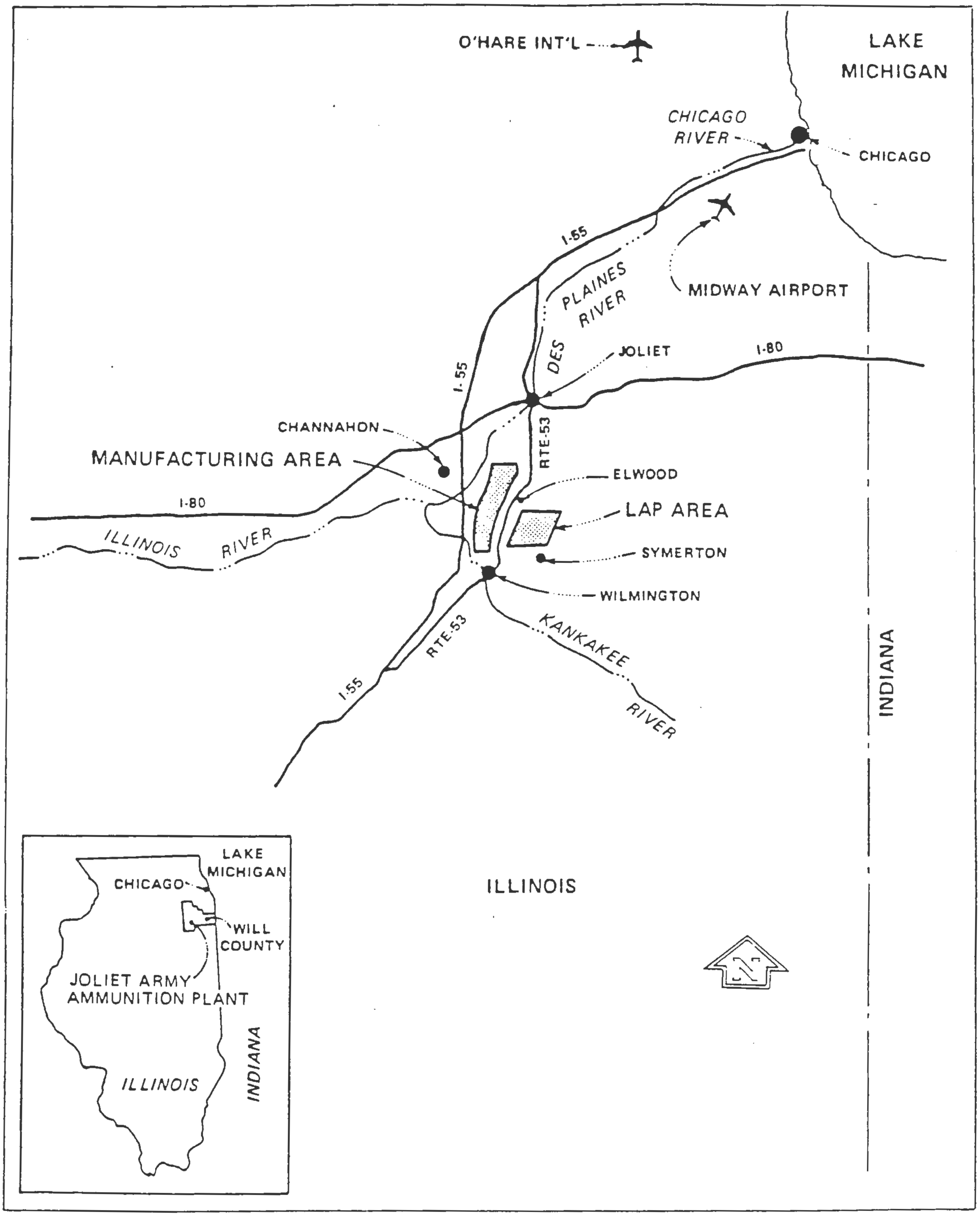

FIGURE 1
LOCATION OF JOLIET ARMY AMMUNITION PLANT
JOLIET, ILLINOIS

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Dames & Moore

TABLE 1

TOXICITY VALUES AND DETECTION LEVELS FOR THE CHEMICALS OF CONCERN

Chemical	PRL(ug/g)	Method	RfD (mg/kg-d)	WOE	SF (per mg/kg-d)
Explosives:					
RDX	0.10	USAEHA SOP 51.2	3.0E-3	C	1.1E-1
HMX	5.0		5.0E-2	D	---
1,3-DNB	0.05		1.0E-4	D	---
1,3,5-TNB	0.05		5.0E-5	NA	NA
2,4,6-TNT	0.10		5.0E-4	C	3.0E-2
2-A-4,6-DNT	0.20		5.0E-4	C	3.0E-2
4-A-2,6-DNT	0.20		5.0E-4	C	3.0E-2
2,6-DNT	0.10		NA	B2	6.8E-1
2,4-DNT	0.05		NA	B2	6.8E-1
Metals:					
As	0.025	EPA 200.8 ICP-MS	3.0E-4	A	1.7E-0*
Cd	0.025	EPA 200.8 ICP-MS	1.0E-3	B1	NA
Cr	0.025	EPA 200.8 ICP-MS	5.0E-3	A	NA
Hg	0.020	EPA 245.1 CVAAS	NA	D	---
Pb	0.025	EPA 200.8 ICP-MS	NA	B2	NA

NA - not avaliable; compound under review by EPA
* the oral slope factor derived from the EPA drinking water unit risk concentration of 5.0E-5 ug/l
PRL - project reporting level
RfD - reference dose
WOE - weight of evidence
SF - slope factor

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TOXICITY VALUES AND DETECTION LEVELS FOR THE CHEMICALS OF CONCERN

Chemical	PRL(ug/g)	Method	RfD (mg/kg-d)	WOE	SF (per mg/kg-d)
Organochlorine pesticides:					
o,p'-DDD	0.01	USAEHA SOP 37.1 and	5.0E-4	B2	3.4E-1
p,p'-DDD	0.01	USAEHA SOP 51.2	5.0E-4	B2	3.4E-1
o,p'-DDE	0.01		5.0E-4	B2	3.4E-1
p,p'-DDE	0.01		5.0E-4	B2	3.4E-1
o,p'-DDT	0.015		5.0E-4	B2	3.4E-1
p,p'-DDT	0.10		5.0E-4	B2	3.4E-1
Aroclors:					
1242	0.40	USAEHA SOP 37.1 and	NA	B2	7.7E-0
1016	0.40	USAEHA SOP 51.2	NA	B2	7.7E-0
1248	0.40		NA	B2	7.7E-0
1254	0.70		NA	B2	7.7E-0
1260	0.70		NA	B2	7.7E-0

NA = not avaliable; compound under review by EPA

TABLE 1

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TABLE 2

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JAAP DEER FIELD SAMPLING DATA

Field #	Site	Sex	Age	Weight	Stand #	Date
5	1	1	A	217	L38a	11-20-92
9	1	1	A	220	L30b	11-20-92
17	1	1	Y	124	L27c	11-20-92
19	1	1	A	188.5	L14	11-20-92
23	1	1	Y	127	L12	11-20-92
27	1	2	Y	79	L22	11-20-92
31	1	1	Y	79	L01	11-20-92
45	1	1	A	130	L25	11-21-92
50	1	2	Y	70	L8a	11-21-92
65	1	1	Y	130	L26a	11-22-92
73	1	2	A	130	L25	12-03-92
86	1	1	A	174.5	L31	12-03-92
118	1	2	A	112	L01	12-04-92
122	1	1	Y	128	L14	12-05-92
126	1	2	Y	71	L30	12-05-92
130	1	2	A	118	L12c	12-05-92
139	1	2	A	109	L14a	12-05-92
140	1	2	Y	51	L16a	12-05-92
141	1	2	A	107	L14	12-05-92
142	1	2	Y	66	L12	12-05-92
12	2	1	Y	107	M20	11-20-92
18	2	1	A	138.5	M19	11-20-92
22	2	1	Y	167	M21	11-20-92
25	2	1	Y	63	M03	11-20-92
29	2	2	Y	97	M05	11-20-92
49	2	1	A	141	M22	11-21-92
61	2	1	Y	62	M05	11-22-92
68	2	2	Y	65	M19	12-03-92
85	2	1	A	108	M13	12-03-92
89	2	2	Y	89	M03	12-03-92
92	2	2	A	118	M21	12-04-92
99	2	2	A	122	M13	12-04-92
103	2	2	A	89	M20	12-04-92
107	2	2	Y	53	M06	12-04-92
108	2	1	A	118	M06	12-04-92
109	2	2	A	127	M22	12-04-92
125	2	2	Y	98	M29	12-05-92
135	2	1	A	129	M11	12-05-92
136	2	2	A	116	M14	12-05-92
137	2	1	Y	65	M14	12-05-92

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TABLE 2

JAAP DEER FIELD SAMPLING DATA

Field #	Site	Sex	Age	Weight	Stand #	Date
2	3	1	Y	65	B100	11-20-92
28	3	1	Y	74	R94	11-20-92
34	3	1	A	173	B101a	11-20-92
46	3	1	A	152	B99c	11-21-92
54	3	1	A	197	R108	11-21-92
67	3	2	Y	105	R111	12-03-92
95	3	2	A	140	R98	12-04-92
127	3	2	Y	68	B100	12-05-92
Control 1	4	2	Y	115	NA	11-20-92
Control 2	4	2	Y	75	NA	11-20-92
Control 3	4	1	Y	NA	NA	11-21-92
Control 6	4	1	Y	85	NA	11-21-92
Control 7	4	1	Y	NA	NA	11-22-92
Control 10	4	2	Y	NA	NA	11-22-92
Control 13	4	2	A	NA	NA	12-03-92
Control 14	4	2	A	NA	NA	12-03-92
Control 16	4	1	Y	NA	NA	12-03-92
Control 18	4	2	Y	130	NA	11-20-92
Control 19	4	2	Y	75	NA	11-20-92
Control 20	4	2	Y	110	NA	11-20-92

Site 1 = Load, Assessmble, and Pack Area
Site 2 = Manufacturing Area
Site 3 = JAAP Onpost Reference Site: Blodgett and River Roads
Site 4 = Offpost Reference Site: Goose Lake Prairie

Weight = weight of dressed deer in pounds
NA = not avaliable

Sex: 01 = male, 02 = female

Age: Y = yearling, A = adult

TABLE 3

JAAP HUNTER'S SURVEY

1	2	3a	3b
# deer/year	meat consumed/deer	% hunters give away meat	% how much given away
mean = 1.43	mean = 98%	mean = 50%	range = 10 – 75%
range = 1 – 3 deer	range 10 – 100%		
1 deer = 68%			
2 deer = 28%			
3 deer = 4%			

Number of Hunters Surveyed = 131

Questions:

1. How many deer do you usually take from JAAP each year?
2. How much meat per deer does your family consume?

3a. Do you give any of the deer meat away?

3b. If so, how much of the meat do you give away?

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TABLE 4a

EXPLOSIVES DATA - JAAP DEER MUSCLE

Sample #	Field #	Site	HMX	RDX	TNB	DNB	TNT	2,6-DNT	2,4-DNT
P7163	M-5	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7164	M-9	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7166	M-17	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7168	M-19	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7170	M-23	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7172	M-27	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7175	M-31	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7177	M-45	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7180	M-50	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7183	M-65	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7186	M-73	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7188	M-86	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7197	M-118	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7198	M-122	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7200	M-126	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7202	M-130	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7206	M-139	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7207	M-140	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7208	M-141	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7209	M-142	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 4a

EXPLOSIVES DATA – JAAP DEER MUSCLE

Sample #	Field #	Site	HMX	RDX	TNB	DNB	TNT	2,6-DNT	2,4-DNT
P7165	M-12	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7167	M-18	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7169	M-22	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7171	M-25	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7174	M-29	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7179	M-49	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7182	M-61	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7185	M-68	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7187	M-85	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7189	M-89	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7190	M-92	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7192	M-99	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7193	M-103	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7194	M-107	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7195	M-108	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7196	M-109	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7199	M-125	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7203	M-135	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7204	M-136	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7205	M-137	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 4a

EXPLOSIVES DATA – JAAP DEER MUSCLE

Sample #	Field #	Site	HMX	RDX	TNB	DNB	TNT	2,6-DNT	2,4-DNT
P7162	M-2	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7173	M-28	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7176	M-34	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7178	M-46	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7181	M-54	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7184	M-67	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7191	M-95	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7201	M-127	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
Sample #	Field #	Site	HMX	RDX	TNB	DNB	TNT	2,6-DNT	2,4-DNT
P7210	M-C-1	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7211	M-C-2	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7212	M-C-3	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7213	M-C-6	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7214	M-C-7	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7215	M-C-10	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7216	M-C-13	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7217	M-C-14	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7218	M-C-16	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7219	M-C-18	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7220	M-C-19	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7221	M-C-20	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 4b

EXPLOSIVES DATA – JAAP DEER LIVER

Sample #	Field #	Site	HMX	RDX	TNB	DNB	TNT	2,6-DNT	2,4-DNT
P7163	L-5	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7164	L-9	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7166	L-17	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7168	L-19	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7170	L-23	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7172	L-27	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7175	L-31	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7177	L-45	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7180	L-50	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7183	L-65	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7186	L-73	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7188	L-86	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7197	L-118	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7198	L-122	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7200	L-126	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7202	L-130	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7206	L-139	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7207	L-140	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7208	L-141	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7209	L-142	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 4b

EXPLOSIVES DATA – JAAP DEER LIVER

Sample #	Field #	Site	HMX	RDX	TNB	DNB	TNT	2,6-DNT	2,4-DNT
P7165	L-12	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7167	L-18	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7169	L-22	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7171	L-25	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7174	L-29	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7179	L-49	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7182	L-61	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7185	L-68	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7187	L-85	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7189	L-89	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7190	L-92	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7192	L-99	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7193	L-103	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7194	L-107	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7195	L-108	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7196	L-109	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7199	L-125	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7203	L-135	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7204	L-136	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7205	L-137	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 4b

EXPLOSIVES DATA – JAAP DEER LIVER

Sample #	Field #	Site	HMX	RDX	TNB	DNB	TNT	2,6-DNT	2,4-DNT
P7162	L-2	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7173	L-28	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7176	L-34	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7178	L-46	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7181	L-54	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7184	L-67	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7191	L-95	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7201	L-127	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl

Sample #	Field #	Site	HMX	RDX	TNB	DNB	TNT	2,6-DNT	2,4-DNT
P7210	L-C-1	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7211	L-C-2	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7212	L-C-3	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7213	L-C-6	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7214	L-C-7	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7215	L-C-10	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7216	L-C-13	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7217	L-C-14	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7218	L-C-16	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7219	L-C-18	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7220	L-C-19	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7221	L-C-20	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 5a

JAAP DEER METALS DATA - MUSCLE: SITE COMPARISON

Sample #	Field #	Sex	Age	Site	*As	Cd	Cr	Hg	Pb
P7163	M-5	01	A	1	0.06	0.0125	0.61	0.029	0.11
P7164	M-9	01	A	1	0.0125	0.0125	0.63	0.01	0.09
P7166	M-17	01	Y	1	0.06	0.05	0.9	0.0346	0.11
P7168	M-19	01	A	1	0.05	0.0125	8.6	0.0224	0.05
P7170	M-23	01	Y	1	0.0125	0.0125	0.48	0.0212	0.03
P7172	M-27	02	Y	1	0.03	0.0125	0.67	0.0206	0.13
P7175	M-31	01	Y	1	0.0125	0.13	0.85	0.0204	0.11
P7177	M-45	01	A	1	0.03	0.0125	0.49	0.01	0.1
P7180	M-50	02	Y	1	0.0125	0.0125	0.99	0.01	0.11
P7183	M-65	01	Y	1	0.15	0.0125	0.66	0.01	0.12
P7186	M-73	02	A	1	0.07	0.0125	1.68	0.01	0.18
P7188	M-86	01	A	1	0.04	0.0125	14.5	0.01	0.13
P7197	M-118	02	A	1	0.05	0.0125	0.43	0.01	0.08
P7198	M-122	01	Y	1	0.14	0.04	0.69	0.0274	0.22
P7200	M-126	02	Y	1	0.03	0.03	0.6	0.0208	0.1
P7202	M-130	02	A	1	0.21	0.04	1.9	0.02	0.18
P7206	M-139	02	A	1	0.12	0.0125	0.61	0.01	0.14
P7207	M-140	02	Y	1	0.06	0.03	0.53	0.0258	0.24
P7208	M-141	02	A	1	0.74	0.0125	0.33	0.01	0.05
P7209	M-142	02	Y	1	0.43	0.0125	0.63	0.01	0.08

Mean	0.116	0.02475	1.839	0.01711	0.118
Std Dev	0.1762	0.02747	3.477	0.00803	0.054
* Significantly different from site 4					
Shaded area = 0.05(detection limit ug/g)					

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TABLE 5a

JAAP DEER METALS – MUSCLE: SITE COMPARISON

Sample #	Field #	Sex	Age	Site	As*	Cd	Cr	Hg	Pb
P7165	M-12	01	Y	2	0.09	0.0125	0.71	0.01	0.22
P7167	M-18	01	A	2	0.0125	0.03	0.63	0.01	0.07
P7169	M-22	01	Y	2	0.05	0.0125	0.59	0.01	0.15
P7171	M-25	01	Y	2	0.09	0.0125	0.96	0.0206	0.07
P7174	M-29	02	Y	2	0.0125	0.04	1.85	0.01	0.17
P7179	M-49	01	A	2	0.0125	0.0125	0.48	0.01	0.13
P7182	M-61	01	Y	2	0.0125	0.0125	0.57	0.01	0.11
P7185	M-68	02	Y	2	0.04	0.0125	1.33	0.01	2.1
P7187	M-85	01	A	2	0.11	0.0125	0.51	0.01	0.34
P7189	M-89	02	Y	2	0.58	0.0125	0.76	0.0202	0.21
P7190	M-92	02	A	2	1.51	0.05	0.75	0.01	0.31
P7192	M-99	02	A	2	0.1	0.0125	0.61	0.01	0.17
P7193	M-103	02	A	2	0.04	0.0125	0.66	0.01	0.11
P7194	M-107	02	Y	2	0.17	0.0125	0.94	0.029	0.24
P7195	M-108	01	A	2	0.72	0.03	0.51	0.0278	0.22
P7196	M-109	02	A	2	0.14	0.0125	0.64	0.01	0.1
P7199	M-125	02	Y	2	0.27	0.0125	0.43	0.0204	0.15
P7203	M-135	01	A	2	0.83	0.0125	0.66	0.0378	0.21
P7204	M-136	02	A	2	0.14	0.0125	0.25	0.01	0.13
P7205	M-137	01	Y	2	1.6	0.0125	0.59	0.01	0.06

	As*	Cd	Cr	Hg	Pb
Mean	0.3265	0.0175	0.721	0.0148	0.264
Std Dev	0.4833	0.0109	0.348	0.0083	0.439

* Significantly different from site 4

Shaded area = 0.05(detection limit ug/g)

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TABLE 5a

JAAP DEER METALS DATA – MUSCLE: SITE COMPARISON

Sample #	Field #	Sex	Age	Site	As*	Cd	Cr	Hg	Pb
P7162	M-2	01	Y	3	0.06	0.0125	0.61	0.0396	0.04
P7173	M-28	01	Y	3	0.0125	0.0125	1.04	0.0238	0.05
P7176	M-34	01	A	3	0.05	0.0125	1.1	0.022	0.24
P7178	M-46	01	A	3	0.04	0.0125	1.17	0.0442	0.1
P7181	M-54	01	A	3	0.0125	0.0125	0.51	0.01	0.05
P7184	M-67	02	Y	3	0.08	0.03	0.89	0.0316	0.16
P7191	M-95	02	A	3	0.0125	0.0125	0.87	0.01	0.1
P7201	M-127	02	Y	3	0.08	0.06	0.8	0.01	0.2

Mean	0.0434	0.0206	0.874	0.0239	0.118
Std Dev	0.029	0.017	0.231	0.0136	0.075
* Significantly different from site 4					
Shaded area = 0.05(detection limit ug/g)					

Sample #	Field #	Sex	Age	Site	As	Cd	Cr	Hg	Pb
P7210	M-C-1	02	Y	4	1.13	0.04	0.75	0.01	0.13
P7211	M-C-2	02	Y	4	0.12	0.03	0.65	0.0252	0.11
P7212	M-C-3	01	Y	4	0.1	0.0125	0.52	0.01	0.1
P7213	M-C-6	01	Y	4	0.19	0.03	0.76	0.01	0.16
P7214	M-C-7	01	Y	4	0.08	0.04	0.67	0.01	0.13
P7215	M-C-10	02	Y	4	0.09	0.06	0.77	0.0302	0.23
P7216	M-C-13	02	A	4	1.15	0.0125	1.43	0.0218	0.25
P7217	M-C-14	02	A	4	1.15	0.0125	1.91	0.01	0.21
P7218	M-C-16	01	Y	4	1.42	0.0125	2.39	0.0542	0.15
P7219	M-C-18	02	Y	4	0.41	0.0125	1.23	0.01	0.2
P7220	M-C-19	02	Y	4	0.79	0.0125	0.6	0.01	0.13
P7221	M-C-20	02	Y	4	0.69	0.0125	0.69	0.0216	0.04

Mean	0.61	0.0249	1.031	0.0186	0.153
Std Dev	0.506	0.016	0.594	0.0134	0.060
Shaded area = 0.05(detection limit ug/g)					

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TABLE 5b

JAAP DEER METALS DATA – LIVER: SITE COMPARISON

Sample #	Field #	Sex	Age	Site	As	Cd	Cr	Hg	Pb
P8151	L-5	01	A	1	0.0125	0.03	0.88	0.01	0.03
P8152	L-9	01	A	1	0.03	0.06	0.6	0.01	0.07
P8154	L-17	01	Y	1	0.0125	0.05	1.04	0.01	0.11
P8156	L-19	01	A	1	0.03	0.07	1.08	0.01	0.09
P8158	L-23	01	Y	1	0.03	0.03	0.99	0.01	0.04
P8160	L-27	02	Y	1	0.08	0.03	0.8	0.01	0.06
P8163	L-31	01	Y	1	0.0125	0.04	0.8	0.02	0.09
P8165	L-45	01	A	1	0.03	0.06	1.02	0.01	0.09
P8168	L-50	02	Y	1	0.0125	0.04	0.91	0.01	0.12
P8171	L-65	01	Y	1	0.0125	0.0125	0.59	0.01	0.13
P8174	L-73	02	A	1	0.12	0.03	0.8	0.01	0.03
P8176	L-86	01	A	1	0.0125	0.0125	0.49	0.01	0.04
P8185	L-118	02	A	1	0.03	0.09	0.68	0.01	0.11
P8186	L-122	01	Y	1	0.0125	0.0125	0.65	0.01	0.03
P8188	L-126	02	Y	1	0.04	0.0125	0.58	0.01	0.03
P8190	L-130	02	A	1	0.09	0.1	0.58	0.01	0.09
P8194	L-139	02	A	1	0.0125	0.03	0.66	0.01	0.11
P8195	L-140	02	Y	1	0.0125	0.04	1.02	0.01	0.06
P8196	L-141	02	A	1	0.0125	0.1	0.81	0.01	0.09
P8197	L-142	02	Y	1	0.0125	0.0125	0.47	0.01	0.12

	As	Cd	Cr	Hg	Pb
Mean	0.0308	0.0431	0.7725	0.0105	0.077
Std Dev	0.0304	0.0286	0.1939	0.0022	0.0346
Shaded area = 0.05(detection limit ug/g)					

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TABLE 5b

JAAP DEER METALS DATA – LIVER: SITE COMPARISON

Sample #	Field #	Sex	Age	Site	As	Cd	Cr	Hg	Pb
P8153	L-12	01	Y	2	0.12	0.09	0.6	0.01	0.23
P8155	L-18	01	A	2	0.0125	0.05	1.00	0.01	0.05
P8157	L-22	01	Y	2	0.0125	0.06	0.76	0.01	0.05
P8159	L-25	01	Y	2	0.0125	0.03	0.66	0.01	0.08
P8162	L-29	02	Y	2	0.0125	0.07	0.41	0.01	0.13
P8167	L-49	01	A	2	0.0125	0.0125	0.52	0.02	0.06
P8170	L-61	01	Y	2	0.0125	0.0125	0.95	0.02	0.1
P8173	L-68	02	Y	2	0.0125	0.06	0.72	0.01	0.13
P8175	L-85	01	A	2	0.0125	0.05	0.81	0.0294	0.1
P8177	L-89	02	Y	2	0.0125	0.04	0.51	0.01	0.03
P8178	L-92	02	A	2	0.09	0.04	0.59	0.01	0.07
P8180	L-99	02	A	2	0.03	0.06	1.02	0.01	0.06
P8181	L-103	02	A	2	0.0125	0.0125	0.91	0.01	0.07
P8182	L-107	02	Y	2	0.0125	0.0125	0.86	0.01	0.16
P8183	L-108	01	A	2	0.0125	0.03	0.56	0.01	0.05
P8184	L-109	02	A	2	0.07	0.07	0.51	0.01	0.06
P8187	L-125	02	Y	2	0.07	0.03	0.85	0.01	0.05
P8191	L-135	01	A	2	0.0125	0.0125	1.33	0.01	0.04
P8192	L-136	02	A	2	0.03	0.12	0.74	0.01	0.11
P8193	L-137	01	Y	2	0.0125	0.0125	0.7	0.0212	0.03

	As	Cd	Cr	Hg	Pb
Mean	0.0292	0.04375	0.750	0.0125	0.083
Std Dev	0.0317	0.02961	0.223	0.0054	0.049
Shaded area = 0.05(detection limit ug/g)					

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TABLE 5b

JAAP DEER METALS DATA – LIVER: SITE COMPARISON

Sample #	Field #	Sex	Age	Site	As	Cd	Cr	Hg	Pb
P8150	L-2	01	Y	3	0.0125	0.05	0.98	0.01	0.07
P8161	L-28	01	Y	3	0.0125	0.05	0.72	0.01	0.08
P8164	L-34	01	A	3	0.1	0.05	0.6	0.02	0.04
P8166	L-46	01	A	3	0.0125	0.0125	0.66	0.01	0.04
P8169	L-54	01	A	3	0.08	0.05	0.76	0.02	0.04
P8172	L-67	02	Y	3	0.05	0.06	0.89	0.01	0.06
P8179	L-95	02	A	3	0.0125	0.0125	0.92	0.01	0.0125
P8189	L-127	02	Y	3	0.0125	0.05	0.57	0.01	0.06

	As	Cd	Cr	Hg	Pb
Mean	0.0365	0.0418	0.762	0.0125	0.0503
Std Dev	0.0358	0.0184	0.153	0.0046	0.0213
Shaded area = 0.05(detection limit ug/g)					

Sample #	Field #	Sex	Age	Site	As	Cd	Cr	Hg	Pb
P8198	L-C-1	02	Y	4	0.0125	0.06	0.53	0.01	0.0125
P8199	L-C-2	02	Y	4	0.1	0.03	0.67	0.01	0.09
P8200	L-C-3	01	Y	4	0.0125	0.12	0.6	0.01	0.14
P8201	L-C-6	01	Y	4	0.09	0.03	0.58	0.01	0.0125
P8202	L-C-7	01	Y	4	0.06	0.03	0.84	0.01	0.04
P8203	L-C-10	02	Y	4	0.0125	0.04	0.6	0.01	0.0125
P8204	L-C-13	02	A	4	0.0125	0.13	0.91	0.01	0.1
P8205	L-C-14	02	A	4	0.0125	0.08	0.66	0.01	0.09
P8206	L-C-16	01	Y	4	0.03	0.11	0.74	0.01	0.06
P8207	L-C-18	02	Y	4	0.0125	0.1	0.63	0.01	0.04
P8208	L-C-19	02	Y	4	0.0125	0.0125	0.68	0.01	0.32
P8209	L-C-20	02	Y	4	0.0125	0.03	1.14	0.01	0.0125

	As	Cd	Cr	Hg	Pb
Mean	0.0316	0.0643	0.715	0.01	0.0775
Std Dev	0.0327	0.0415	0.172	0	0.0871
Shaded area = 0.05(detection limit ug/g)					

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TABLE 5c

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Means and Standard Deviations of Metals Data (ug/g) – Muscle

Parameter	Site	As	Cd	Cr	Hg	Pb
Mean	1	0.116	0.0247	1.839	0.0171	0.118
Std Dev		0.1762	0.02747	3.477	0.00803	0.054
Mean	2	0.326	0.0175	0.721	0.0148	0.264
Std Dev		0.4833	0.0109	0.348	0.0083	0.439
Mean	3	0.0434	0.0206	0.874	0.0239	0.118
Std Dev		0.029	0.017	0.231	0.0136	0.075
Mean	4	0.610	0.0249	1.031	0.0186	0.153
Std Dev		0.506	0.016	0.594	0.0134	0.060

Means and Standard Deviations of Metals Data (ug/g) – Liver

Parameter	Site	As	Cd	Cr	Hg	Pb
Mean	1	0.0309	0.0431	0.772	0.0105	0.0770
Std Dev		0.0304	0.0286	0.1939	0.0022	0.0346
Mean	2	0.0292	0.0437	0.751	0.0125	0.0830
Std Dev		0.0317	0.02961	0.223	0.0054	0.049
Means	3	0.0366	0.0419	0.763	0.0125	0.0503
Std Dev		0.0358	0.0184	0.153	0.0046	0.0213
Mean	4	0.0317	0.0644	0.715	0.010	0.0775
Std Dev		0.0327	0.0415	0.172	0.00	0.0871

$$\text{Mean} = \frac{\Sigma x}{n}$$

$$\text{Std Dev} = \sqrt{\frac{\Sigma x^2 - \frac{(\Sigma x)^2}{n}}{n - 1}}$$

TABLE 6

PCB/PESTICIDES DATA – JAAP DEER FAT

Sample #	Field #	Site	1242	1016	1248	1254	1260	DDD	DDE	DDT
P7163	F-5	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7164	F-9	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7166	F-17	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7168	F-19	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7170	F-23	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7172	F-27	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7175	F-31	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7177	F-45	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7180	F-50	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7183	F-65	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7186	F-73	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7188	F-86	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7197	F-118	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7198	F-122	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7200	F-126	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7202	F-130	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7206	F-139	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7207	F-140	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7208	F-141	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7209	F-142	1	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 6

PCB/PESTICIDES DATA – JAAP DEER FAT

Sample #	Field #	Site	1242	1016	1248	1254	1260	DDD	DDE	DDT
P7165	F-12	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7167	F-18	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7169	F-22	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7171	F-25	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7174	F-29	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7179	F-49	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7182	F-61	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7185	F-68	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7187	F-85	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7189	F-89	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7190	F-92	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7192	F-99	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7193	F-103	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7194	F-107	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7195	F-108	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7196	F-109	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7199	F-125	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7203	F-135	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7204	F-136	2	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 6

PCB/PESTICIDES DATA – JAAP DEER FAT

Sample #	Field #	Site	1242	1016	1248	1254	1260	DDD	DDE	DDT
P7162	F-2	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7173	F-28	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7176	F-34	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7178	F-46	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7181	F-54	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7184	F-67	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7191	F-95	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7201	F-127	3	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl

Sample #	Field #	Site	1242	1016	1248	1254	1260	DDD	DDE	DDT
P7210	F-C-1	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7211	F-C-2	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7212	F-C-3	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7213	F-C-6	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7214	F-C-7	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7215	F-C-10	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7216	F-C-13	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7217	F-C-14	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7218	F-C-16	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7219	F-C-18	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7220	F-C-19	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl
P7221	F-C-20	4	bprl	bprl	bprl	bprl	bprl	bprl	bprl	bprl

bprl = below project reporting limits (ug/g)

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TABLE 7

CANCER RISK FROM INGESTION OF JAAP DEER MUSCLE - SITE COMPARISON

Chemical	Site	Mean(ug/g)	Std Dev(ug/g)	UCL(ug/g)	SF(per mg/kg-d)	Intake(mg/kg-d)	CR
As	1	0.116	0.176	0.193	1.7E-0*	4.4E-5	7.5E-5
	2	0.326	0.483	0.538	1.7E-0*	1.2E-4	2.1E-4
	3	0.0434	0.029	0.0635	1.7E-0*	1.4E-5	2.5E-5
	4	0.610	0.506	0.896	1.7E-0*	2.0E-4	3.5E-4

* The oral slope factor for arsenic was calculated from the EPA drinking water unit risk concentration

Cancer Risk (CR) = Intake x Slope Factor (SF)

Intake = CF x IR x FI x EF x ED/BW x AT

Concentration Fraction (CF) = 95% UCL of the arithmetic mean
Upper 95% Confidence Limit (UCL) = $\bar{x}$ + 1.96(std dev/$\sqrt{n}$)
Ingestion Rate (IR) = 0.227 kg of muscle/meal
Fraction Ingested (FI) = 100%
Exposure Frequency (EF) = 60 meals/year
Exposure Duration (ED) = 30 years
Body Weight (BW) = 70 kg
Average Time of Exposure (AT) = 70 years x 365 (days/year)

TABLE 8

CANCER RISK FROM INGESTION OF JAAP DEER LIVER – SITE COMPARISON

Chemical	Site	Mean(ug/g)	Std Dev(ug/g)	UCL(ug/g)	SF(per mg/kg-d)	Intake(mg/kg-d)	CR
As	1	0.0309	0.0304	0.0442	1.7E-0*	8.41E-7	1.4E-6
	2	0.0292	0.0317	0.0431	1.7E-0*	8.22E-7	1.4E-6
	3	0.0366	0.0358	0.0614	1.7E-0*	1.17E-6	2.0E-6
	4	0.0317	0.0327	0.050	1.7E-0*	9.52E-7	1.6E-6

* The oral slope factor for arsenic was calculated from the EPA drinking water unit risk concentration

Cancer Risk (CR) = Intake x Slope Factor (SF)

Intake = CF x IR x FI x EF x ED/BW x AT

Concentration Fraction (CF) = 95% UCL of the arithmetic mean
Upper 95% Confidence Limit (UCL) = $\bar{x} + 1.96(\text{std dev}/\sqrt{n})$
Ingestion Rate (IR) = 0.227 kg of liver/meal
Fraction Ingested (FI) = 100%
Exposure Frequency (EF) = 5 meals/year
Exposure Duration (ED) = 30 years
Body Weight (BW) = 70 kg
Average Time of Exposure (AT) = 70 years x 365 (days/year)

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Table 9

JAAP DEER MUSCLE HAZARD QUOTIENT FACTORS – SITE COMPARISONS

Site	Chemical	Mean (ug/g)	Std Dev (ug/g)	UCL (ug/g)	RfD (mg/kg-d)	Intake (mg/kg-d)	HQ
1	As	0.116	0.176	0.193	3.0E-4	1.029E-4	3.4E-1
1	Cd	0.247	0.0275	0.259	1.0E-3	1.38E-4	1.4E-1
1	Cr6	1.839	3.378	3.319	5.0E-3	1.77E-3	3.5E-1
						Site 1 HI =	8.3E-1
2	As	0.326	0.483	0.538	3.0E-4	2.87E-4	9.6E-1
2	Cd	0.0175	0.0109	0.0223	1.0E-3	1.19E-5	1.2E-2
2	Cr6	0.721	0.348	0.873	5.0E-3	4.65E-4	9.3E-2
						Site 2 HI =	1.1E-0

Hazard Quotient (HQ) = Intake/RfD

Intake = CF x IR x FI x EF x ED/BW x AT

Concentration Factor (CF) = 95% UCL of the arithmetic mean
Upper 95% Confidence Limit (UCL) = x + 1.96(std dev/ n)
Ingestion Rate (IR) = 0.227 kg of muscle/meal
Fraction Ingested (FI) = 100%
Exposure Frequency (EF) = 60 meals/year
Exposure Duration (ED) = 30 years
Body Weight (BW) = 70 kg
Average Time of Exposure (AT) = ED x 365 (days/year)

RfD = Reference Dose (mg/kg-d)

Hazard Index (HI) = sum of HQs

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TABLE 9

JAAP DEER MUSCLE HAZARD QUOTIENT FACTORS – SITE COMPARISONS

Site	Chemical	Mean (ug/g)	Std Dev (ug/g)	UCL (ug/g)	RfD (mg/kg–d)	Intake (mg/kg–d)	HQ
3	As	0.0434	0.0290	0.0635	3.0E–4	3.38E–5	1.1E–1
3	Cd	0.0206	0.0170	0.0324	1.0E–3	1.73E–5	1.7E–2
3	Cr6	0.874	0.231	1.034	5.0E–3	5.51E–4	1.1E–1
						Site 3 HI =	2.4E–1
4	As	0.610	0.506	0.896	3.0E–4	4.78E–4	1.6E–0
4	Cd	0.0239	0.0160	0.0329	1.0E–3	1.75E–5	1.7E–2
4	Cr6	1.0308	0.593	1.366	5.0E–3	7.28E–4	1.4E–1
						Site 4 HI =	1.7E–0

Hazard Quotient (HQ) = Intake/RfD

Intake = CF x IR x FI x EF x ED/BW x AT

Concentration Factor (CF) = 95% UCL of the arithmetic mean
Upper 95% Confidence Limit (UCL) = x + 1.96(std dev/ n)
Ingestion Rate (IR) = 0.227 kg of muscle/meal
Fraction Ingested (FI) = 100%
Exposure Frequency (EF) = 60 meals/year
Exposure Duration (ED) = 30 years
Body Weight (BW) = 70 kg
Average Time of Exposure (AT) = ED x 365 (days/year)

RfD = Reference Dose (mg/kg–d)

Hazard Index (HI) = sum of HQs

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TABLE 10

HAZARD QUOTIENT FACTORS FOR INGESTION OF JAAP DEER LIVER – SITE COMPARISON

Site	Chemical	Mean(ug/g)	Std Dev(ug/g)	UCL(ug/g)	RfD(mg/kg-d)	Intake(mg/kg-d)	HQ
1	As	0.0309	0.0304	0.0442	3.0E-4	1.96E-6	6.5E-3
1	Cd	0.0431	0.0286	0.0556	1.0E-3	2.47E-6	2.5E-3
1	Cr6	0.772	0.194	0.857	5.0E-3	3.81E-5	7.6E-3
						Site 1 HI =	1.7E-2
2	As	0.0292	0.0317	0.0431	3.0E-4	1.91E-6	6.4E-3
2	Cd	0.0437	0.0296	0.0567	1.0E-3	2.52E-6	2.5E-3
2	Cr6	0.750	0.223	0.848	5.0E-3	3.76E-5	7.5E-3
						Site 2 HI =	1.6E-2

Hazard Quotient (HQ) = Intake/RfD

Intake = CF x IR x FI x EF x ED/BW x AT

Concentration Factor (CF) = 95% UCL of the arimetic mean
Upper 95% Confidence Limit (UCL) = $\bar{x} + 1.96(\text{std dev}/\sqrt{n})$
Ingestion Rate (IR) = 0.227 kg of liver/meal
Fraction Ingested (FI) = 100%
Exposure Frequency (EF) = 5 meals/year
Exposure Duration (ED) = 30 years
Body Weight (BW) = 70 kg
Average Time of Exposure (AT) = ED x 365 (days/year)

RfD = Reference Dose (mg/kg-d)

Hazard Index (HI) = sum of HQ

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TABLE 10

HAZARD QUOTIENT FACTORS FOR INGESTION OF JAAP DEER LIVER - SITE COMPARISON

Site	Chemical	Mean(ug/g)	Std Dev(ug/g)	UCL(ug/g)	RfD(mg/kg-d)	Intake(mg/kg-d)	HQ
3	Cd	0.0419	0.0184	0.0546	1.0E-3	2.43E-6	2.4E-3
3	Cr6	0.762	0.153	0.868	5.0E-3	3.86E-5	7.7E-3
						Site 3 HI =	1.9E-2
4	As	0.0317	0.0327	0.050	3.0E-4	2.22E-6	7.4E-3
4	Cd	0.0643	0.0415	0.0878	1.0E-3	3.90E-6	3.9E-3
4	Cr6	0.715	0.172	0.812	5.0E-3	2.61E-5	7.2E-3
						Site 4 HI =	1.8E-2

Hazard Quotient (HQ) = Intake/RfD

Intake = CF x IR x FI x EF x ED/BW x AT

Concentration Factor (CF) = 95% UCL of the arimetic mean
Upper 95% Confidence Limit (UCL) = $\bar{x} + 1.96(\text{std dev}/\sqrt{n})$
Ingestion Rate (IR) = 0.227 kg of liver/meal
Fraction Ingested (FI) = 100%
Exposure Frequency (EF) = 5 meals/year
Exposure Duration (ED) = 30 years
Body Weight (BW) = 70 kg
Average Time of Exposure (AT) = ED x 365 (days/year)

RfD = Reference Dose (mg/kg-d)

Hazard Index (HI) = sum of HQ

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TABLE 11

MONTE CARLO SIMULATION RESULTS

CARCINOGENIC RISK

ORGAN	SITE	MEAN	MAXIMUN	MINIMUM
Muscle	1	2.8E-05	2.6E-04	1.5E-08
	2	7.8E-05	8.1E-04	6.8E-08
	3	6.9E-06	8.9E-05	3.0E-08
	4	1.1E-04	2.1E-03	4.0E-07
Liver	1	5.2E-08	8.5E-07	8.0E-11
	2	5.0E-08	5.8E-07	3.0E-11
	3	6.0E-08	6.6E-07	7.3E-11
	4	5.3E-08	8.4E-07	2.2E-11
NON-CARCINOGENIC RISKS				
Muscle	1	6.9E-01	5.1E+00	1.6E-02
	2	1.0E+00	1.2E+01	1.0E-02
	3	1.2E-01	8.9E-01	1.1E-02
	4	1.3E+00	1.5E+01	1.2E-02
Liver	1	1.4E-03	5.6E-03	3.2E-04
	2	1.4E-03	6.6E-03	2.1E-04
	3	9.0E-04	6.5E-03	8.7E-06
	4	1.5E-03	9.3E-03	1.9E-04

Values for carcinogens represent carcinogenic risk.
For non-carcinogens, the values reflect HI scores.

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APPENDIX O
RESPONSE TO COMMENTS

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION COMMENTS

NYSDEC COMMENTS ON DRAFT ASH LANDFILL RI

Comment #1 2.9. Groundwater Investigation: Non-Combustible Fill Area: As explained in our letter of December 6, 1993, two monitoring wells, downgradient of the Non-Combustible Fill Area, should be placed as soon as possible and one round of sampling from these two wells plus PT-11 should be taken for full TCL and TAL compounds.

Response #1 Agreed. These two wells (MW-59 and MW-60) were installed, sampled and analyzed (Page 2-38). Results are incorporated into the RI report (Table 4-5). All VOC's were below detection limits in all three wells (including PT-11) using Method 524.2. All semi-volatiles, PCB/pesticides and herbicides were below detection limits in all three wells using NYSDEC CLP methods.

Comment #2 Table 2-6: It appears that the turbidity values for monitoring wells MW-49D, MW-55D and MW-58D are incorrectly stated (1800, 760 and 4200 NTUs, respectively). If so, these values should be corrected, otherwise an explanation for such high values should be provided.

Response #2 Acknowledged. The turbidity values for these wells at the completion of the development process were verified from the field data forms. For MW-49D, the turbidity sample was collected after removing 40.5 gallons of water, equivalent to 5 standing volumes of water from the well/core hole. For MW-55D, the turbidity sample was collected after 53 gallons (5 well/core volumes) of water had been removed from the well. Again, for MW-58D, the turbidity sample was collected after 56 gallons (5 well/core volumes), of water had been removed from the well. The reason for these high turbidity values is not certain. All three of these wells are bedrock wells screened in competent shale and are not expected to have high turbidities. Please note that when these three wells were sampled the turbidities were low (See Table 2-7).

Comment #3 Table 2-7: Again the turbidity values for monitoring wells PT-26, MW-43, MW-46, MW-52D, MW-56 and MW-57D are high. These values should be rechecked for accuracy.

Response #3 Acknowledged. The turbidity values reported in the table were verified by the field data sheets. For these wells, as in most other wells, the turbidity became increasingly greater during sampling due to the unavoidable surging caused by slowly lowering and retrieving the Teflon bailer required for sampling. An additional influence might be differences in the silt and clay content of the till at the various well locations.

Comment #4 Table 3-2: Please include the test results of all fifteen background soil samples.

Response #4 Agreed. The analytical test results for all fifteen background soil samples are included in the Table 3-2.

Comment #5 Table 4-3: Soil Test Results: (i) Engineering Science, Inc. (ESI) should explain why detection limits are so high (up to 6400 ug/kg) for the herbicide MCPP in soil. ESI should also explain why several semi-volatiles have high detection limits (i.e., 4-Nitrophenol at 4200 ug/kg in sample #B-7, 10-12 feet; naphthalene at 1900 ug/kg in sample B6 (2-4 feet) and samples from boring B-32 (at 4-6 feet and 6-7.8 feet) show elevated detection limits for volatiles.

(ii) ESI should explain why some results are given with both qualifiers "U" and "J" attached to them (i.e., sample from borehole B-15 at 2-4 feet).

Response #5(i) Detection limits for compounds in soil samples can be higher than the contract required detection limits for one or more of the following reasons:

1. The laboratory factors in the percent moisture content of the soil sample. If the detection limit for a compound is 330 ug/kg and the sample contains 90% solids, the detection limit becomes 330/90% = 370 (rounded up).
2. If the laboratory dilutes a sample, the detection limit increases by the percent diluted.
3. If there is not enough sample volume for the analysis, the detection limit increases.
4. If the sample is a medium concentration sample, the detection limit is 125 times the low soil/sediment limit.

The detection limits obtained for the analysis of the chlorinated herbicide MCPP in soil/sediment are well below the estimated quantitation limit (EQL) as defined in EPA Method 8150 (revision 2, November 1992), SW-846, Test Methods for Evaluating Solid Waste. While this method does define detection limits for chlorinated herbicides in organic-free reagent water, it does not define specific detection limits for soil/sediment. Instead, estimated quantitation limits (EQLs) are defined for the soil/sediment media using a factor. For soil/sediment the EQL is derived by multiplying the detection limit for the herbicide compounds in organic-free water (192 ug/l for MCPP) by the soil/sediment factor (200). This yields a EQL of 38,400 ug/kg. The detection limits obtained for MCPP in the soil sediment analyses at the Ash Landfill are generally between 5400 and 6600 ug/kg, well below the EQL for MCPP. The detection limits listed in the ESE/ES RI/FS workplan are not consistent with these listed in Method 8150, SW-846.

Several semi-volatile organic compounds have high detection limits because of the differences in moisture content of the samples. The soil sample from 10-12 feet in B-7 contained 25% moisture while most other samples have moisture contents between 8 and 14%.

The detection limits for B-2 (2-4 feet) were raised to 1900 ug/kg for many of the semi-volatile organic compounds because the sample was diluted by 2.5 times. The detection limit increases by the percent diluted. The comment suggests that the detection limits for naphthalene was 1900 ug/kg, however, in this sample naphthalene was estimated at a concentration of 830 ug/kg. For many of the other semi-volatiles the detection limit was 1900 ug/kg.

The sediments samples from boring (B-32) (at 4-6 and 6-7.8 feet) show elevated detection (1300 ug/kg) limits for volatiles because these samples, in addition to b36-4, were analyzed by medium level methodologies for volatile organics. This explanation is provided in the case narrative of the sample summary data package from the laboratory. If the sample is a medium concentration sample, the detection limit is 125 times the low detection limit (10 x 125 = 1250 ~ 1300).

Response 5(ii) The J was added to the U for selected analytes in accordance with the USEPA data validation procedures. The UJ signifies that the analytical technique was unable to detect the analyte due to deficiencies with the analysis of this sample. According to the CLP Organics Data Review and Preliminary Review, SOP No. HW-6 Revision #8," the UJ applies when the analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

A note has been added to Table 4-3 to define UJ.

Comment #6 4.3.3. Total Phthalates: ESI should discuss, in this section, possible sources of phthalates found in many soil samples.

Response #6 Agreed. Section 4.3.3 "Total Phthalates" now includes a discussion of possible sources of phthalates found in many of the soil samples.

Comment #7 Figure 4-32 through 4-35 TICs: It appears that the concentrations are incorrectly stated in ug/kg instead of mg/kg. As per Table 4-4 and text on page 4-82, the reported concentrations are in mg/kg.

Response #7 Acknowledged. The concentrations indicated in Table 4-4 were corrected and now read in ug/kg (ppb) to be consistent with the presentation of other similar data. It is worth noting, that in further evaluating the Tics as part of this response to comments it is evident that two compounds (2-pentanone, 4-hydroxy-4 -methyl and 4-methyl,- 3 penten,2-one are laboratory contaminants and not representative of the samples. They occur in numerous laboratory blanks as well as in the samples. The laboratory for this project, Aquatec Laboratories, was contacted regarding this and responded with supporting corroborative letters. The letters, dated January 7 and 17, 1994, state that 2-pentanone, 4-hydroxy, 4-methyl "is commonly referred to as Diacetone alcohol. It is a common Aldol condensation product of acetone and its presence in the sample is highly unlikely." It also stated that 4-methyl, 3-

penton, 2-one, "is a common dehydration product of Diacetone alcohol and its presence in the sample is highly unlikely." As a result the compounds have not been included in the total TIC concentrations listed in Table 4-4 or in the complimentary Figures (4-32 through 4-35).

Comment #8 <u>Table 4-5: Groundwater Test Results:</u> (i) This Table should also include the New York State Groundwater standards (6 NYCRR Part 703) and guidance values for comparison with groundwater test results.

(ii) Table 4-5 gives analytical results for monitoring wells MW-80, MW-82, MW-84, MW-86 and MW-89, yet there is no discussion of these wells in the text and they are not shown on Figure 2-8. Please explain.

Response #8(i) The New York State Groundwater standards (6 NYCRR Part 703) and guidance values have been added to Table 4-5.

Response #8(ii) Agreed. The referenced samples MW-80, MW-82, MW-84, MW-86 and MW-89 are not actual wells. These are duplicate samples of other wells. The "80" series IDs were used to create blind duplicates so that the laboratory would not know which wells had duplicate samples. Changes were made to Table 4-5 to clearly identify these as duplicate samples, and to identify from which well these samples were taken.

Comment #9 <u>Table 4-8: Surface Water Test Result:</u> Please include the test results for cadmium on this table.

Response #9 Acknowledged. Table 4-8 is a summary table and lists only those organic or inorganic compounds detected in at least one of the samples. Compounds for which the concentrations were below the detection limit in all samples were not included in the table. Cadmium was not detected in any surface water sample. The analytical results for compounds not detected in any of the samples is included in Appendix J. However, because it was specifically requested in a NYSDEC comment, cadmium has been added to Table 4-8.

Comment #10 <u>Table 4-9: Sediment Test Results:</u> Table 4-9 lists results twice for sample location SW-100 (dated 11/15/91) and SW-600 (dated 11/16/91). Are these results for duplicate samples? If so, this should be stated. If not, what was the purpose of these locations twice on the same day?

Response #10 Acknowledged. The results that are listed twice for sample location SW-100 (dated 11/15/91) and SW-600 (dated 11/16/91) are duplicate samples. Table 4-9 has been modified to indicate the duplicate samples.

Comment #11 <u>4.4.4. Tentatively Identified Compounds (TIC):</u> ESI should discuss in this section, the possible reasons for TICs contamination in the bedrock, particularly when no volatile and semi-volatile organic compounds were detected in it.

Response #11 Agreed. Section 4.4.4 has been expanded to include a discussion of the tentatively identified volatile and semivolatile organic compounds in groundwater samples, particularly in the bedrock wells.

Comment #12 Appendix J: Many Tentatively Identified Compounds (TICs) values are flagged with a qualifier NJ. Please define NJ in the data qualifier glossary table.

Response #12 Agreed. The qualifier NJ has been defined in are data qualifier glossary table specifically for TICs.

NYSDEC COMMENTS ON ASH LANDFILL

Comment #1 The following sentences should be corrected:

- Section 6.3.4.5 - The sentence in the first paragraph beginning with "The groundwater data..." should be corrected.

- Section 6.3.5.5.1 - The last sentence in the first paragraph beginning with "Scaling to other chemicals..." should be corrected.

- Section 6.5.3.2 - In the paragraph titled "Inhalation of Volatiles in Ambient Air", the first two sentences must be corrected.

Response #1 Agreed. The confusing sentences have been corrected as requested.

- Section 6.3.4.5 - The sentence now reads: "The groundwater data used to evaluate current off-site residential exposure was obtained from the off-depot farmhouse wells that are currently a source of potable water."

- Section 6.3.5.5.1 - The sentence now reads: "The efficiency of release for chemicals other than TCE is obtained as the product of the ratio of the Henry's Law constant for that compound to the Henry's Law constant for TCE and efficiency factor for TCE."

- Section 6.5.3.2 - The first two sentences now read: "Chemical-specific cancer risks and the total pathway risk for inhalation of volatiles in ambient air are presented on Table 6-41." "The total pathway risk of 9.0×10^{-5} is within the USEPA defined target range of 10^{-6} to 10^{-4} and is primarily the result of potential exposure to vinyl chloride (risk = 5.4×10^{-5}). TCE (risk = 3.0×10^{-5}) and 1,1 dichloroethene (risk = 5.1×10^{-6}).

Comment #2 Figures 6-1, 6-2, 6-3, are all missing.

Response #2 Agreed. The missing figures have been included.

Comment #3 NYSDOH does not recognize the USEPA's acceptable range of carcinogenic risk of 10^{-4} to 10^{-7}. The baseline risk assessment, which is part of the RI, should not make conclusions whether the risk is acceptable or not. It should indicate the level of risk the site presents or will present in the future. The determination whether the risk is acceptable or not will be done in the feasibility study. Use of EPA's "acceptable risk levels" to prejudge the need for a remedy is improper without considering other items such as practical remedies and available technology, cost, effectiveness, reduction of exposure to receptors, permanence of remedy, future use of the site, and compliance with New york State standards, criteria and guidelines. This evaluation should be completed in the feasibility study, not in the risk assessment document. The establishment of "acceptable risk levels" is only appropriate after a remedial program is agreed to and which will minimize or eliminate, to the extent practical, all potential exposure pathways.

Response #3 Exception. This project has incorporated all NYSDEC comments, However, a response to this comment would require a change in the risk assessment that would be inconsistent with established EPA procedures. These procedures are well documented in numerous EPA guidance manuals. Consequently, it has been determined by the Army that since the changes to the risk assessment would conflict with EPA guidance and since this project is considered an EPA-lead project, these changes will not be made.

The comparison of calculated risk values to the EPA target risk range was done to provide a basis for determining which exposure pathways contributed to the majority of the calculated risk. If the risk is within the EPA target risk range or is less than the lowest EPA target range value, i.e. $1x10^{-6}$, then the need to pursue a remedial action from the contribution of this risk pathway appears unnecessary.

Comment #4 The baseline risk assessment must be conducted using the most conservative approach. Consistent with this the following changes must be made:

- A 70-year residential exposure duration must be evaluated for carcinogenic as well as non-carcinogenic effects.
- The maximum detected values of each chemical found in soil, groundwater, surface water, and sediment during the RI must be used to calculate risk.
- In all scenarios evaluating dermal exposure to contaminated soils, the skin surface area available for contact should be representative of the hands, arms, face and upper torso.

Response #4 Exception. The EPA guidance manual, "Dermal Exposure Assessment: Principles and Applications," (EPA/600/8-91/011B), states "EPA (1989a, 1989b) has reviewed census data and concluded that the time people spend at a residence averages about 9 years, with an upper estimate of 30 years. On this basis, a range of 9 to 30 years is recommended for default purposes." For this risk assessment ES has assume dthe conservative estimate of residential exposure at 30 years. ES considers a 70 year exposure time to be an unreasonable exposure period and has chosen to follow EPA guidance. It should be noted that Averaging Time for non-carcinogenic effects is 30 years and the AT for carcinogenic effects is 70 years. This is because non-carcinogenic effects cannot occur if the exposure is removed. Carcinogenic effects can manifest itself many years after the initial exposure event. Therefore, for carcinogenic risk the lifetime of the exposed individual which is 70 years, is used as the AT. For non-carcinogenic risk the AT is considered to be equal to the exposure time which is the time that the receptor resides at the site. In this case, 30 years was used as the residence time.

Using the maximum value for calculation of risk is an unreasonable conservative estimate of the risk and is not reflective of true conditions of the site; and therefore, was not performed. As required by EPA risk guidance the use of the 95th UCL of the mean for exposure concentrations has been used in the calculation of site risk.

Consistent with EPA guidance, the exposure to skin assumes only hands, arms, legs, neck, and head. The upper torso has not been included. This is a change from the initial draft which was made to incorporate the latest EPA guidance.

Comment #5 Section 6.3.3.2- This section discusses potential on-site receptors under current land use and explains why on-site deer hunters were not considered in the health risk assessment. Please clarify the meaning of "for less than full time residents who are exposed to the same media". Additionally, it is inappropriate to cite the Joliet Army Ammunition Plant studies as a reason without providing documentation. Please provide a copy of the Joliet Army Ammunition Plant study for our review.

Response #5 Agree. In order to consider a current on-site exposure pathway ES has included the hunter exposure scenario as part of the risk assessment. The draft health risk assessment for ingestion of deer meat at the Joliet Army Ammunition Plan (JAAP) has been included as Appendix N. This study concluded that the risks from consuming muscle and liver tissue from deer are minimal. In addition, this study also collected data that suggested there was no bioaccumulation of explosives, pesticides nor PCBs. Although VOAs were not specifically considered in this study the chemical/physical properties of VOAs suggest that VOAs would not bioaccumulate more than explosives, pesticides and PCBs. Based upon this information the bioaccumulation of pollutants through the ingestion of deer meat has been neglected as an exposure pathway of the hunter scenario.

The appropriate changes have been made to Section 6, the Baseline Human Health Risk Assessment. These changes include text on pages 6-50, 6-55, Figure 6-3 and several of the summary tables of the draft risk assessment.

Comment #6 Section 6.3.3.3- If the proposed future use of any portion of this property will change from its current military use, NYSDEC and NYSDOH must be given the opportunity to review all documentation regarding the proposed usage, as well as all data generated as a result of environmental investigations conducted at the area of concern. This must be specifically stated in the report.

Response #6 Agreed. Section 6.3.3.3,Potential Future Land Uses, has been rewritten to describe the intended future use of this parcel and the procedures the Army must follow to transfer ownership of this parcel. The Army intends to keep the use of this parcel as it currently is. The Army is also required to perform any remedial measures to meet the requirements of the intended future us. As required by CERCLA and Army Regulation AR200-1. NYSDEC and the NYSDOH will be notified. AR200-1 also sequences that prior to property transfer an Environmental Baseline Study (EBS) must be conducted. This study requires an evaluation of the risk posed by the site for the intended use. Although the Army does not currently intend to transfer ownership of the parcel, if such a transfer is planned that will cause the Army to cease control of the use of the land, the requirements for AR200-1 and CERCLA will be followed.

Comment #7 Section 6.3.5 - Children must be evaluated in the risk assessment, since the potential for the exposure to contaminants exists at the site. The following parameters should be assumed:

- Body Weight - 15 kg.
- Soil Ingestion Rate - 200 mg/day
- Skin Surface Area - 2,500 cm^2
- Exposure Duration - 6 years

Response #7 Agreed: Children have been included in the risk assessment for the dermal exposure to soil and soil ingestion exposure scenarios. The following values were used:

- Body weight: 15 kg
- Soil ingestion rate: 200 mg soil/day
- Skin surface area: 2165 cm^2
- Exposure duration: 6 years

The results of these evaluations are in Tables 6-18 and 6-21. The total 30-year exposure was calculated as the weighted average of 6 years of childhood exposure and exposed 24 years of adult exposure, per EPA guidance. For dermal contact the skin surface area of 2,165 cm^2 was calculated by taking 25% of the total skin area of a 6 year old male child (8,660 cm^2) per USEPA guidance (EPA, 1992).

Comment #8 The following is a list of discrepancies regarding exposure assumptions that must be corrected:

- Section 6.3.5.4.2- On Page 6-80, the exposure frequency for inhalation of contaminants in groundwater when showering is stated as 365 days/year. However, on page 6-78 the exposure frequency for showering is stated as 350 days/year when evaluating dermal exposure to groundwater. These numbers should be consistent.

- Table 6-17 - This table identifies parameters used for calculating intake from inhalation of groundwater, and shows an assumed exposure frequency of 350 days/year, while the text on page 6-80 states an exposure frequency of 365 days/year. Please correct this discrepancy.

- Table 6-21 - The exposure frequency and duration of the inhalation of volatile organics in ambient air listed in the table do not match the values stated in the footnoted assumptions. Please correct these discrepancies.

- Table 6-22 - This table identifies parameters used for calculating intakes from inhalation of volatile organics in ambient air, and shows an exposure frequency of 150 days/year, while on page 6-95 the text states an exposure frequency of 350 days/year. The reference to an exposure frequency of 150 days/year should be changed to 350 days/year. Additionally, the values in the column "averaging time" are products of a 25 year and a 70 year exposure duration, multiplied by an exposure frequency of 365 days/years. This exposure frequency is not consistent with the exposure frequency of 350 days/year as stated in the text nor the 150 days/year shown on the table. Please correct these discrepancies.

Response #8 Agreed. The correct values, in all cases noted, are an exposure frequency of 350 days, an exposure duration of 30 years, and an averaging time for non-carcinogenic exposure of 30 years x 365 days, or 10,950 days. These changes were made where necessary to all tables and text to ensure that the correct values are consistently applied.

Comment #9 7.2.1 Data Limitations and Recommendations for Future Work: It should be stated that a limited groundwater investigation (installation of two monitoring wells and groundwater sampling from these two wells plus PT-11) will be required to define the groundwater quality downgradient of non-combustible fill landfill. This investigation is being undertaken and should be appended to the Remedial Investigation Report. Please note that this additional work was requested in NYSDEC's letter of December 6, 1993, and discussed further by telephone on March 2, 1994 between Kevin Healy of USACE and Kamal Gupta of NYSDEC.

Response #9 The two additional monitoring wells MW-59 and MW-60 have been installed, sampled and analyzed. The results have been incorporated into the appropriate sections of the RI. It should be noted that no VOA's were detected in any of the three wells downgradient to the NCFL.

US ENVIRONMENTAL PROTECTION AGENCY COMMENTS

COMMENTS - EPA - ASH

3.1 Outstanding Issues: ES's Responses to Comments

The RI Report states (page 5-25, Section 5.3) that "...it would appear that TCE would never reach the farmhouse wells". We disagree with this statement for the following reasons:

Comment #1 The analysis employed and discussed in Section 5.0 of the RI Report discounts the degradation product 1,1-DCE. This compound poses a risk and is probably retarded less than TCE.

- The value of the "average hydraulic conductivity" used in the RI Report is probably too low. The majority of the till/weather shale test values presented are in the range of approximately 1.5 feet/day (Table 3-8) which is much greater than the value that is used (0.77 feet/day) (p. 3-53, ¶3). Furthermore, there appears to be only one till/weathered shale test value in the vicinity of the southern portion of the site and the farmhouse (MW-36).

- The value of 0.33 for effective porosity is high. A more realistic value would be approximately 0.15 to 0.20 (in the absence of specific data). It should be noted that the RI Report (p. 1-18, ¶3) references an effective porosity of 11 percent for silty clay and weathered shale. Using the conservative value of 0.15 for the effective porosity, the transport velocity would be approximately 76.6 feet per year compared to 18.1 feet per year which is presented.

- The hydraulic influence of the farmhouse wells should be considered. These wells will have the effect of increasing the downgradient hydraulic gradient and resultant transport velocity.

- Based upon the above, the statement indicating that TCE will not reach the farmhouse wells should be removed. If the computer model is run again for TCE, more realisticaly conservative values should be used. Lastly, given that DCE concentrations (and ultimately vinyl chloride concentrations) will increase downgradient due to biodegradation; that the Maximum Contaminant Level (MCL) for DCE is seven parts per billion, and that DCE is more mobile in groundwater than TCE, it would appear prudent to also run the computer model for DCE.

Response #1 Agreed. ES has re-evaluated the potential migration of both TCE and 1,2-DCE on-site using the one dimensional analytical groundwater model. The re-evaluation incorporates a sensitivity analysis for TCE and 1,2-DCE by varying the velocity of groundwater flow on the site. Based on EPA's previous comment, the velocity of groundwater flow used in the initial run of the model [specifically the parameters used to calculate it, hydraulic conductivity (k) and effective porosity (n_e)] was viewed as not representing a relatistically conservative value.

The sensitivity analysis was run for both TCE and 1,2-DCE under two sets of conditions, the primary variable being groundwater velocity. The first condition is based on parameters that ES believes best represents the site.

In this condition a relatively low groundwater flow velocity (0.05 ft/day) was used. The velocity calculation incorporates the effective porosity recommended by EPA (0.15) but retains a somewhat low hydraulic conductivity of 0.35 ft/day as ES believes that the lower conductivities on-site will be the rate limiting factor for groundwater flow, even if more conductive pockets are present on-site.

However, to evaluate plume conditions that may prevail using a higher groundwater velocity, which is in line with the EPA comment, a conservative velocity was calculated for the second condition. This velocity calculation included the use of a hydraulic conductivity value of 1.5 ft/day (as recommended by EPA) while the other parameters in the velocity equation remained the same as in the first condition. The input parameters for the groundwater model under both conditions are included in the notes below the tables that summarize the results of the model.

The results of the analytical modeling for the lower groundwater velocity condition (0.05 ft/day) closely match the field data for the monitoring wells chosen for the modeling. The results also indicate that steady state conditions have been achieved for both TCE and 1,2-DCE in some of the wells on-site. For PT-12 this condition occurs 40 years from the time the solvent spill impacted the groundwater and the concentration predicted by the model (576 ug/L) agrees well with the concentration measured in this well (575 ug/L). Historical quarterly groundwater monitoring indicates that the concentration of TCE in PT-12 has been variable; however, the average concentration since January 1990 is 845.7 ug/L which is close to the concentration predicted by the model under the first condition. More importantly, the model shows that under steady state conditions, the groundwater at the farmhouse is not impacted by TCE or 1,2-DCE.

According to the models predictions the spill would have to have occurred a minimum of 40 years ago. This is in-line with the suspected early operating dates of the Ash Landfill area.

The results of the modeling using the higher groundwater velocity (0.213 ft/day) do not match the field data and, in fact, the model predicts conditions that are not consistent with the data from the wells used in the model considering plausible time frames under which the release of solvents many have occurred. For example, the model indicates that steady state conditions in PT-12 are met 20 years after the release when TCE stabilizes at 4,908 ug/L. This concentration currently measured in the well (575 ug/L) and well above the average TCE concentration for this well since January 1990. More significantly, the model predicts taht 5 years after the release the concentration of TCE in PT-12 would be 4089 ug/L. This concentration is not consistent with the data from the wells given the plausible time frame for the release of the solvents. Given that the release is suspected to have occurred more than five years ago, the concentration predicted by the model five years from the time of the release (4,089 ug/L) is not consistent with the data observed in this well. Similar inconsistencies hold true for PT-22 under these aquifer conditions.

Outstanding Issues: EPA's Phase II Recommendations and Data Gaps Noted in the PSCR

Data Quality Review

Analytical results are presented in summary tables in Appendix J of the RI Report. Appendix J presents a glossary of laboratory data qualifiers, but the summary tables only qualify data with a "U","J",or "R". The data qualifier glossary does not define the qualifier "R". The "R" qualifier usually indicates that the result has been rejected due to data quality problems identified during data validation. The presence of the "R" data qualifier and the lack of laboratory data qualifiers, which are no longer significant following data validation, in the summary tables presented in Appendix J indicates that data have been validated according to EPA regional data validation guidelines.

Agreed. The data were validated according to EPA regional data validation guidelines and the definition of the qualifier "R" has been added to the data qualifier glossary.

PAGE-SPECIFIC COMMENTS

Regional Hydrogeologic Setting

Comment #3
Page 1-7, ¶4
in the PSCR The comment is not addressed.

The RI Report does not present a more detailed description of the source areas. A more detailed description of the individual source areas is recommended.

Response #3 Agreed. A description of potential individual source areas is now included in Section 2.3 (page 2-2).

Conceptual Site Model

Comment #6
Page 1-17
in the PSCR See the evaluation of Section 5.0 (Contaminate Fate and Transport) in Section 3.4.2 of this report for evaluation of this comment.

Response #6 Agreed. This comment is addressed in the response to Comment 63 that pertains to the evaluation of Section 5.0 in Section 3.4.2.

Comment #7
Page 1-18, ¶3
in the PSCR

The comment is partially addressed.

All private drinking wells located within a one-mile radius of the Ash Landfill are presented in Figure 1-10 and are discussed in the test. Public drinking water supplies located within one-mile radius of the site, if they exist, are not identified. The text (page 1-15, ¶2) states that Seneca Falls and Waterloo, the two largest communities in the county, obtain their public water from surface water sources (Cayuga Lake and Seneca Lake, respectively). However, the text does not specifically state whether there are any public water supplies within a one-mile radius of the site. The RI Report should state whether there are any public water supplies within a one-mile radius of the site and if some do exist then, these supplies should be discussed.

Response #7

Agreed. There are no public supply wells within a one-mile radius of the site. The text in Section 1.2.1.2(page 1-15) was modified to include this statement.

Section 2.0 - Study Area Investigation

Surface Water, Sediment, Spring Investigation

Comment #8
Page 2-5, ¶4
in the PSCR

The comment is partially addressed.

Figure 2-9 in the RI Report presents the locations of SW-700 and SW-901 in addition to SW-100, SW-200, SW-300, SW-400 and SW-600. However, surface water/sediment sampling locations SW-800, SW-801, SW-802 and SW-900 are not shown on the figure. These sampling locations should be presented in Figure 2-9.

Six additional surface water/sediment samples were collected in close proximity to the bend in the road and are designated as SW/SD-WA, SW/SD-WI, SW/SD-WC, SW/SD-WF, SW/SD-WB and SW/SD-WD.

Response #8

Agreed. Sampling locations SW-800, SW-801, SW-802, and SW-900 are off-site on Figure 2-9 and are now shown on a new map, Figure 2-11.

Section 3.0 - Detailed Environmental Setting and Physical Characteristics of the Site

Comment #16
Page 3-13, ¶2
in the PSCR

The comment is not addressed.

The new effective porosity value of 0.33 is less likely to be accurate than the previously effective porosity value of 0.25 which was used in the PSCR. Since similar site materials are stated to range from 0.34 to 0.44 for total porosity (Page 3-52, ¶3), the use of 0.33 for effective porosity is not acceptable since effective porosity values are usually much less than total porosity values. Use of what are for practical purposes total porosity values will result in underestimation of groundwater transport velocities. Moreover, it is likely that the silty weathered shale would have a lower effective porosity than the till. Therefore, the effective porosity value of 0.33 should be reassessed. See Outstanding Issues: ES's Responses to Comments (Section 3.1).

Response #16 Agreed. An effective porosity value of 0.15 to 0.20 was used to calculate the velocity of groundwater in the till/weathered shale aquifer in Section 3.7.4.2 (page 3-52).

Land Use

Comment #17
Page 3-13, ¶4
in the PSCR The comment is partially addressed.

The RI Report discusses land use at SEAD and presents a figure which shows the land use surrounding SEAD; however, possible future land use of the site is not included. Information regarding future land use, pursuant to the EPA Risk Assessment Guidance (Risk Assessment Guidance for Superfund - Vol. II: Environmental Evaluation Manual. 1989. EPA/540/1-89/001) needs to be included to aid in the development of the risk assessment.

Response #17 Agreed. Possible future land use is now discussed in both Section 3 (page 3-85) and Section 6 (page 6-51).

Comment #18
Page 3-15, ¶1
in the PSCR The comment is addressed.

The identification of all private water supply wells and public water supplies are discussed in Section 1.2.1.2 and Figure 1-10 in the RI Report. The classification of groundwater at SEAD is discussed in the RI Report. No public supply wells are identified within a one-mile radius of the site.

Response #18 Agreed. See response to Comment #7.

Section 4.0 - Nature and Extent of Contamination

Soil Sampling Results

Comment #28
Page 4-6, ¶3
in the PSCR The comment is partially addressed.

ES has included a table (Table 4-3) in the RI Report which presents all analytical results for soil samples. However, metals results for soils are not compared to site-specific background concentrations for metals in this table. Analytical results from metal analyses should be compared to site-specific background concentrations in the RI Report or the development of the Risk Assessment.

Response #28

Agreed. Background metals concentration were added to Table 4-3 to allow for comparison. It should be noted that a detailed comparison of metals in soils to background is included in the Risk Assessment. In addition Section 4.3.12 (page 4-108) has been revised to include a discussion of on-site soil concentrations vs. background.

Comment #29
Table 4-5
in the PSCR

The comment is not addressed.

See the evaluation of comment #28.

Response #29

Agreed. Background metals concentrations were added to the summary tables of soil (Table 4-3) and groundwater (Table 4-5) data. No background data will be added to the surface water and sediment tables. Both surface water and sediment derive from multiple source (i.e., Kendaia Creek, on-site wetlands and there is insufficient background data for each source to provide a meaningful comparison.

Comment #30
Page 4-6, ¶3
in the PSCR

The comment is not addressed.

ES has not presented any rationale for selecting borings B8-91 and B9-91 as representative of background conditions. This rationale should be discussed.

Response #30

Agreed. A discussion of the basis for using these as background has been added to the text on page 2-22. In short, these borings were located away from any areas known to actively manage wastes and hazardous materials. The borings were located upgradient with respect to both groundwater and surface water flow. The same rationale was used to select the Phase II background borings BK-1 and BK-2 as discussed on page 2-23.

Comment #31
Page 4-7, ¶6
in the PSCR

The comment is not addressed.

Analytical data for samples collected from boring B26-91 are not provided in the data summary table (Table 4-3). Also, no discussion is provided regarding the determination of the total recoverable petroleum hydrocarbons detected in this boring.

Response #31

Agreed. The 2 to 4-foot sample from Boring B-26-91 was analyzed for TRPH only. Since this was the only sample analyzed for TRPH, the results are not included in Table 4-3. A discussion describing the determination of TRPH and the result of 13.6 mg/kg is presented in Section 4.3.13 (page 4-108).

Ground Water Results

Comment #32
Table 4-7
in the PSCR

The comment is not addressed.

ES does not clearly identify the monitoring wells selected as representative of background concentrations in Table 4-5 (previously 4-7 in the PSCR). The RI Report states (Section 4.4.8, Page 4-143) that analytical data from metal analyses from on-site groundwater monitoring wells will be compared to analytical data from metal analyses from background monitoring wells in the risk assessment (in Table 6-2). Analytical data for samples collected from boring B26-91 are not provided in the data summary table (Table 4-3).

Response #32

Agreed. A discussion of the background wells was added to Section 4.4.8 (page 4-143). In addition, the background wells are clearly noted on Table 4-5, and the background concentrations of metals is summarized on this table.

Surface Water/Sediment Results

Comment #37
Page 4-10, ¶4
in the PSCR

The comment is not addressed.

The RI Report states (Page 4-150, ¶1) that chloroform estimated at a concentration of 2 ug/L in surface water sample SW-400 is likely to be a laboratory contaminant.

Response #37

Agreed. All data was validated per USEPA Region II guidleines and is now believed to be a real value, not a laboratory contaminant. Text on page 4-150 has been revised accordingly.

Comment #38
Appendix C
in the PSCR

The comment is partially addressed.

Most of the issues identified in this comment were addressed. It is suggested that logs of all monitoring wells at the site (if available) be provided or referenced in the RI Report. However, this information is not critical to the finalization of the RI Report.

Response #38

Agreed. All available monitoring well logs were added to Appendix C. These include historic wells PT-11 through PT-17, PT-19, PT-20, PT-22 through PT-26, and MW-27 through MW-33.

Comment #39
Appendix F
in the PSCR

This comment is partially addressed.

Monitoring well installation diagrams have been provided for all of the new monitoring wells that were installed during the Phase II field investigation; however, monitoring well installation diagrams for all of the other monitoring wells installed on site have not been provided.

Response #39

Agreed. Monitor well installation diagrams were not available for the older wells, that were not installed by Chas. T. Main/Engineering-Science. Monitoring well installation information is available for wells MW-18 through MW-20 and MW-22 through MW-33, and is included in Appendix F.

Comment #40
Appendix I
in the PSCR

The comment is partially addressed.

Appendix I has been changed to Appendix G in the RI Report. While the appendix provided does allow evaluation of responses to comments by deciphering the recovery graphs and slug test report forms, it does not appear that an attempt was made to specifically respond to most of the bulleted comments. Additionally, slug test report forms were not provided for nine of the slug tests (MW34 through MW42D). To be completely address this comment, the missing slug test report forms should be provided.

Response #40

Agreed. Slug test forms for wells MW-34 through MW-42D are provided for inclusion in Appendix G. Further information has been provided to address the deficiencies noted for the hydraulic conductivity results. The deficiencies noted below are followed by information to address the comment.

- No calculations are provided. Calculations were performed using the Agteson computer program.

- No reference to commercially available software used to analyze the data are provided. The reference to the commercial software is provided in Section 2.9.5.2of the RI report.

- No listing of formula input variables is provided. Formula input variables are listed in Section 2.9.5.2 of the RI report and are also provided on tbe graphical output for the data in Appendix G.

- Water levels on the day of the test are not produced. The water levels are provided on the field data sheets in Appendix G and Table 2-8 of the RI report.

- The well drilled diameter is not provided. The radius of the well borings are provided on the field data sheets contained in Appendix G and also in Table 2-8 of the RI report.

- The well depth believe the water table is not provided. This information is contained in Table 2-8.

- The screened interval below the water table is not provided. This information is contained in Table 2-8.

- The varation of the Hvorslev (1951) method used to derive hydraulic conductivity is not provided. It was decided that the hydraulic conductivity be determined only by the Bouwer and Rice (1976) method and that the Hvorslev (1951) would not be used. Histrocially, conductivities have been determined at the site using the Bouwer and Rice (1976) method.

- No explanation as to why most of the wells did not recover to 90 percent of the original static water level is provided. For all of the tests, the recoveries were monitored with a data logger until the well stabilized to within 0.02 feet for a five minute period. In the majority of the tests the water levels were allowed to recover to within 0.1 feet of the original static water level (Appendix G). For some of the very slow recovering competent shale wells recoveries were less complete.

Comment #41
Appendix J
in the PSCR

The comment is addressed.

Appendix J presents a glossary of laboratory data qualifiers, but the summary tables only qualify data with a "U","J" and "R". The data qualifier glossary does not define the qualifier "R". The "R" qualifier usually indicates that the result has been rejected due to data quality problems found during data validation. The presence of the "R" data qualifier in the summary tables presented in Appendix J and the lack of laboratory data qualifiers, which are no longer significant following data validation, indicates that the data has been validated. We recommend that the Appendix include a definition of the "R" qualifier and a statement be added informing the reader that the results have been validated according to Region II data validation guidelines.

Response #41

Agreed. The glossary of laboratory data qualifiers has been modified. Definitions of the qualifiers "U","J",UJ", and "R" will be provided. A note describing the data validation guidelines has been added.

Comment #42
Figure 1-3
in the PSCR

The comment is not addressed.

Figure 1-3 has been changed to Figure 1-4 in the RI Report. The source of Figure 1-4 is not indicated on the figure.

Response #42

Agreed. The source (Mozola, 1951) has been added to Figure 1-4.

Comment #47
Appendix J
in the PSCR

The comment is not addressed.

A list of Federal MCLs, New York State Standards, Contract Required Detection Limits (CRDLs) and Contract Required Quantitation Limits (CRQLs) are not included in the appendices in the RI Report.

Response #47

Agree. Federal MCLs and New York State Standards are included in the Section 4 tables and used for comparison where appropriate. CRQLs were provided in the workplan and copies of these tables are now included in Appendix J. Please note that lower detection limits for VOCs in water were obtained using Method 524.2 wherever a well had non-detect VOC using NYSDEC CLP method in the first round, the second round sample was analyzed using Method 524.2.

Comment #48
Appendix J
in the PSCR

The comment is not addressed.

Field data sheets from the delineation of wetlands on the site are not included in Appendix J in the RI Report.

Response #48

Agreed. Wetland delineation data sheets have been added as Appendix L.

Comment #52
General Comments

The comment is partially addressed.

Generalized comments regarding ecological receptors are still presented without substantiated data. These statements should be omitted from the forthcoming baseline risk assessment.

Response #52

Agreed. The generalized comments in Section 3.9.2 are deleted or revised as appropriate.

Ecological Investigation

Comment #53
Page 2-20, ¶3
in the PSCR

The comment is not addressed.

Aquatic biota assessments within the intermittent stream/ditch areas were not performed.

Response #53

Agreed. Since most of the wetlands and drainage ditches were dry at the time of sampling, no samples were collected. The Phase II addendum workplan that was approved by USEPA on November 19, 1992 states "If no surface water is present in the intermittent steam/ditch locations near the Ash Landfill at the time of sampling then no aquatic biotic sampling will be performed".

Comment #54
Page 2-22, ¶2
in the PSCR The comment is not addressed.

Surface water and sediment samples were not collected at each macrobenthic invertebrate sampling station. The lack of these data at the upgradient reference sample station (SW-801) restricts the comparison of macrobenthic sampling results between this site and the downgradient samples (SW-800 and SW-802) which may be affected by Ash Landfill contaminants. The low species richness and abundance observed at SW-801 maybe attributable to contaminants (possibility unrelated to the Ash Landfill) which would limit the suitability of SW-801 as a reference station. Analytical results (surface water and sediment) from SW-801 would be useful in the interpretation of the macrobenthic sampling data.

Response #54 Agreed. Surface water and sediment samples were collected at station SW801 and in this analytical data is now included in the RI.

Terrestrial Assessment

Comment #57
Page 3-22, ¶1
in the PSCR The comment is partially addressed.

A general discussion regarding the number of game species harvested at SEAD and adjacent private lands is provided although quantitative information is not included.

Response #57 Agreed. According to personnel at SEDA, 265 deer were harvested from within the entire depot area last year. The number of deer harvested from adjacent private lands is unavailable. In general, 200 to 300 deer have been harvested at the depot each year for the past few years. No small game has been harvested at SEDA. Section 3.9.2.1 (page 3-99) has been revised accordingly.

Comment #58
Page 3-22, ¶3
in the PSCR The comment is not addressed.

Information regarding whether beehives, located southwest of the Ash Landfill, are cultivated and generate honey which is sold for local consumption is not provided in the RI Report.

Response #58 Agreed. The honey generaed by these beehives is not sold commercially. Section 3.9.2.1(page 3-99) has been revised to state this.

Comment #59
Page 3-23, ¶4
in the PSCR The comment is not addressed.

Wetland data sheets from the wetland identification and delineation effort are not provided in the RI Report.

Response #59 Agreed. Wetland delineation data sheets have been included in the RI report as Appendix L.

Comment #61
Page 3-25, ¶4
in the PSCR The comment is not addressed.

State-regulated wetlands are the only significant resources identified at SEAD. Federal-regulated wetlands are protected under Section 404 of the Clean Water Act and also represent significant ecological resource areas at SEAD.

Response #61 Agreed. Text has been added to Section 3.9.2.5 (page 3-122) regarding Federal regulated on-site wetlands.

RECOMMENDATIONS FOR THE PHASE II RI

Comment #63 See the evaluation of Section 5.0 (Contaminant Fate and Transport) in Section 3.4.2 of this report for evaluation of this comment.

Analysis of New Information

3.4.2 Contaminant Fate and Transport (Section 5.0 of the RI Report)

The RI Report did not present a conceptual model which describes the dynamic relationships of known and suspected contamination sources, contaminant migration pathways, routes of exposure, and potential human and ecological receptors. The Contaminant Fate and Transport discussion focused on groundwater and presented the likelihoods for detected contaminants to remain in water, vaporize from groundwater to soil gas, or sorb to soil material from groundwater. Failure to include contaminant migration pathways, routes of exposure, and potential receptors limits the understanding of intermedia transport and exposure potential at the site. It is recommended that the RI Report incorporate a complete conceptual model into the Contaminant Fate and Transport discussion or include it as part of the Baseline Risk Assessment.

Response 3.4.2 Agreed. A discussion has been added to section 6.3 (Exposure Assessment) that intergrates the results of the contaminant fate and transport to the migration pathways, routes of exposure, and potential receptors discussed in the Baseline Risk Assessment.

3.4.3 Page-Specific Issues

Specific issues identified during the review of these newly presented sections are discussed below on a page-specific basis.

Sections 2.12 and 3.9 - Ecological Assessment Issues

Comment on Page 2-64, ¶3	The RI report refers to Figure 2-9 in the discussion of sampling stations. However, this figure does not depict the locations of sampling stations associated with Kendaia Creek. The locations of all surface water/sediment and macrobenthic invertebrate sampling stations need to be identified on an appropriate figure.
Response on Page 2-64, ¶3	Agreed. Sampling stations (SW-800, 801, 802) along Kendaia Creek are shown on a new map, Figure 2-11. Macrobenthic invertebrate sampling was conducted at SW-800, 801, and 802. Surface water/sediment sampling was conducted at SW-800.
Comment on Page 2-64, ¶3	The RI states that surface water and sediment samples were not collected at the downstream and upstream (reference) macrobenthic invertebrate sampling locations. The absence of these data make comparisons between the various sampling stations difficult as observed differences may be due to a variety of potential causes. It is recommended that reference macrobenthic invertebrate sampling stations in the future have surface water/sediment analyses conducted.
Response on Page 2-64, ¶3	Agreed. Refer to Response to Comment #54 for a more detailed discussion.
Comment on Page 3-9, ¶1	The RI report states that Kendaia Creek receives surface water runoff from the Ash Landfill via the drainage ditches associated with West Patrol Road. However, it was stated earlier in this paragraph that drainage along West Patrol Road is to the northwest (while Kendaia Creek is located to the northeast). Figures 2-10 and 3-4 also do not indicate that surface water flows from the Ash Landfill discharge into Kendaia Creek. The drainage pathway from the Ash Landfill to Kendaia Creek, particularly in reference to sampling station SW-800 should be clarified.
Response on Page 3-9, ¶1	Agreed. In relation to the Ash Landfill, Kendaia Creek flows from northeast to the northwest and into Seneca Lake. A new map (Figure 2-11), which shows the area of SEDA including the Ash Landfill and Kendaia Creek, has been added to the report and is referenced in those sections of the text discussing surface water and aquatic sampling (2.10.2,2.12.2,and 3.4.1). This map shows the drainage pathway from the Ash Landfill to Kendaia Creek via the West Patrol Road and locates sampling stations SW-800, SW-801, and SW-802 along Kendaia Creek.

Comment on Page 3-89, ¶1

The RI states that a lower species richness would be expected at macrobenthic invertebrate sample location SW-800 (rather than SW-801) if adverse effects from Ash Landfill contaminants were occurring. However, it should also be noted that background surface water/sediment samples were not collected from SW-801. Therefore, the low number of species and individuals observed at SW-801 may be attributable to elevated levels of surface water or sediment contaminants which are unrelated to the Ash Landfill. This would limit the suitability of SW-801 as a reference station for SW-800.

Response on Page 3-89, ¶1

Agreed. SW-801 was selected as a reference sampling location during the planning phase of this investigation because it is beyond the probable influence of the Ash Landfill Site. This location is approximately 2000 feet upstream of sampling location SW-800. The fact that a low number of species and individuals was observed at SW-801 is unexpected and may be attributable to other unknown influences which are unrelated to the Ash Landfill.

Section 5.0 - Contaminant Fate and Transport Issues

Comment on Page 5-7

The discussion presented in the Chemical Characterization section of the RI Report does not include any information on the nature and distribution of site contaminants. This discussion is limited to a historical description of site activities. Therefore, this section fails to provide analytical information on detected source areas and migration routes. It is recommended that the Chemical Characterization section of the RI Report incorporate the sampling results for all environmental media (e.g., soil, water). Emphasis should be placed on discussing contaminants detected in suspected source areas and along potential routes of contaminant migration.

Response on Page 5-7

Agreed. The chemical characterization discussion incorporates actual chemical data as recommended. Since detailed discussion of the analytical results are included in Section 4, the Section 5 discussion is kept brief.

Comment on Page 5-11, ¶3

An inaccurate rule-of-thumb is stated regarding the mobility of organic compounds. The RI Report states that contaminants are immobile if the organic carbon partition coefficient (K_{oc}) is greater than 500 milliliters per gram (mL/g). However, the document referenced in the RI Report clearly states that K_{oc} values between 500 and 2,000 mL/g are indicative of low mobility compounds; values greater than 2,000 mL/g reflect immobility. Therefore, the RI Report should be revised with the correct information.

Response on Page 5-11, ¶3

Agreed. The RI has been revised to better describe the mobility - Koc relationship.

Comment on Page 5-11, ¶4

A general discussion is provided regarding the role of organic carbon content in contaminant transport. This discussion does not enhance the understanding of contaminant migration at the Ash Landfill. If site-specific information regarding soil organic carbon content is available, then the discussion should include the potential specific interactions of the soil on contaminant migration.

Response on Page 5-11, ¶4

Agreed. Specific total organic carbon (TOC) content data for the soils at the site would allow for a more specific discussion regarding its role in contaminant transport, however, no TOC data is available.

Comment on Page 5-15, ¶3

Much emphasis is placed on the fugacity model; however, the governing equations of this model are not presented in the text. These equations should be detailed in the text to allow independent verification of the calculations and conclusions.

Response on Page 5-15, ¶3

Agreed. The governing equations have been added to Section 5 of the report, along with an expanded discussion of the model.

THE FOLLOWING RECOMMENDATIONS ARE PROVIDED BY THE AIR PROGRAMS BRANCH

The air pathway analysis is incomplete in this report. Since high levels of DCE, TCE, and total VOCs were detected in the soil gas samples and soil samples, the results should be used to generate estimates of baseline VOC emissions into the ambient air. Once the emission rates are known, they should be used a input in an air dispersion model to determine ambient air concentrations at receptors of interest such as the residences and farmland located beyond the western boundary of the SEAD property. Attached are procedures for estimating VOC emissions using soil gas data and procedures for modelling air concentrations.

Since metals were detected in the soils, PM_{10} emission rates due to wind erosion and mechanical disturbances should be estimated and modelled to determine ambient air concentrations at receptors of interest.

Response:

Agreed. VOC emissions from soils were considered in the risk assessment (Section 6). VOC emissions were modelled, and the results from the model were used to estimate risks (Section 6.3.5.8 pages 6-89 thru 6-95). Metals risks were not estimated. At the OB grounds, a site with higher metals concentrations and more exposed surface soils, particulate metal emissions were modelled and found to be insignificant. Therefore, based on the site conditions at the Ash Landfill, particulate metals emissions were considered not to pose significant risks.

GENERAL OVERVIEW

Overall, the Baseline Risk Assessment presented adequate information regarding each of the following major components required to meet the objectives of a risk assessment:

- concentration and toxicity of hazardous substances present in relevant site media;
- environmental fate and transport mechanisms within specific environmental media;
- potential human and environmental receptors;
- potential exposure routes and extent of potential exposure; and
- the extent of expected impact or threat.

However, several technical deficiencies did exist. These deficiencies are summarized separately below for the human health risk assessment and the ecological risk assessment.

Human Health Risk Assessment

ES conducted the human health risk assessment in accordance with the most current EPA risk assessment guidance. However, the following deficiencies or data gaps need to be addressed so that the conclusions of the risk assessment can be fully validated.

- ES fails to specifically identify the sample locations (including background) which were included in the quantitative risk assessment.

Response Exception. Section 6.2.12 and 6.2.13 generally describes the number of sampling location for each media. The sample locations were identified and discussed in detail in Sections 2,3 and 4.

- ES does not use the most recent EPA guidance for evaluating dermal exposure risks (see page specific comments for details).

Response Agreed. The most recent EPA guidance for evaluations dermal exposure risks (Dermal Exposure Assessments Principals and Applications; EPA/600/8-91/011B) has been incorporated into the risk assessment where appropriate.

Ecological Risk Assessment

In general, the Ecological Risk Assessment (ERA) was conducted in accordance with the above referenced guidance. All applicable media (e.g., surface water, sediment and surface soil) were evaluated for potential effects on ecological receptors. Although the ERA was generally well written, several deficiencies within the ERA were noted. The major outstanding technical issues which need to be addressed are as follows:

- Chronic toxicity values used to evaluate risk from soil ingestion could not be verified as the references cited in support of the 0.1 factor (applied to an LC_{50}) were not provided in the ERA. These references need to be provided in order to evaluate the appropriateness of the 0.1 factor. References also need to be provided for the acute lethal dietary concentrations provided in Table 6-41.

- Potential effects of the food chain pathway were not adequately addressed in the ERA. For example, contaminants present in surface soils of the landfill may become concentrated within plants or invertebrates which inhabit the landfill at concentrations which present risk to receptors which consume these items. It is recommended that a more thorough qualitative discussion be presented in the ERA which addresses this exposure pathway.

Response: Responses to these issues are provided in the detailed comment/responses that follow.

DETAILED TECHNICAL EVALUATION

General Sampling Locations and Media

Comment on
Page 6-4, ¶2 ES notes that soil samples from the volatile organic "hot spot" were used as input to a model to estimate ambient air concentrations of volatile organics. This hot spot needs to be discussed in more detail within the risk assessment to determine whether this area should have been evaluated separately from other site soils (i.e., identify sample locations within the hot spot, discuss any differences in exposure to receptors, discuss significance in relation to risk assessment findings).

Response on
Page 6-4, ¶2 Disagree. It is true that the "hot spot" likely poses a greater risk than the remainder of the site with respect to volatile organic compounds. However, the "hot spot" is being addressed by an IRM separate from the RI/FS process. Once the IRM is complete, the "hot spot" will be similar to or cleaner than the remainder of the site.

Methodology and Organization of Document

Comment on
Page 6-5, Figure 6-1 We could not review Figure 6-1 as it was not provided in the review copy.

Response on
Page 6-5, Figure 6-1 Agreed. Figure 6-1 is included in the revised report.

Sampling Locations and Media

Comment on
Page 6-9, ¶2 It is recommended that the location of the 15 soil samples collected to determine background metal concentrations be provided in this section. ES needs to verify that these locations are representative of true background conditions.

Response on
Page 6-9, ¶2 Agreed. The sample locations and a discussion of the suitability of the background sample is included in Section 3 and on Table 3-2. A brief

summary of this information will be included in Section 6, along with references to the appropriate sections. However, the entire discussion from Section 3 is not repeated in Section 6.2.1.2. Futhermore, the background concentrations of metals measured on-site compare very favorably with the literature values presented in Table 1-1 for New York State.

Sampling Methods

Comment on Page 6-9, ¶3

ES notes that surface and subsurface soil samples were collected from 30 borings during RI Phases I and II. ES needs to provide the rationale for not including subsurface soils in the risk assessment (for direct exposures and as input into the air emissions model).

Response on Page 6-9, ¶3

Agreed. Subsurface soils are considered in the risk assessment in a construction worker scenario and are included in as input into the air emissions model.

Data Developed through Modeling

Comment on Page 6-11, ¶3

ES notes that models were used to estimate the concentration of compounds released in the air while showering. This section should also note that models were used to estimate volatile emissions from soils.

Response on Page 6-11, ¶3

Agreed. The revised text notes that models were used to estimate volatile emissions from soils.

Tentatively Identified Compounds

Comment on Page 6-18, ¶1

ES notes that Tentatively Identified Compounds (TICs) were not included in the quantitative risk assessment. ES needs to qualitatively discuss possible contribution of TICs to site risk in the risk characterization section of the risk assessment.

Response on Page 6-18, ¶1

Agreed. A brief discussion of the contribution of this TICs to site risk has been added as Section 6.5.1.3.

Overview of Exposure Setting

Comment on Page 6-45, Figure 6-2

Figure 6-2 was not included in the review copy of the Draft RI Report. It should be provided.

Response on
Page 6-45, Figure 6-2 Agreed. Figure 6-2 is included in the revised draft.

Quantification of Exposure from Surface Water

Comment on
Page 6-66 ES does not utilize the most recent EPA guidance pertaining to dermal contact with surface water. ES presents the equation provided in RAGS. EPA's Dermal Exposure Assessment: Principles and Applications, Interim Report (January 1992) needs to be consulted and followed for recommended equation and input values. Risks associated with dermal exposures will need to be recalculated.

Response on
Page 6-66 Agreed. All dermal exposure risks will be recalculated in accordance with the latest EPA Guidance: "Dermal Exposure Assessment Principles and Applications" EPA/600/8-91/011B, 1992.

Comment on
Table 6-8 ES does not reference the source of the permeability coefficient (K_p) values. The K_p value presented for chloroform is not consistent with the value presented in EPA's 1992 dermal guidance. See also previous comment.

ES lists an exposure frequency of seven events/year. This estimate seems somewhat low because it is likely that area residents would wade in the area surface waters more than seven days per year. ES should include the rationale for selecting this value.

Response on
Table 6-8 Agreed. As described above, all dermal risks will be recalculated in accordance with the latest EPA guidance. References for the permeability coefficients will be provided. A Kp of 8.9E-03 will be used in the risk assessment for chloroform in order to be consistent with the latest EPA guidance. The rationale for an exposure frequency of 7 days is expanded in the risk assessment. This value was based on estimates for swimming from EPA "Superfund Exposure Assessment Manual." Kendaia Creek does not support the fish species conducive to fly fishing, and the small size of the creek minimizes the necessity to wade in to fish. In addition, the onsite wetlands do not support any recreational activities.

Quantification of Exposure from Sediment

Comment on
Page 6-69 ES does not follow EPA's 1992 dermal guidance for the assessment of dermal exposures via sediments. Specifically, EPA guidance only calls for the quantitative assessment of cadmium, PCBs, and dioxins. The guidance also recommends an adherence value range of 0.2 to 1.0. See previous comment regarding exposure frequency.

Response on Page 6-69

Agreed. The risk assessment was revised to only included cadmium and PCBs in the quantification of dermal risk (No dioxins present at the site). In addition, an adherence value of 1.0 is used per the latest EPA guidance.

Exposure Concentration for Groundwater Ingestion

Comment on Page 6-71, ¶3

It is indicated that three rounds of quarterly monitoring data from three farmhouse wells were used to evaluate current groundwater data. Table 6-7, which presumably provides a summary of this data, suggest only one result was included for volatile organics (mean = max = 95% UCL). This discrepancy should be clarified.

Response on Page 6-71, ¶3

Agreed. The text has been clarified. Three rounds of data were used for the farmhouse wells. The reason that the mean, max, and 95th UCL were identical is that none of the volatile organics were detected in any of the three rounds of sampling, and the concentraiton used in the risk assessment was identical for each round, and was equal to one-half the detection limit. These compounds were retained in the risk assessment to be conservative, because these compounds were present in on site wells that were completed in the same aquifer.

Comment on Tables 6-10 through 6-13

Intake values are not calculated for certain chemicals of concern (e.g., 1,1,1-trichloroethane, aluminum, lead, and nickel). This should either be clarified or corrected.

Response on Tables 6-10 through 6-13

Agreed. Intake values were not calculated for chemicals of concern for which there were no toxicity values. Text clarifying this point was added to Section 6.3.5.

Quantification of Exposure from Groundwater while Bathing

Comment on Page 6-75

The most current EPA guidance was not used to estimate dermal exposures to groundwater. See comments on Section 6.3.5.1.2.

Response on Page 6-75

Agreed. As noted above, all dermal exposure risks were recalculated in accordance with the latest EPA guidance.

Comment on Tables 6-18 and 6-18

A time-weighted average was used to calculate the 30-year noncarcinogenic intake value. For noncarcinogenic effects the child and adult risk estimates should be evaluated separately.

Response on Tables 6-18 and 6-18

Agreed. Adult and child risks should be evaluated separately. Tables 6-18, 6-21, 6-36 and 6-37 have been revised accordingly.

Quantification of Exposure from Dermal Contact with Onsite Soils

Comment on Page 6-89, ¶1

It is recommended that EPA's dermal guidance be consulted in determining the skin surface area available for contact to soil. In the risk assessment, ES assumes only hands and arms are exposed (3,120 cm^2 and 1,1510 cm^2, adult and child, respectively). Exposure to hands, arms, legs, neck, and head should be evaluated.

Response on Page 6-89, ¶1

Agreed. As per EPA guidance, the surface areas of the hands, arms, legs, neck and head are considered for the dermal contact to soil. Surface areas of 5000 cm^2 and 2165 cm^2 are used for the adult and child, respectively. For children, this value represents the 50th percentile for the 6 to 7 year age group.

Exposure Concentrations for Inhalation of Volatile Organics in Air

Comment on Page 6-89

ES does not discuss whether contaminant saturation concentrations were calculated (per EPA air guidance) prior to proceeding with the derivation of the average emission rate. ES needs to derive a saturation concentration for each contaminant and compare the derived saturation concentration to the detected soil concentrations. The formula used to derive average emission rates is only applicable if detected soil concentrations are less than saturation concentrations.

Response on Page 6-89

Agreed. Saturation concentrations were calculated for all contaminants evaluated, and were significantly greater than the bulk soil concentrations. The text was updated to include a description of this procedure.

Comment on Pages 6-90

ES does not present the methodology used to derive the molecular diffusion volumes of the contaminants of concern.

ES does not define p_{ab} (absolute pressure).

"E" represents soil porosity, not soil density.

ES does not define "a".

Response on Pages 6-90

Agreed. Definitions for "Pab" and "a" are included in the revised draft. The definition of "E" is corrected. A description of the methodology for estimating molecular diffusion volumes is provided.

Comment on Table 6-22

An exposure frequency value of 350, not 150, should be included in this table to be consistent with the exposure frequency value presented in the text.

Response on Table 6-22

Agreed. A value of 350 days exposure frequency is used in Table 6-22 to estimate the exposure to volatile organics in ambient air.

Toxicity Values

Comment on Table 6-23

The following toxicity values are incorrect based on a comparison with IRIS (December 1993) and HEAST (FY 1993 Annual Update and Supplements):

- The inhalation slope factor for 1,1 dichloroethene should be 1.2 $mg/kg/day^{-1}$.
- HEAST provides oral and inhalation RfD of 5E-2 mg/kg/day and 2E-2 mg/kg/day, respectively for 4-methyl-2-pentanone.
- The HEAST inhalation RfD is 5E-3 mg/kg/day for chlorobenzene.
- The naphthalene RfD has been withdrawn from IRIS.
- IRIS, not EPA 1993, should be cited as the reference for the bis(2-chloroethyl)ether oral slope factor. IRIS does not provide an inhalation slope factor.
- Dimethylphthalate, acenaphthylene, diethyl phthalate, phenanthrene, benzo(g,h,i)perylene, iron, magnesium, mercury, and silver should be ranked as Class D in the weight of evidence column.
- 1,1-Dichloroethane and butylbenzylphthalate should be listed as Class C in the weight of evidence column.
- bis(2-chloroethyl)ether, chyrsene, alpha-chlordane, and Aroclor 1260 should be listed as Class B2 in the weight of evidence column.
- IRIS lists an oral slope factor of 1.3 $mg/kg/day^{-1}$ for alpha-chlordane.
- The arsenic oral slope factor has been withdrawn from IRIS.
- Nickel has a Class A weight of evidence classification. IRIS provides an oral RfD of 2E-2 mg/kg/day for nickel.

- The oral RfD provided in HEAST is 7E-5 mg/kg/day for thallium.
- It does not appear that ES correctly applied the Toxicity Equivalent Factors (TEFs) presented on page 6-105. This should be corrected.

Response on Table 6-23

Agreed. Table 6-29 and all subsequent risk calculation tables have been revised to reflect the new toxicity values. The order-of-magnitude, TEFs presented on Page 6-105 are used to calculate the toxicity values. Table 6-29 has been corrected to include these new values.

Comment on Page 6-100, ¶2

ES notes that oral toxicity values are used to evaluate dermal risks and recognizes that this may result in an underestimation of risks. ES further notes that chemical-specific information on oral absorption efficiency is not available. It is recommended that ES consult Owen, B., "Literature-Derived Absorption Coefficients for 39 Chemicals Via Oral and Inhalation Routes of Exposure". *Regulatory Toxicology and Pharmacology* 11, pp. 237-252, for further information.

Response on Page 6-100, ¶2

Agreed. The referenced paper was consulted, and does provide both oral and inhalation absorption efficiencies for some of the chemicals of concern. For these chemicals for which an oral absorption efficiency was available a dermal RFD and slope factor was calculated by multiplying the oral RFD or slope by the ratio of the oral and dermal absorption efficiencies (dermal conservatively estimated to be 100%). This is described in Section 6.4.1.2.

Aquatic Assessment Program

Comment on Page 6-138, ¶2

The ERA states that Kendaia Creek macrobenthic invertebrate sampling stations most likely to receive surface water runoff from areas influenced by the Ash Landfill were similar to the reference station. However, the relationship between the Ash Landfill and Kendaia Creek is unclear. A description should be provided as to how surface water of Kendaia Creek may potentially be impacted by the Ash Landfill; specifically, where and how contaminants originating from the landfill may enter the creek.

Response on Page 6-138, ¶2

Agreed. Kendaia Creek receives surface water runoff from the Ash Landfill via drainage ditches located along the edge of the West Patrol Road. A new map (Figure 2-11), which depicts the surface water flow patterns, has been added to the report. This map shows the drainage pathway from the Ash Landfill, along the West Patrol Road, and into Kendaia Creek near sampling location SW-800. A discussion of this occurence has been added to the text in Section 6.6.3.1.1,the Benthic Invertebrate Community Section.

Comment on Page 6-142, ¶2

The ERA states that wildlife usage of Kendaia Creek is considered to be minimal (due to the small size of the creek and availability of more suitable habitat elsewhere). This statement is subjective and not supported by any data regarding wildlife use of Kendaia Creek. The availability of habitat elsewhere is irrelevant. Many piscivorous species forage over a fairly wide area and may be found in both Kendaia Creek and other suitable habitats. In addition, some species present in Kendaia Creek have small home ranges and would be unlikely to use other aquatic habitats present in the vicinity. This statement should be revised or deleted.

Response on Page 6-142, ¶2

Agreed. The statement will be deleted as requested.

Wildlife

Comment on Page 6-155, ¶2

The deer mouse and mallard were selected as receptor species for terrestrial habitats. Although the deer mouse appears to be a reasonable selection, the mallard is generally not considered to be a terrestrial species. It is recommended that a terrestrial species with a limited home range (i.e., shrew, robin, etc.) be considered as a more plausible receptor species. In addition, food chain transfer (i.e. transfer of soil contaminants to plants and invertebrates) is possible within portions of the landfill. This potential pathway needs to be discussed in greater detail within the ERA.

Response on Page 6-155, ¶2

Exception. The discussion in the referenced paragraph pertains to wildlife species and included both terrestrial and wetland receptors. It was not intended to differentiate between wildlife species that are terrestrial and those that are not. Although mallards are not strictly terrestrial species they were included as a wildlife species that would be impacted by the presence of the small wetlands at the site. Since the deer mouse is a terrestrial species with a limited mobility range, ES did not believe it was necessary to add additional terrestrial receptors instead a wetland receptor was included. ES does not believe there is a need to change the receptor species. Section 6.6.4.2.2of the text has been modified to indicate that the deer mouse is a terrestrial receptor and the mallard is the wetland receptor. ES agrees that this exposure pathway, i.e. the intake of pollutants through ingestion of contaminated vegetation, contributes to the ecological dose of pollutants for the ecological receptors and, if not included as part of the EPA may cause an underestimation of the ecological risk. The calculation of bio-uptake of pollutants form soil or the landfill into plant species that are then ingested by receptor species at the site has not been included in the ERA since this analysis was not required as part of the workplan.

Comment on Page 6-158

A normal concentration of 100 ug/kg for anthracene is reported in this table although all other PAHs have normal concentrations of 0.0 ug/kg. This should be clarified or corrected.

Response on Page 6-158

Agreed. The value of 100 ug/kg will be removed from Table 6-52. The normal anthracene concentrations will be reported as "NA", or not available.

Comment on Page 6-160, ¶1

Chronic toxicity values for receptor species were derived from acute LC_{50} concentrations by applying a factor of 0.1. The ERA states that this approach is believed to be conservative. References cited for this assumption were not provided. It is unknown if the references cited refer to dietary concentrations or dosages (mg contaminant/kg-bodyweight/day). It is recommended that chronic NOEL dietary values reported in the scientific literature be used if available. The appropriateness of the 0.1 factor used in the ERA cannot be assessed until the references cited (Mayer et al, 1986 and Tucker and Lietzke, 1979) are provided. The Henderson (1957) reference cited is inappropriate as this study is not involved with dietary concentrations.

If the Mayer et al. (1986) and Tucker and Lietzke (1979) references refer to dosages rather than dietary concentrations, then uncertainty factors which are more conservative based on studies available in the literature regarding acute/chronic oral toxicity correlations need to be applied to acute values. For example, a 1985 article by Venman and Flaga (Toxicology and Industrial Health, Vol. 1, No. 4, pp. 261-269) reported that an application factor of 0.0001 applied to an oral rat LD_{50} would yield a chronic NOEL equal to or less than the experimentally derived chronic NOEL 95% of the time. A 1987 paper by Layton et al. (Regulatory Toxicology and Pharmacology, Vol. 7, pp. 96-112) used a larger data set than Venman and Flaga and suggested a factor of 0.001 to 0.0005 be used to convert LD_{50} values to chronic NOELs.

Response on Page 6-160, ¶1

Agree. Chronic soil toxicity values were derived from LD_{50} and ES has used the 0.015 factor proposed by Layton et.al (1987). The chronic soil toxicity values for each receptor species, the deer mouse and the mallard, has been recalculated by establishing a NOEL as 1.5% of the LD_{50}. Using an equation provided in the EPA Wildlife Exposure Factors Handbook (1993) the allowable soil concentration, representing the point at which chronic effects would be observed has been estimated. This approach assumes wildlife exposure from soil intake during the ingestion of food. Revised values for both the deer mouse and the mallard are presented in Table 6-53. The values for each variable is described in the text and in the table in addition to the reference for the variable that was selected.

Comment on Page 6-160, ¶3

The ERA states that NYSDEC surface water quality guidelines which are protective of wildlife that consume aquatic organisms were used to assess surface water risks. This sentence should be deleted as Table 6-42 indicates that these guidelines were unavailable for the chemicals of concern.

Response on Page 6-160, ¶3

Agreed. The referenced sentence and Table 6-42 have been modified to state that only NAS guidelines were used. Table 6-42 has now been changed to Table 6-54.

Comment on Page 6-163 Table A-41

Estimated soil concentrations resulting in chronic toxicity which are provided in this table are reportedly based on acute LC_{50} values. References used to derive the acute lethal dietary concentrations needs to be provided for each contaminant of concern.

Response on Page 6-163 Table A-41

Agreed. References for each contaminant of concern have been provided. The chronic toxicity values were considered to be NOEL values that was derived as 1.5% of the LD_{50}, as suggested by Layton et.al (1987). The LD_{50} values were obtained from a literature search and a search of the TOMES database which provides on-line searches of the RTECS toxicity database from NIOSH, the HSDB from NLM and IRIS from the EPA.

Comment on Page 6-165, ¶1

This paragraph is incomplete and should be corrected.

Response on Page 6-165, ¶1

Agreed. A page containing Sections 6.6.4.3.3 Wetlands and 6.6.4.3.4 Aquatic Life was inadvertently omitted. This page has been added to the text to complete the parargaph.

Chemicals of Concern to Aquatic Life

Comment on Page 6-166 Table 6-43

Regulatory standards (Federal and NYSDEC AWQC) are presented based on a water hardness of 400 mg/L $CaCO_3$. The justification or source for this water hardness value should be provided. In addition, an acute value for aluminum (750 ug/L) and a corrected federal AWQC acute value for zinc should be provided. Although Kendaia Creek is currently classified as a Class D stream, NYSDEC indicate that this designation will be upgraded to Class C in 1994. Therefore it is recommended that NYSDEC AWQC for both Class C and D be provided in this table.

Response on Page 6-166 Table 6-43

Agreed. Table 6-55 (previously Table 6-43) have been revised as requested. The hardness used for the calculations was 300 mg/L as $CaCO_3$. This hardness value was obtained by using the mean calcium and magnesium concentrations from the site surface waters. As requested, both Class "C"and "D" standards have been included Table 6-55 and the discussion.

Comment on Page 6-167 Table 6-44

NYSDEC sediment criteria are available for chlordane and endrin. Please provide these criteria in the table. In addition, it appears that an organic carbon content of one percent was used to derive the sediment guidelines. It is unclear if this value was assumed or based on measured results within the sediments of the Ash Landfill and/or Kendaia Creek. This should be clarified.

Response on Page 6-167 Table 6-44

Agreed. The values for chlordane and endrin have been added to Table 6-56 (previously 6-44). As the reviewer suggests, the sediment criteria were calculated assuming an organic carbon content of one percent. The NYSDEC sediment criteria guidelines also assumes an organic carbon content of one percent. This has been added to in the text and on the table.

Vegetation

Comment on Page 6-172, ¶2

The ERA states that 17 VOCS, 29 SVOCs, and 10 pesticides/PCBs were eliminated as chemicals of concern because they were detected at concentrations lower than those reported in the literature to be toxic to plants. This statement is incorrect as phytoxicity values were provided for only 3 of the 56 contaminants of potential concern. An additional search of the literature should be undertaken in order to locate additional phytotoxicity values. The computer data base PHYTOTOX (available from Chemical Information Systems) may be helpful.

Response on Page 6-172, ¶2

Agreed. Additional sources of phytotoxicity values were located. These new data have been incorporated into the phytotoxicity discussion. The PHYTOTOX database was evaluated as an additional source of data for phytotoxicity. This database is intended to support professional herbicide applications by providing recommended herbicide application rates and does not provide data for toxicity for a wide variety of organic and inorganic chemicals of interest for this project. However, as previously done, chemicals that have no phytotoxicity values were eliminated from further consideration in the ERA because no decision can be made regarding the impacts a chemical may contribute to the risk.

Surface Water

Comment on Page 6-174, ¶3

The ERA states that Federal AWQC for aquatic life were established at very low concentrations in order to protect human health from ingestion of fish. It should be noted that Federal AWQC have separate values that are protective of human health from fish ingestion and that the chronic and acute aquatic life AWQC were generally derived to be protective of aquatic life. This statement should be deleted. The more conservative of Federal or NYSDEC AWQC for aquatic life should be used in the risk assessment for each contaminant of potential concern.

Response on Page 6-174, ¶3

Agreed. The referenced statement has been deleted. As suggested, the risk assessment has considered the more conservative value between the Federal and NYSDEC AWQC.

Comment on Page 6-175, ¶2

The ERA concludes that no metals exceed Federal acute AWQC. However, this is not correct as the Federal acute AWQC for aluminum is greatly exceeded (the aluminum acute AWQC was omitted in the ERA). A more detailed analysis should be provided on the potential ecological effects associated with inorganics that exceed their respective criteria.

Response on Page 6-175, ¶2

Agreed. The aluminum acute AWQC has been added. This criteria has recently been updated and was inadvertently omitted. The discussion of the impacts to aquatic life from inorganics has been added to the risk assessment section of the ERA, Section 6.6.4.6 in the ERA has been corrected and expanded.

Special Concern Species

Comment on Page 6-177, ¶1

Scientific names presented for the osprey and bog turtle are incorrect. In addition, the word "species" is misspelled in this paragraph and should be corrected.

Response on Page 6-177, ¶1

Agreed. The corrections have been made to the text.

Aquatic Life

Comment on Page 6-178, ¶2

See comment regarding page 6-175, ¶2.

Response on Page 6-178, ¶2

Agreed. See response to page 6-175, ¶2.

Biological Characteristics

Comment on Page 6-179, ¶4

It is stated that the mallard and rat were chosen as receptor species for terrestrial portions of the landfill. However, it was stated earlier that the mallard and deer mouse were selected as receptor species. This discrepancy should be clarified.

Response on Page 6-179, ¶4

Agreed. The reference in Section 6.6.4.7.1 has been corrected. The deer mouse is the selected receptor species.

Vegetation

Comment on Page 6-181, ¶3

The ERA concludes that no chemicals exceed the range of concentrations that are considered to be potentially phytotoxic to plants. It should be noted in this paragraph that concentrations of cadmium, lead and zinc exceed previously reported concentrations reported to be phytotoxic to plants. In addition, phytotoxicity effects of organic contaminants were not evaluated in the ERA as phytotoxicity values for these contaminants were not provided. The text should be revised accordingly.

Response on Page 6-181, ¶3

Agreed. The discussion of phytotoxicity in Section 6.6.4.7.4 has been corrected as requested.

Wildlife

Comment on Page 6-181, ¶4

The ERA concludes that no metals exceeded NYSDEC surface water quality guidelines which are protective of wildlife that consume aquatic organisms. Table 6-42 indicates that these guidelines were unavailable for the inorganic contaminants of concern. This discrepancy should be clarified.

Response on Page 6-181, ¶4

Agreed. As shown on Table 6-54 (previously 6-42) these guidelines were unavailable. The referenced statement will be modified to reference the NAS and NAE guidelines.

Comment on Page 6-182, ¶3

Please see comment for page 6-175, ¶2 regarding acute AWQC. In addition, it is stated that measured concentrations of aluminum and iron within Kendaia Creek are below chronic criteria. However, it should be noted that the reported concentrations of aluminum actually exceed its chronic criterion. This should be corrected.

Response on
Page 6-182, ¶3 Agreed. The AWQC will be revised as requested in the comment for page 6-175, ¶2. The reported concentration for aluminum on page 6-182 (97 ug/L) is incorrect. As shown in Table 4-8, aluminum was not detected in Kendaia Creek. The reported value was below a detection limit of 97.6 ug/L. The text will be corrected to reflect the correct results.

Uncertainty Assessment

Comment on
Page 6-183 Current EPA Region II policy calls for evaluating "central tendency" risk by substituting average or median (50th percentile) values for the upper-bound values that should be used in the risk assessment. The text should present an evaluation of central tendency risk.

The uncertainty analysis should also address the uncertainties/shortcomings of converting RfCs and unit risk values into inhalation RfDs and slope factors, as is described in HEAST.

Response on
Page 6-183 Agreed. An evaluation of central tendency risk was completed. The results are discussed in Section 6.7.5, in the uncertainty discussion. A discussion of the shortcomings of converting RfCs and unit risk values into inhalation RfDs and slope factors has been added to Section 6.7.3.

Comment on
Page 6-187, ¶1 ES lists several chemicals for which no reference doses or slope factors are available, including Aroclor 1242. It is recommended that risks be evaluated using the slope factor for Aroclor 1260 as a surrogate.

Response on
Page 6-187, ¶1 Agreed. The slope factor for Aroclor-1260 will be used to evaluate risks from exposure to Aroclor-1242.

Comment on
Page 6-187, ¶2 ES compares detected lead concentrations in groundwater to the NYSDEC Class A groundwater standard (25 ug/L). The EPA Action Level of 15 ug/L should also be presented. The exposure point concentration (24 ug/L) exceeds the EPA Action Level.

Response on
Page 6-187, ¶2 Agreed. The summary discussion in Section 6.7.3 has been updated to include a reference to the EPA action level for lead in groundwater (15 ug/L).

The following comments are provided by EPA's Pre-Remedial and Technical Support Section:

This document is thorough and very well arranged. Specific comments follow; the more significant ones are marked with an*.

Comment #1 *Page 1-19, 3rd, ¶: There are variable descriptions of the 'cooling pond' that constitutes part of the Ash Landfill site; here and on page 5-7 (last ¶), it is defined as an unlined depression for receiving fly ash and residues before being moved to a landfill, while page 2-2 (point #7) says that the pond was 'used for cooling the incinerator'. This issue requires clarification.

Response #1 Agreed. The cooling pond was used for cooling fly ash and residues from the incinerator. The references to the cooling pond have been clarified.

Comment #2 Table 4-3:

a. TAGM's carry little weight in the risk assessment process, for they are not risk-based estimates, nor are they promulgated numbers. Tabulating the number of soil samples with detections exceeding the TAGM is unnecessary. TAGM exceedance should play no role in the derivation of a contaminants of concern list. The last sentence of the 3rd ¶ of page 4-64 is not noteworthy from a COC-list perspective.

*b. It is not clear in the document, which soil depths data was used in deriving exposure point concentrations. For those residential exposure routes involving soil (e.g., ingestion), no data from below 2 feet should be used.

Response #2

a. TAGMs are used for comparative purposes only in the discussion of extent of contamination in Section 4. TAGMs are To Be Considered (TBCs) and as such are appropriate to this discussion. Furthermore, TAGMS are also used in the screening process to develop a list of contaminants of concern. To be conservative in the selection of COC's, any chemical with a maximum detected value exceeding the TAGM was retained in the risk assessment. The referenced sentence on page 4-64 was deleted.

b. Agreed. Only surface soils (0 to 2 foot depth) were used to derive exposure point concentrations for residential exposure routes. This is now clarified in the quantification of exposure sections of Section 6, particularly section 6.3.5.6.1and 6.3.5.7.1.

Comment #3 Page 4-54, 1st ¶, last 2 sentences:

a. Why isn't the concentration of vinyl chloride in the 0-2 feet fraction provided?;

b. The 1,000 ug/kg in the 2-4 foot fraction is quite meaningful. It exceeds a risk-based concentration, especially so if residential land uses are appropriate, as they appear to be.

Response #3

a. Agreed. The concentration of vinyl chloride in the referenced sample was not provided in the text since it was below detection limit.

b. Agreed. The 1000 ug/kg concentration of vinyl chloride is meaningful. It is included in the revised risk assessment in a construction worker scenario.

Comment #4 Table 4-5: 'DWQS' here are defined as the New York State Drinking Water Regulations. The table would be more complete were it to also show Federal MCL's/AWQC's, since the more stringent of these (or any other relevant standard) would determine the level of a clean-up were unacceptable risk to be demonstrated.

Response #4 Agreed. NYSDEC Class GA groundwater standards (AWQC) have been added to Table 4-5. NY State DWQS are at least as stringent as Federal MCL's so MCL's are not listed separately.

Comment #5 Page 6-1, 1st ¶, last sentence: '...to evaluate **it** as a single site...'

Response #5 Agreed. The sentence was corrected.

Comment #6 Page 6-5, Figure 6-1: this figure, referenced on page 6-4, is missing.

Response #6 Agreed. Figure 6-1 is included in this draft.

Comment #7 Page 6-6, 2nd ¶: the modelling results mentioned here are problematic. The document should have specified the modelling that was done. In any event, the modelling will no doubt have to come out; read on. Presumably the two other references that I found in the document that will require fixing are on page 6-55, last ¶ (See comment #15, below), and page 6-66, 1st ¶ (See comment 17, below). EPA does not endorse modelling, (as in Monte Carlo methods, for example), in the generation of exposure point concentrations, or for any exposure assessment parameter for that matter.

Response #7 Agreed. No Monte Carlo methods were used to generate exposure point concentrations. The only models used were for the air pathway, and all models used were evaluated by EPA's Air Programs Branch. The text will be clarified to better describe which models were used, and when they were used.

Comment #8 Page 6-18, 5th ¶ (and Table 6-3): is the coefficient of variation an appropriate statistical support/test for the demonstration of normality/log-normality of data set? EPA's Intermittent Bulletin recommends the W test for such a demonstration. Why was the CV statistic performed? How do the results of the two statistical approaches compare?

Response #8 Agreed. As described, the "W" statistic is likely a better test for normality than the CV. However, the "W" statistic is used for data sets with less than 50 samples. The data sets evaluated for this analysis had more than 50 samples and the CV was used. It is not possible to compare the results since the "W" statistic could not be run.

Comment #9 Page 6-23 - 6-24: additional details regarding the usage of the t-test are requested. These include, the degrees of freedom for the background and site soils. Also, the document should cite any EPA approval granted to apply the t-test in this situation.

Response #9 Additional details regarding the usage of the t-test are included below. The degrees of freedom for the background and site soils can be obtained from Table 6-2. This table shows the number of background samples (Background Count) and the number of site samples (Population Count). The degrees of freedom for each population is the total number of samples (the count) minus one (n-1).

Although no site-specific EPA approval was granted to apply the t-test in this situation, the "Risk Assessment Guidance for Superfund, Vol I, Human Health Evaluation Manual (Part A) (EPA, 1989)", discusses the use of statistical methods where background comparisons are made. One of the documents cited in RAGS to aid in background comparison is "Statistical Methods for Evaluating Groundwater Monitoring Data from Hazardous Waste facilities (EPA 1988b). This statistical methods document references the use of the t-test where background comparisons are made when evaluating groundwater samples (i.e., site samples are compared to a background population to statistically determine whether they are a part of the same population). ES applied this same test to evalute the soil samples at the site since no better guidance was found.

Comment #10 *Table 6-6: lead (Pb) is listed as being a chemical that is quantified in the risk assessment. Please explain, as we typically only perform qualitative assessments of Pb. See comment #21, below.

Response #10 Agreed. Only a qualitative risk assessment is performed for lead, as the comment suggests. Table 6-6 list of chemicals that passed the screening process, which lead did. However, since no toxicity valves exist for lead it is not addressed quantitatively in the risk assessment.

Comment #11 Page 6-50, 2nd ¶, point #2: Please answer the three questions below;

a. Is it a generalized statement - that eating contaminated deer meat can never pose an unacceptable risk?

b. What were the contaminants in deer meat under study at the Joliet facility?

c. What level of peer review did the Joliet studies receive that are substantiating the statement of #22?

Response #11 Agreed.

a. The statement "eating contaminated deer meat can never pose an unacceptable risk" is obviously incorrect, is not the conclusion of the

Joliet studies and has been detected. These studies concluded that the risk from consuming muscle and liver tissue from JAAP dder is minimal". Since Seneca has similar harvesting programs, we believe the results of the JAAP study are applicable.

b. The contaminants studied were explosives, PCBs, metals, and organic chlorine pesticides.

c. The report is still in Draft form, and has undergone primrily internal Army review. The extent of external peer review is unknown.

Comment #12 *Page 6-56, Figure 6-3: this figure, referenced on page 6-54, is lacking. This is a critical schematic to have in hand when reviewing a risk assessment, although the information it conveys is presented in the text, albeit spanning many pages. In the revised document, we would hope to see that the figure has a 'rationale' column. This column should provide the basis for inclusion or exclusion of various exposure pathways in the risk assessment, as well as whether certain pathways are quantitatively or qualitatively evaluated.

Response #12 Agreed. Figure 6-3 is included in the revised draft. Figure 6-3 does not include a "rationale column". The rationale for including or omitting specific pathways is provided in the text.

Comment #13 Page 6-55, last ¶: I do not understand how in the 1st sentence, the subsurface soil exposure risks 'were found to be insignificant'. Secondly, the modelling mentioned in the 2nd sentence (which may refer to comment #8 above), is confusing because of the finding the construction workers would not be exposed to the 'short-term'.

Response #13 Agreed. The confusing paragraph was deleted. As discussed above, a future construction worker scenario has been added to the risk assessment.

Comment #14 Table 6-7 (page 3 of 5): It is unclear what the 'Count' column is providing.

Response #14 Agreed. The term "count" referred to the number of data points. This column has been deleted in the revised draft.

Comment #15 *Page 6-66, 1sy ¶: The 'mathematical manipulation' spoken of here is undoubtedly a Monte Carlo simulation. The 95th UCL's computed here for surface water, or for any other medium that I may not have noted, must be recalculated.

Response #15 Disagree. The term "mathematical manipulation" simply referred to the statistical analysis used to calculate the 95th UCL, and not to modelling. The text has been modified to clarify the computations used to derive the EPC.

Comment #16 Table 6-9: EPA's policy - generally across all regions - is to evaluate the dermal uptake of soil or sediment for only 3 compounds: cadmium, PCB's and dioxin. Hence, this exposure analysis could have been significantly reduced.

Response #16 Agreed. The dermal uptake of soil and sediment are calculated for only cadmium and PCBs. Dioxin is not present at the Ash Landfill.

Comment #17 Page 6-87, 2nd full sentence: Should be rewritten as 'The Fraction Ingested (FI) was **conservatively** assumed to be 1, **as incidental soil ingestion is an event-based phenomenon.**'

Response #17 Agreed. The referenced text was modified as requested.

Comment #18 Table 6-36: There are many mistakes in terms of directing the reader to appropriate tables in the document. Here is a much corrected order:

	Exposure Assessment	Risk Characterization
Current Residential:	Table 6-8	Table 6-24
	Table 6-9	Table 6-25
	Table 6-10	Table 6-26
	Table 6-12	Table 6-27
	Table 6-16	Table 6-28
	Table 6-14, Table 6-21	Table 6-29
Future Residential:	Table 6-18, 6-22	Table 6-30
	Table 6-19	Table 6-31
	Table 6-8	Table 6-24
	Table 6-9	Table 6-25
	Table 6-11	Table 6-32
	Table 6-13	Table 6-33
	Table 6-17	Table 6-34
	Table 6-15, Table 6-21	Table 6-35

Response #18 Agreed. Table 6-36 has been corrected to reference the correct tables.

Comment #19 •the summary/conclusions section is weak; it is limited to a ¶ on page 7-3. More importantly, I found no 'Uncertainty' section or discussion regarding the human health risk assessment. One should be supplied. As with the OB Grounds, lead (Pb) for one thing, may figure prominently into the risk findings, but it appears to have been largely overlooked because it was not (rightfully so) a component of the quantitative risk assessment.

Response #19 Agreed. The summary and conclusions section for the risk assessment (Section 7.1.3) has been expanded. The uncertainty Section is presented in Section 6.7 and items such as lead are discussed.

Miscellany:

page 6-9, 2nd ¶, last sentence: 'rationale'

page 6-17, last ¶, 1st sentence: 'Target Analyte List'

page 6-52, 2nd ¶ 2nd sentence: 'three areas where disposal..'

page 6-52, 3rd ¶, 2nd sentence: '..and the residuals **that** remain following...'

page 6-57, 3rd ¶, last line: '**from** the on-site wells...'

page 6-57, next-to-last line: 'necessitates'

page 6-59, 2nd ¶, 5th sentence: 'All other pathways used, measured exposure...'

page 6-60, 3rd ¶, next-to-last sentence: '..then the maximum detected value was used as the EPC.'

page 6-100, 2nd ¶: delete line spaces in next-to-last sentence

page 6-108, 2nd line: 'based'

Response Agreed. All the editorial corrections noted in this comment are included in the revised report.

D#12

APPENDIX O

SCREEN2 MODELING RESULTS

VOLATILE ORGANIC EMISSIONS

09/22/94
09:14:52

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

TEST FOR SENECA

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	AREA
EMISSION RATE (G/(S-M**2))	=	1.00000
SOURCE HEIGHT (M)	=	.0000
LENGTH OF SIDE (M)	=	82.6000
RECEPTOR HEIGHT (M)	=	1.7500
URBAN/RURAL OPTION	=	RURAL

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
10.	.0000	0	.0	.0	.0	.00	.00	.00	
100.	.1647E+08	6	1.0	1.0	10000.0	.00	2.27	2.99	NO
200.	.1168E+08	6	1.0	1.0	10000.0	.00	6.05	4.66	NO
300.	.9124E+07	6	1.0	1.0	10000.0	.00	9.61	6.15	NO
400.	.7537E+07	6	1.0	1.0	10000.0	.00	13.06	7.54	NO
500.	.6431E+07	6	1.0	1.0	10000.0	.00	16.42	8.87	NO
600.	.5573E+07	6	1.0	1.0	10000.0	.00	19.72	10.14	NO
700.	.4886E+07	6	1.0	1.0	10000.0	.00	22.96	11.31	NO
800.	.4334E+07	6	1.0	1.0	10000.0	.00	26.16	12.34	NO
900.	.3856E+07	6	1.0	1.0	10000.0	.00	29.32	13.34	NO
1000.	.3450E+07	6	1.0	1.0	10000.0	.00	32.44	14.27	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 10. M:

48.	.1987E+08	6	1.0	1.0	10000.0	.00	.12	2.04	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***

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**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST      CONC              U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)    (UG/M**3)   STAB  (M/S)  (M/S)    (M)    HT (M)   Y (M)   Z (M)  DWASH
-------  ----------   ----  -----  -----  ------   ------  ------  ------  -----
   730.   .4712E+07    6     1.0    1.0  10000.0     .00   23.92   11.63    NO
    40.   .0000        0      .0     .0       .0     .00     .00     .00
    47.   .0000        0      .0     .0       .0     .00     .00     .00
    48.   .1987E+08    6     1.0    1.0  10000.0     .00     .07    2.02    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

 CALCULATION         MAX CONC     DIST TO   TERRAIN
  PROCEDURE         (UG/M**3)     MAX (M)    HT (M)
--------------     -----------    -------   -------
SIMPLE TERRAIN      .1987E+08        48.        0.


***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
***************************************************
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PARSONS MAIN, INC. PARSONS

CLIENT: Seneca - Ash Landfill JOB NO. 720447-01023 SHEET 1 OF

SUBJECT: Sample Calculations of Off-Site and On-Site Concentrations BY J. Pollack DATE 9/23/9K

CKD. REVISION

The USEPA SCREEN2 model was run for the landfill as described in the original report. The landfill was modeled as a ground level, area source with an area of 6819 m^2 and sides of 82.6 m. A rural dispersion environment was assumed, and a receptor height of 1.75 m above ground level was specified. Predictions were made for several receptors, including an on-site receptor at 48 m downwind (closest distance at which SCREEN2 would predict a concentration for the source) and an off-site receptor at 730 m downwind.

The model was run using a unit emission rate of 1.0 $g\,s^{-1}m^{-2}$. The SCREEN2 model output is attached and provides maximum predicted 1-hour concentrations at each receptor in $\mu g\,m^{-3}$. Since a unit emission rate was modeled, the values in the concentration column in the SCREEN2 output can also be interpreted as values of normalized concentration (i.e., concentration divided by emission rate) in units of $10^{-6}\,s\,m^{-1}$.

The predicted 1-hour concentration for a particular substance can be determined by multiplying the normalized concentration by the emission rate for that substance (in $g\,s^{-1}m^{-2}$).

Example 1 : Determine maximum 1-hour vinyl chloride concentration at off-site receptor located 730 m downwind

From Table 6-24, average emission rate for vinyl chloride from landfill is $5.4064 \times 10^{-4}\,g\,s^{-1}$
Landfill area is 6819 m^2
Emission rate in desired units is $5.4064 \times 10^{-4}\,g\,s^{-1} / 6819\,m^2 = 7.928 \times 10^{-8}\,g\,s^{-1}m^{-2}$
From SCREEN2 output, 1-hour concentration is $0.4712 \times 10^{7}\,\mu g\,m^{-3}$ (or normalized concentration is $0.4712 \times 10^{7} \times 10^{-6}\,s\,m^{-1}$).
The concentration can then be calculated as the product of the normalized concentration and the emission rate:

$$(0.4712 \times 10^{7} \times 10^{-6}\,s\,m^{-1}) \times (7.928 \times 10^{-8}\,g\,s^{-1}m^{-2}) = 0.3736 \times 10^{-6}\,g\,m^{-3} = 0.3736\,\mu g\,m^{-3}$$

This is consistent with the off-site concentration for vinyl chloride listed in Table 6-24.

Example 2: Determine maximum 1-hour xylene concentration at on-site receptor located 48 m downwind

From Table 6-24, average emission rate for xylene from landfill is $5.6072 \times 10^{-5}\ g\,s^{-1}$

Landfill area is $6819\ m^2$

Emission rate in desired units is $5.6072 \times 10^{-5}\ g\,s^{-1} / 6819\ m^2 = 8.2229 \times 10^{-9}\ g\,s^{-1} m^{-2}$

From SCREEN2 output, 1-hour concentration is $0.1987 \times 10^{8}\ \mu g\,m^{-3}$ (or normalized concentration is $0.1987 \times 10^{8} \times 10^{-6}\ s\,m^{-1}$).

The concentration can then be calculated as the product of the normalized concentration and the emission rate:

$$(0.1987 \times 10^{8} \times 10^{-6}\ s\,m^{-1}) \times (8.2229 \times 10^{-9}\ g\,s^{-1} m^{-2}) = 0.1634 \times 10^{-6}\ g\,m^{-3} = 0.1634\ \mu g\,m^{-3}$$

This is consistent with the on-site concentration for xylene listed in Table 6-24.

PM_{10} EMISSIONS

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CLIENT: USACOE | JOB NO. | SHEET 1 OF

SUBJECT: SEAD - Ash Landfill | BY: PFM | DATE 9/26/94

Estimate of Wind Erosion | CKD. | REVISION

Estimate wind erosion using method of Skidmore and Woodruff (1968) in "Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss", USDA Handbook No 346.

$$E = f(I', K', C', L', V)$$

where

E = erosion, tons per acre per year
I' = soil erodibility index
K' = soil ridge roughness factor
C' = climatic factor
L' = field length along prevailing wind erosion direction
V = equivalent quantity of vegetation cover.

Look at the months May - November. Assume ground is wet, frozen, or snow covered the remainder of the year. (∴ 7 months).

☐ Assume $K' = 1.0$ (This is the highest value)

☐ For V - from Soil Survey of Seneca County New York crop yield for grass ranges from 2-4 tons per acre

- use 3 tons per acre = 6000 lbs/acre

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CLIENT USACOE JOB NO. ______ SHEET 2 OF ______

SUBJECT ______ BY Pfm DATE 9/26/94

CKD. ______ REVISION ______

So, from Figure 9 of USDA reference:

V = 4000 lbs/acre

☐ For I' - from Soil Survey of Seneca County New York, % passing 0.42 mm sieve ranges from 86-94% in Angola silt loam near Romulus, NY. This is very similar to Darien silt loam found at the site

- use 90% for calculation

I' = 134 tons/acre

☐ for C' - climatic factor - use Figures 15-21 from USDA reference

Month	C'
May	0.02
June	0.02
July	0.02
August	0.02
September	0.02
October	0.02
November	0.02

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CLIENT USACOE JOB NO. SHEET 3 OF

SUBJECT BY Pfm DATE 9/26/94

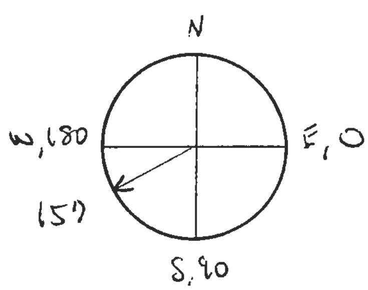
CKD. REVISION

☐ for L' - determining L' from the USDA reference document is complicated.

- width of Ash landfill source area for this modeling - 400 ft ~ east/west direction
  - 300 ft ~ north/south direction
- total area modelled 120,000 ft^2 (from ~ 100 ppb Pb in soil)

- from wind data for Rome, NY (Table 1 USDA).

Month	Magnitude	Direction	Preponderance	A	K_{50}	D_{50}
May	131	157	2.5	0	1.3	539
June	79	135	2.1	-18	1.4	539
July	56	157	1.7	0	1.3	539
August	41	157	2.1	0	1.3	539
September	70	157	1.9	0	1.3	539
October	85	135	1.7	-18	1.3	539
November	140	157	2.2	0	1.3	539



- 157 corresponds to west-southwest, use this as principle direction

$R_m = R_{2.0}$

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CLIENT ACoE JOB NO. SHEET 4 OF

SUBJECT BY PFM DATE 9/20/94

CKD. REVISION

Month	E_2	E_3	E_4	E
May	134	2.7	1.7	< 0.5 tons/
June	134	2.7	1.7	
July	134	2.7	1.7	
August	134	2.7	1.7	
September	134	2.7	1.7	
October	134	2.7	1.7	
November	134	2.7	1.7	

$E_2 = I'K' = 134 \times 1.0 = 134$ tons/

$E_3 = I'K'C' = 134 \times 1.0 \times 0.02 = 2.68$ tons/

$E_4 = I'K'C'f(L')$ @ $L' = D_{50} = 539$ ft

use method from USDA reference

$E_4 = 1.7$ tons/acre

Note: for $E_4 < 3$ and vegetative cover of 4000 lbs/acre, the values are off-scale on Figure 24 in USDA reference and << 0.5 tons/acre

But, Extrapolation of Figure 24 indicates an E value of 0.045 tons/acre

0.045 tons/acre/year $\times \dfrac{7 \text{ months}}{12 \text{ months}} = \underline{0.026 \text{ tons/acre/year}}$

The Ash landfill source area is 120,000 ft^2 for soil. This is equal to 2.7 acres.

→ So, emissions = 0.026 ~~tons/acre/year~~ × 2.7 ~~acres~~

= 7.02×10^{-2} tons/year

To determine respireable fraction, look at PM_{10}. But PM_{10} is not available from soil survey of Seneca County NY, only PM_{20} is given.

PM_{20} is ~ 50%

→ So, respireable emissions = 7.02×10^{-2} tons/year × 0.5

= 3.5×10^{-2} tons/year - of potentially contaminated soil

Converting to kg/year:

3.5×10^{-2} tons/year × 907.1848 (conversion factor) = **31.75 kg/year**

→ Estimated Annual Emmission Rates are shown on Table 1 (these are based on 95% UCL values).

TABLE 1
SUMMARY OF WIND EROSION OF PM10 SOIL AND POTENTIAL RECEPTOR CONCENTRATIONS AT 48 AND 730 METERS SURFACE SOIL ANALYSIS RESULTS

SENECA ARMY DEPOT ASH LANDFILL

COMPOUND	units	MAXIMUM	95th UCL of the mean	MEAN	Potential Release (g/year)	Potential Receptor Concentration (48m) (ug/m3)	Potential Receptor Concentration (703m) (ug/m3)
Volatile Organics							
Vinyl Chloride	ug/Kg	750	16.02	33.24	0.509	1.72E-06	4.09E-07
Acetone	ug/Kg	750	17.39	34.00	0.552	1.87E-06	4.44E-07
Carbon Disulfide	ug/Kg	650	11.13	23.80	0.353	1.20E-06	2.84E-07
1,1-Dichloroethene	ug/Kg	650	11.13	23.80	0.353	1.20E-06	2.84E-07
1,2-Dichloroethene (total)	ug/Kg	38,000	584.27	1,545.47	18.551	6.29E-05	1.49E-05
Chloroform	ug/Kg	18	5.13	4.52	0.163	5.52E-07	1.31E-07
1,2-Dichloroethane	ug/Kg	370	9.45	15.34	0.300	1.02E-06	2.41E-07
2-Butanone	ug/Kg	21	7.21	6.57	0.229	7.76E-07	1.84E-07
Trichloroethene	ug/Kg	150,000	1,592.88	5,564.81	50.574	1.72E-04	4.07E-05
Benzene	ug/Kg	4	3.04	3.00	0.097	3.27E-07	7.76E-08
Tetrachloroethene	ug/Kg	7	3.38	3.16	0.107	3.64E-07	8.63E-08
Toluene	ug/Kg	650	11.61	27.34	0.369	1.25E-06	2.96E-07
Chlorobenzene	ug/Kg	650	11.13	23.80	0.353	1.20E-06	2.84E-07
Ethylbenzene	ug/Kg	650	11.73	27.79	0.372	1.26E-06	3.00E-07
Xylene (total)	ug/Kg	2,900	16.03	72.45	0.509	1.73E-06	4.09E-07
Semivolatiles							
Phenol	ug/Kg	1,250	398.03	356.51	12.637	4.29E-05	1.02E-05
2-Nitrophenol	ug/Kg	1,250	398.03	356.51	12.637	4.29E-05	1.02E-05
Benzoic acid	ug/Kg	120	128.39	107.00	4.076	1.38E-05	3.28E-06
Naphthalene	ug/Kg	2,400	446.10	369.17	14.164	4.80E-05	1.14E-05
2-Methylnaphthalene	ug/Kg	1,250	360.05	318.57	11.432	3.88E-05	9.19E-06
Acenaphthylene	ug/Kg	510	251.08	209.08	7.972	2.70E-05	6.41E-06
Acenaphthene	ug/Kg	2,200	538.62	387.94	17.101	5.80E-05	1.38E-05
4-Nitrophenol	ug/Kg	1,700	711.54	573.14	22.592	7.66E-05	1.82E-05
Dibenzofuran	ug/Kg	1,400	407.83	352.36	12.949	4.39E-05	1.04E-05
2,4-Dinitrotoluene	ug/Kg	2,000	444.44	379.15	14.111	4.79E-05	1.13E-05
Fluorene	ug/Kg	2,000	464.37	379.94	14.744	5.00E-05	1.19E-05
N-Nitrosodiphenylamine	ug/Kg	450	232.90	210.26	7.395	2.51E-05	5.95E-06
Phenanthrene	ug/Kg	15,000	1,047.87	998.34	33.270	1.13E-04	2.68E-05
Anthracene	ug/Kg	4,200	790.88	454.81	25.111	8.52E-05	2.02E-05
Di-n-butylphthalate	ug/Kg	1,100	373.55	330.43	11.860	4.02E-05	9.54E-06
Fluoranthene	ug/Kg	22,000	1,397.46	1,273.83	44.369	1.50E-04	3.57E-05
Pyrene	ug/Kg	16,000	1,320.91	1,107.36	41.939	1.42E-04	3.37E-05
Butylbenzylphthalate	ug/Kg	140	140.00	140.00	4.445	1.51E-05	3.57E-06
Benzo(a)anthracene	ug/Kg	9,600	915.76	741.85	29.075	9.86E-05	2.34E-05
Chrysene	ug/Kg	9,900	889.20	743.81	28.232	9.57E-05	2.27E-05
bis(2-Ethylhexyl)phthalate	ug/Kg	230,000	987.69	4,749.60	31.359	1.06E-04	2.52E-05
Di-n-octylphthalate	ug/Kg	430	227.36	205.79	7.219	2.45E-05	5.81E-06
Benzo(b)fluoranthene	ug/Kg	9,500	833.22	744.38	26.455	8.97E-05	2.13E-05
benzo(k)fluoranthene	ug/Kg	6,700	711.51	595.21	22.590	7.66E-05	1.82E-05
Benzo(a)pyrene	ug/Kg	9,000	876.03	702.87	27.814	9.43E-05	2.24E-05
Indeno(1,2,3-cd)pyrene	ug/Kg	4,800	635.36	493.98	20.173	6.84E-05	1.62E-05
Dibenz(a,h)anthracene	ug/Kg	2,000	466.15	385.94	14.800	5.02E-05	1.19E-05
Benzo(g,h,i)perylene	ug/Kg	5,000	680.92	506.77	21.619	7.33E-05	1.74E-05
Herbicides							
2,4-DB	ug/Kg	250	41.14	34.28	1.306	4.43E-06	1.05E-06
2,4,5-TP (Silvex)	ug/Kg	10	3.35	3.13	0.106	3.61E-07	8.55E-08
MCPP	ug/Kg	24,000	4,905.18	4,038.68	155.740	5.28E-04	1.25E-04
Pesticides/PCBs							
Heptachlor	ug/Kg	14	7.73	6.83	0.246	8.33E-07	1.97E-07
Dieldrin	ug/Kg	46	16.05	14.02	0.510	1.73E-06	4.10E-07
4,4'-DDE	ug/Kg	250	42.86	30.04	1.361	4.61E-06	1.09E-06
4,4'-DDD	ug/Kg	260	29.42	19.73	0.934	3.17E-06	7.51E-07
4,4'-DDT	ug/Kg	260	36.45	25.54	1.157	3.92E-06	9.31E-07
Aroclor-1242	ug/Kg	185	82.68	74.32	2.625	8.90E-06	2.11E-06
Aroclor-1260	ug/Kg	340	161.11	141.39	5.115	1.73E-05	4.11E-06
Metals							
Cadmium	mg/kg	43.1	5.53	3.22	1.756	5.96E-06	1.41E-06
Chromium	mg/kg	62	30.55	28.34	9.701	3.29E-05	7.80E-06
Copper	mg/kg	836	71.55	69.80	22.718	7.70E-05	1.83E-05
Lead	mg/kg	2,890	264.93	208.08	84.115	2.85E-04	6.76E-05
Potassium	mg/kg	2,930	1,900.35	1,786.60	603.361	2.05E-03	4.85E-04
Silver	mg/kg	10.5	1.05	0.91	0.333	1.13E-06	2.68E-07
Sodium	mg/kg	424	122.42	103.14	38.868	1.32E-04	3.13E-05
Zinc	mg/kg	55,700	1,579.68	2,111.63	501.547	1.70E-03	4.03E-04

PARSONS MAIN, INC.

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CLIENT ______ JOB NO. ______ SHEET 6 OF ______

SUBJECT ______ BY ______ DATE ______

CKD. ______ REVISION ______

Estimate Receptor Concentrations at 48 m and 730 m downwind of source area.

To arrive at these receptor concentrations the results of the SCREEN2 modeling were used. That is, the dispersion factor normalized concentration was multiplied by the respireable emission rate (with appropriate conversions) to arrive at the Potential Receptor Concentration in ug/m3 at 48 and 703 meters. SCREEN2 model results are presented in the discussion of volatile gas emissions from the hot spot at the Ash landfill.

Potential Receptor Concentrations are provided on Table 1.

WIND EROSION FORCES IN THE UNITED STATES AND THEIR USE IN PREDICTING SOIL LOSS

Agriculture Handbook No. 346

Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE
in cooperation with
Kansas Agricultural Experiment Station

Contents

Washington, D.C. Issued April 1968

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By E. L. Skidmore,

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WIND EROSION FORCES IN THE UNITED STATES AND THEIR USE IN PREDICTING SOIL LOSS

By E. L. Skidmore, *research soil scientist*, and N. P. Woodruff, *research investigations leader, Soil and Water Conservation Research Division, Agricultural Research Service*

Soil blowing of agricultural lands is a serious problem in arid and semiarid regions and on sandy soils of the United States. Soil loss from a given cultivated field depends on cloddiness, surface roughness, and surface moisture of the soil; on amount, kind, and orientation of the vegetation; on wind velocity or force; and on distance across the field along the direction of the wind force (*11*).[1] Information on soil and residue effects on erosion is available in considerable detail (*7, 11*). However, published information on wind forces for use in determining amounts of wind erosion and for designing wind erosion control practices is meager and is limited to specific areas of the United States (*6, 8*).

This handbook furnishes detailed information on wind erosion forces for locations throughout the United States for use in assessing erodibility of field soils and in designing control practices to combat the ravages of wind erosion.

The data presented include (1) relative magnitude of wind erosion forces or the capacity of the wind to cause erosion on unprotected soils, (2) prevailing wind erosion direction, and (3) preponderance of wind erosion forces in the prevailing wind erosion direction. These factors indicate, respectively, potential need for wind erosion protection, proper orientation of erosion control measures, and relative merits of proper orientation of the control methods. The data are presented by months for 212 locations.

A brief description of analysis is presented. Method of analysis in more detail is available elsewhere (*10*).

SOURCE AND DESCRIPTION OF WIND DATA

Determining magnitude and direction of wind erosion forces requires analyses of detailed wind data. Detailed wind data of hourly observations of windspeed and direction are scarce. Of the many stations reporting climatological data, only a few record these hourly observations. Those that do are generally airports or military bases. Percent frequency of windspeed and direction are given in Air Force Summaries of Surface Weather Observations (A–B Summaries); Navy Summaries of Monthly Aerological Records (SMAR); and Environmental Data Service publications, Local Climatological Data—Supplement and Summary of Hourly Observations. These wind-data summaries were obtained from the National Records Center, Asheville, N.C., and were used in the analysis described here.

Available data are for relatively short periods of time, especially data from military installations that were active only during World War II. The recording period for most of the data used ranged from 5 to 10 years, as detailed in table 1 (Appendix).

No effort was made to correct heights of observations to a standard because they were not known at all locations and an attempted correction might not be accurate. Windspeed-height relationships must be known to make valid corrections. Since these relationships are affected by such factors as temperature gradients, surrounding buildings, and surface conditions, they cannot be predicted accurately for the sundry unknown conditions.

[1] Italic numbers in parentheses refer to Literature Cited, p. 8.

METHOD OF ANALYSIS

The analysis is based on the principle that the capacity of a wind to cause soil movement is proportional to windspeed cubed times the duration of the wind.

Several investigators (*1, 3, 12*) found that when windspeed was greater than that required barely to move the soil, the rate of soil movement was directly proportional to friction velocity cubed. Friction velocity U_* is related to velocity profile as expressed by

$$U_*=\frac{U_z}{5.75 \log z/k} \qquad (1)$$

where U_z is the windspeed at height z and k is roughness length. Over a specified type of surface and height, z and k are constant (*1, 5*). Therefore, U_* is proportional to U_z, and rate of soil movement is proportional to windspeed cubed after the windspeed attains some minimum or threshold speed required to initiate soil movement.

Threshold speeds were reported by Chepil (*2*) to range from 13 to 30 miles per hour at 1-foot height, depending on the history of the field. A threshold speed of about 11 miles per hour at 1.2 feet was indicated for the conditions of another investigation (*3*). Malina (*9*) reported data of O'Brien and Rindlaub in which the amount of sand transported was proportional to windspeed cubed after windspeed reached a "critical velocity" of 13.4 feet per second (9.1 miles per hour).

Wind data are commonly reported in climatological records by speed groups. One common division is between 12 and 13 miles per hour. That corresponds closely to the reported minimum windspeed required to initiate soil movement. Therefore, windspeeds 12 miles per hour and less are considered nonerosive and were not used in computations reported here.

Magnitude of Wind Erosion Forces

The magnitude of a wind erosion force vector r_j is obtained by summing, for all speed groups with windspeeds greater than 12 miles per hour, the product of mean windspeed cubed and a duration factor for a specified direction as expressed by equation 2

$$r_j=\sum_{i=1}^{n} \overline{U}_i^3 f_i \qquad (2)$$

where $\overline{U}_i^3$ is the mean windspeed within the ith speed group cubed. f_i is a duration factor expressed as the percentage of total observations that occur in the jth direction within the ith speed group. The sub j's indicate direction and take values from 0 to 15, inclusive, representing the 16 principal compass directions. They are numbered counterclockwise starting with east, which is arbitrarily taken as the initial side of the coordinate system. Hence, $r_{j=0}$ and $r_{j=1}$ are wind erosion force vectors pointing east and east-northeast, respectively.

The sum of the magnitudes of the wind erosion force vectors for all directions gives the total magnitude of wind erosion forces for the location and is expressed by equation 3. The value obtained by evaluating equation 3 for some location indicates the relative capacity of the wind to cause soil blowing at the particular location.

$$F_T=\sum_{j=0}^{15}\sum_{i=1}^{n} \overline{U}_{ij}^3 f_{ij} \qquad (3)$$

Prevailing Wind Erosion Direction

The magnitude of erosion forces parallel to a particular direction can be obtained from the wind erosion force vectors. If p is an imaginary straight line intersecting at the origin of a polar coordinate system and ϕ_j is the angle between r_j and the imaginary line p, the amount of erosion forces caused by r_j that occur parallel to p is $r_j \cos \phi_j$. The total wind erosion forces parallel to p as a function of the orientation of p are

$$F_{\parallel}=\sum_{j=0}^{15} r_j|\cos (j\times 22.5-\theta)| \qquad (4)$$

where θ is the angle between p and the initial side. Similarly, the sum of the wind erosion forces perpendicular to p is

$$F_{\perp}=\sum_{j=0}^{15} r_j|\sin (j\times 22.5-\theta)| \qquad (5)$$

Obtaining an orienting line p so the ratio of the wind erosion forces parallel to line p to those perpendicular to line p, symbolized by R, is maximum tends to maximize wind erosion forces parallel to p and to minimize wind forces perpendicular to p. Hence, when R is maximum, p is oriented in the prevailing wind erosion direction θ_R.

Preponderance of Wind Erosion Forces in Prevailing Wind Erosion Direction

The value of R maximum (R_m) indicates the preponderance of wind erosion forces in the prevailing wind erosion direction. The greater the value of R_m, the greater the prevalence of the prevailing wind erosion direction. A value for R_m of 1.0 indicates no prevailing wind erosion direction and a wind barrier would be equally effective in any direction, whereas an R_m of 2.0 indicates a prevailing wind erosion direction with wind erosion forces twice as great parallel as perpendicular to prevailing wind erosion direction.

Distance Across Field Along Direction of Wind Erosion Force Vectors

Since rate of soil movement begins at zero on the windward sides of isolated strips of land and increases with distance downwind (*4, 5*), it is necessary to know the distance across the field along the direction of wind erosion force vectors.

The distance depends on the angle of deviation of the wind erosion force vectors from right angles to field strip. That is visualized when one represents a field strip by drawing parallel lines on two sides of a wind erosion rose and extending each arm of the rose to the boundaries. The length of the arm then represents the distance wind would travel in traversing the field strip along the direction of the wind erosion force vector. When a force vector is at right angles to the field strip, the distance traveled is equal to field width. As the angles of deviation increase, the distance across the field increases as the reciprocal of the cosine (secant) of the angle of deviation.

It is convenient to express the angle of deviation of wind erosion force vector from right angles to field strip as a function of prevailing wind erosion direction, and angle of deviation of prevailing wind erosion direction from right angles to field strip.

$$A_j = j \times 22.5 - \theta_R \pm A \qquad (6)$$

where A_j is angle of deviation of jth wind erosion force vector from right angles to field strip, θ_R is prevailing wind erosion direction with east as zero reference, and A is angle of deviation of prevailing wind erosion direction from right angles to field strip. When θ_R is clockwise and counterclockwise of right angles to barrier, A is subtracted and added, respectively, in equation 6.

Therefore, the distance across field of width W along the direction of wind erosion force vector r_j is

$$D_j = W \sec (j \times 22.5 - \theta_R \pm A) \qquad (7)$$

By multiplying the distance across field along the direction associated with each vector by the portion of the total wind erosion forces represented by each wind erosion vector, a distribution of wind erosion forces traveling various distances to traverse the field is obtained.

RESULTS AND DISCUSSION

The data were analyzed on a high-speed digital computer by the previously described methods. Magnitude of wind erosion forces, prevailing wind erosion direction, and preponderance of wind erosion forces in the prevailing wind erosion direction are presented in table 1 (Appendix) for 212 locations in the United States.

Relative Magnitude of Wind Erosion Forces

The magnitude of wind erosion forces was above 1,000 for some months at some locations in the Great Plains (e.g., Wichita, Kans.; Great Falls, Mont.). Some coastal areas never reached 100 (e.g., Tallahassee and Jacksonville, Fla.), whereas other locations were never below 400 (e.g., Wichita and Great Falls).

Generally wind erosion forces are greatest in the spring and least in the summer; however, that is not true for all locations. Wind erosion forces were greatest in the summer for some (e.g., Laredo, Tex.; Riverside, Calif.) and greatest in the winter for others (e.g., Great Falls, Mont.; Windsor Locks, Conn.).

Orientation of Barriers, Stripcrops, and Other Erosion Control Practices

For maximum protection against wind erosion forces, an erosion control practice should be oriented perpendicular to the prevailing wind erosion direction. The prevailing wind erosion direction is consistently the same throughout the year for some locations but varies considerably for others.

One should orient wind barriers, stripcrops, and other erosion control practices for the time of year when field and climatic conditions are most conducive to blowing, i.e., when wind forces are maximum, when soil is dry and deficient in cover and cloddiness, and when crops are most susceptible to damage.

The protection given by a barrier depends not only on the characteristics of the barrier and its orientation relative to the prevailing wind erosion direction but also on the preponderance of wind erosion forces in the prevailing wind erosion direction R_m.

As an example, in figure 1 we compare the percent of wind erosion forces traveling various distances to traverse a field in December at Great Falls, Mont. (R_m=3.6) and in April at Midland, Tex. (R_m=1.1).

In figure 1, *a*, for Midland at A=0° (field strip at right angles to prevailing wind erosion direction), 80 percent of the wind erosion forces travel distances equal to or greater than 1.1 W, and 32 percent travel twice the field width. However, for Great Falls when R_m is larger (3.6), only 40 and 11 percent of the wind erosion forces travel distances equal to or greater than 1.1 and 2.0 W, respectively. In figure 1, *b*, where the field strip deviates 40° from right angles to prevailing wind erosion direction, the angle of deviation makes very little difference at Midland where R_m is small. However, the percentages for Great Falls at A=40° are much larger than for A=0° and are slightly larger than for Midland.

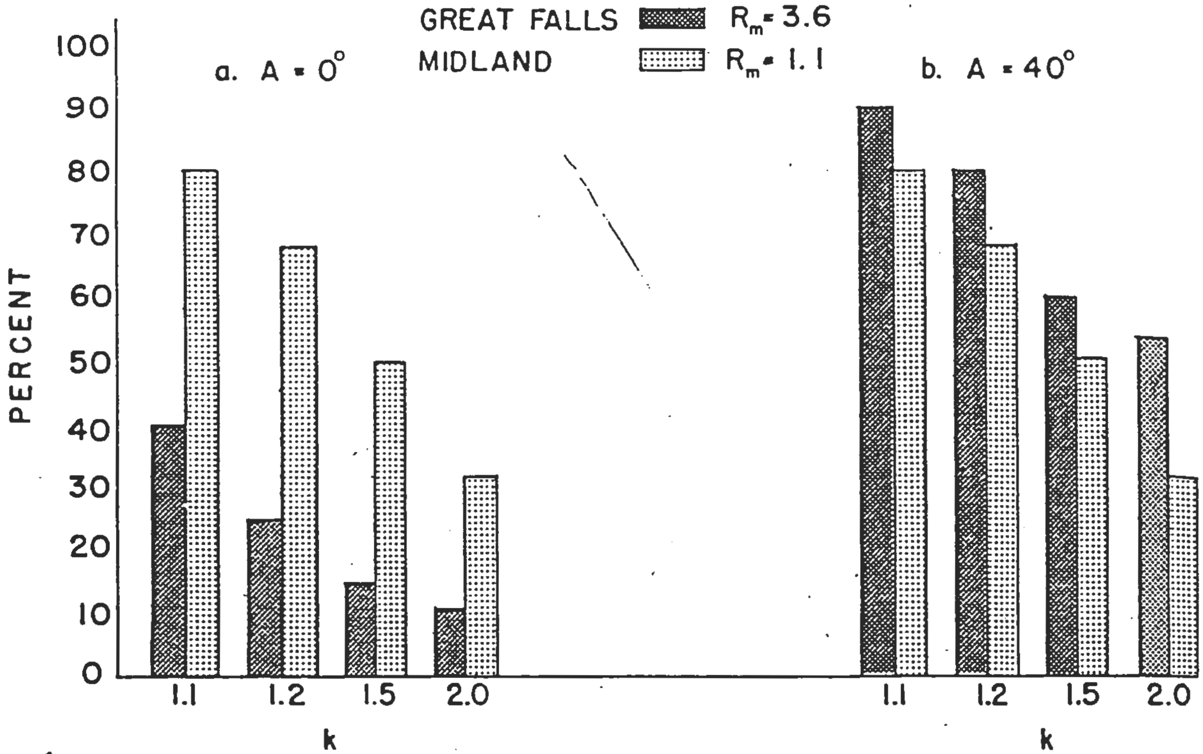


FIGURE 1.—Percent of wind erosion forces traveling distances equal to or greater than some value k times field width in traversing field strip of width W, when angle of deviation of prevailing wind erosion direction from right angles to field strip is 0° and 40° for (*a*) and (*b*), respectively, at Great Falls, Mont., and Midland, Tex.

As R_m approaches unity (the smallest value possible for R_m), the importance of a particular barrier orientation lessens. Wind erosion forces that occur parallel are equal to those that occur perpendicular to barrier regardless of barrier orientation.

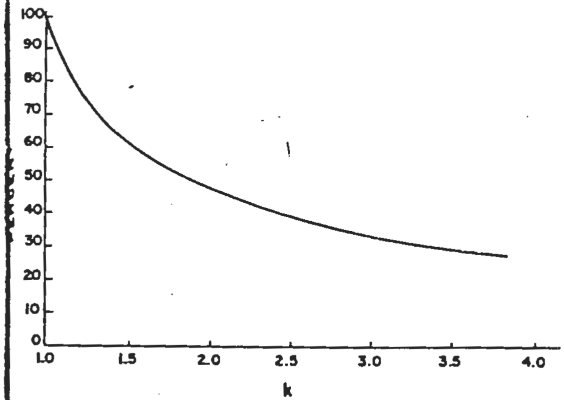
It follows that as R_m gets larger, more attention should be given to proper orientation of the barrier, as illustrated in figures 2–6. These charts give the percent of wind erosion forces that travel some specified multiple k of field width in traversing a field strip as a function of R_m and A. In general, as R_m gets larger, the percent of wind erosion forces traveling more than 1.5 times the field width decreases for small angles of deviation of the prevailing wind erosion direction from right angles to field strip. However, for large angles of deviation, the percent of wind erosion forces traveling 1.5 times the field width in traversing field strip increases. That fact should be considered when determining equivalent field width for use in the wind erosion equation and the distance between barriers.

Equivalent Field Width

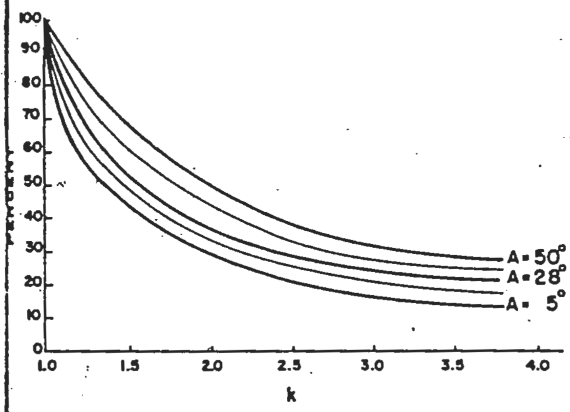
Use of distance L' across the field along the prevailing wind erosion direction in the wind erosion equation is based on the wind traveling distance L' in traversing the field. Unless all wind erosion forces occur along the prevailing wind erosion direction, some of the wind will travel distances greater than L' in traversing the field. Also, at angles of deviation greater than zero, some wind will travel less than L' in traversing a field strip. A measure of equivalent field width based on the preponderance of wind erosion forces in the prevailing wind erosion direction as well as deviation of right angle of the strip from prevailing wind erosion direction would be more meaningful.

Suppose that by using the wind erosion equation (*11*) we have determined that the travel distance L' of wind in traversing a field strip should not exceed 150 feet to control erosion to a tolerable amount. We now desire to determine the width of a field strip so that no more than 50 percent of the wind erosion forces will travel more than 150 feet in traversing the field strip. Some percentage other than 50 could be selected, but 50 is desirable because half of the wind erosion forces will travel farther and half not so far, so 50 represents the median travel distance; also, it is the percentage best used with figures 2–6.

To illustrate, let us use R_m of 1.1 and 3.6 in combination with A values of 0° and 40°. The median distances that wind erosion forces will travel in traversing the field strip are determined by interpolation from figures 2–6.



URE 2.—Percent of wind erosion forces traveling distances equal to or greater than k times field width in traversing field strip for conditions of nonexisting prevailing wind erosion direction ($R_m=1.0$) and all values of A. R_m is ratio of wind erosion forces that are parallel to those that are perpendicular to prevailing wind erosion direction. Magnitude of R_m indicates preponderance of wind erosion forces in prevailing wind erosion direction. A is angle of deviation of prevailing wind erosion direction from right angles to field strip.



URE 3.—Percent of wind erosion forces traveling distances equal to or greater than k times field width in traversing field strip for $R_m=1.5$ and various values of A.

Remember that k times field width equals stance traveled by a specified percentage of ind erosion forces in traversing field strip and W equals median travel distance. Therefore, vide 150 by k_{50} to obtain width of field strip W_{50} quired if no more than 50 percent of the wind osion forces travel more than 150 feet in tra- rsing the field—the specified conditions of R_m d A.

Results are given in table 2 and are compared ith width of field $W_{L'}$ based on distance across e field along the prevailing wind erosion direction ith disregard of the preponderance of wind osion forces in the prevailing wind erosion rection.

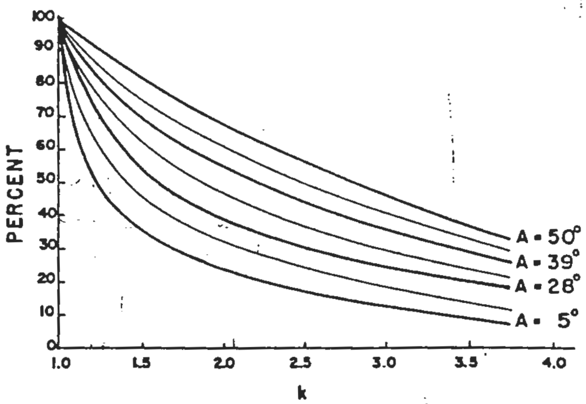


FIGURE 4.—Percent of wind erosion forces traveling distances equal to or greater than k times field width in traversing field strip for $R_m=2.1$ and various values of A.

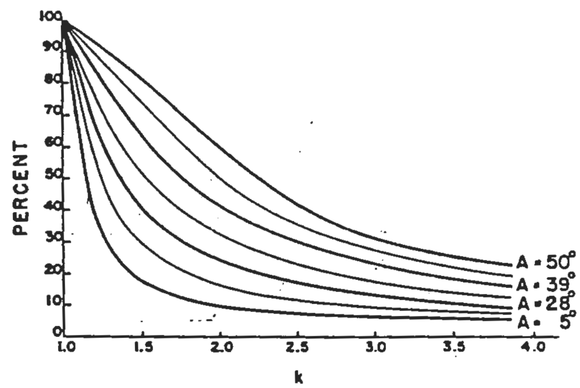


FIGURE 5.—Percent of wind erosion forces traveling distances equal to or greater than k times field width in traversing field strip for $R_m=3.0$ and various values of A.

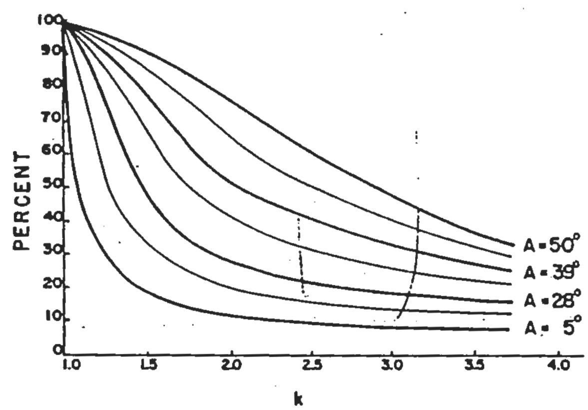


FIGURE 6.—Percent of wind erosion forces traveling k times field width or greater in traversing field strip for $R_m=3.8$ and various values of A.

TABLE 2.—*Determination of width of field strip W_{50} for median travel distance of 150 feet and of width of field strip $W_{L'}$ so distance across field in prevailing wind erosion direction is 150 feet when preponderance of wind erosion forces* (R_m) *is 1.1 and 3.6 and angle of deviation* (A) *is 0° and 40°*

R_m	A	k_{50}	W_{50}	$W_{L'}$
	(°)		*Feet*	*Feet*
1.1	0	1.8	83	150
	40	1.9	79	116
3.6	0	1.1	136	150
	40	2.1	71	116

When R_m equals 1.1, the angle of deviation of strip from right angles to prevailing wind erosion direction only slightly affects W_{50}, whereas when R_m equals 3.6, an increase in angle of deviation from 0° to 40° reduces W_{50} from 136 to 71 feet.

EXAMPLES OF FIELD APPLICATIONS

Data in this handbook can be used in several ways to design wind erosion control practices. Two examples are illustrative.

Determination of Potential Wind Erodibility of Farm Fields

The amount of erosion E, expressed in tons per acre per annum, that could occur from a given agricultural field can be expressed as $E = f(I', K', C', L', V)$, where I' is a soil erodibility index, K' is a soil ridge roughness factor, C' is a climatic factor, L' is field length along the prevailing wind erosion direction, and V is equivalent quantity of vegetative cover (*11*).

Assume we wish to use the equation and the information given in this handbook to determine the potential erosion E that might occur in March and October from a field with a 1,320-foot north-south width in the vicinity of Midland, Tex. Since the field is flat and smooth, soil ridge roughness $K_r = 0$ and soil ridge roughness factor $K' = 1.0$ (fig. 7). Because it has 800 pounds per acre of flat wheat stubble, V, the equivalent vegetative cover, is 2,500 (fig. 8). (For other vegetative covers, refer to figs. 9 and 10.) Since dry sieving indicates that 25 percent of the soil fractions are greater than 0.84 mm. in diameter, $I' = 86$ (table 3). C', the climatic factor, appears in figures 11–22 for January through December. The factor is 102 percent for March and 64 percent for October. In this example we shall use median travel distance D_{50} for L'. D_{50} may be determined from this handbook in the following manner:

(1) Refer to data in table 1 (Appendix) for Midland, Tex. Find direction equal to 45° in March and 90° in October, thus indicating the prevailing wind erosion direction has an angle of

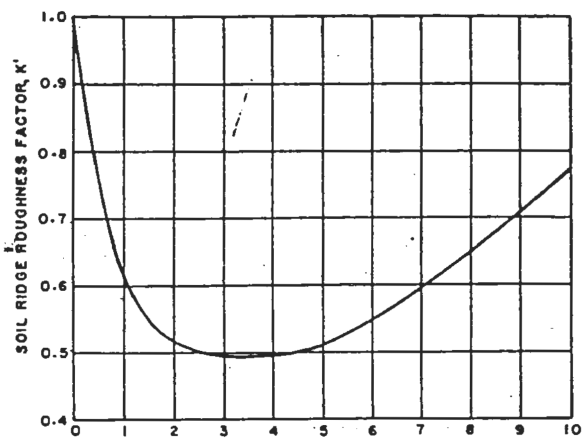


FIGURE 7.—Chart to determine soil ridge roughness factor K' from soil ridge roughness K_r.

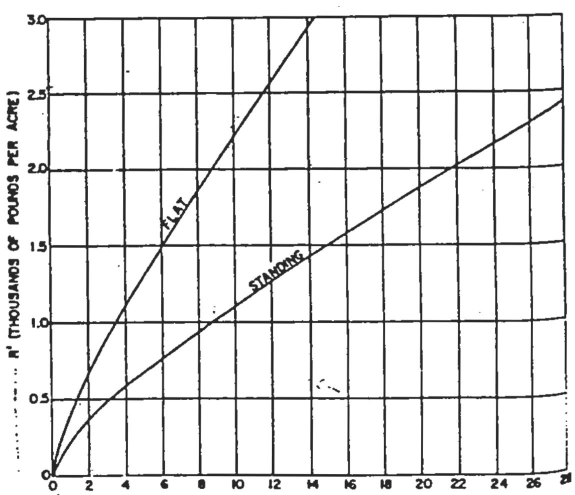


FIGURE 8.—Chart to determine V from R' or R' from V of standing and flat anchored small grain stubble with any row width up to 10 inches, including stover.

TABLE 3.—*Soil erodibility I for soils with different percentages of nonerodible fractions as determined by standard dry sieving* [1]

Dry soil fractions >0.84 mm. (percent) Units→ Tens ↓	0	1	2	3	4	5	6	7	8	9
	Tons per acre	*Tons per acre*	*Tons per acre*	*Tons per acre*	*Tons per acre*	*Tons per acre*	*Tons per acre*	*Tons per acre*	*Tons per acre*	*Tons per acre*
0	----	310	250	220	195	180	170	160	150	140
10	134	131	128	125	121	117	113	109	106	102
20	98	95	92	90	88	86	83	81	79	76
30	74	72	71	69	67	65	63	62	60	58
40	56	54	52	51	50	48	47	45	43	41
50	38	36	33	31	29	27	25	24	23	22
60	21	20	19	18	17	16	16	15	14	13
70	12	11	10	8	7	6	4	3	3	2
80	2	----	----	----	----	----	----	----	----	----

[1] For fully crusted soil surface, regardless of soil texture, erodibility I is, on the average, about one-sixth of that shown.

eviation A with reference to the north-south eld width of 45° in March and 0° in October. lso note from these data that preponderance or R_m equals 1.2 in March and 1.9 in October.

(2) To find D_{50} for March, use figures 2 and 3 determine k_{50}. For $A=45°$, find $k_{50}=1.90$ hen $R_m=1.0$ and 1.85 when $R_m=1.5$. Since ctual $R_m=1.2$, then by interpolation $k_{50}=1.88$ nd $D_{50}=k_{50}$ field width$=1.88\times1{,}320=2{,}480$.

(3) To find D_{50} for October, use figures 3 and 4 determine k_{50}. For $A=0°$, find $k_{50}=1.30$ when $R_m=1.5$ and 1.18 when $R_m=2.1$. Since actual $R_m=1.9$, then by interpolation $k_{50}=1.22$ and $D_{50}=1.22\times1{,}320=1{,}610$.

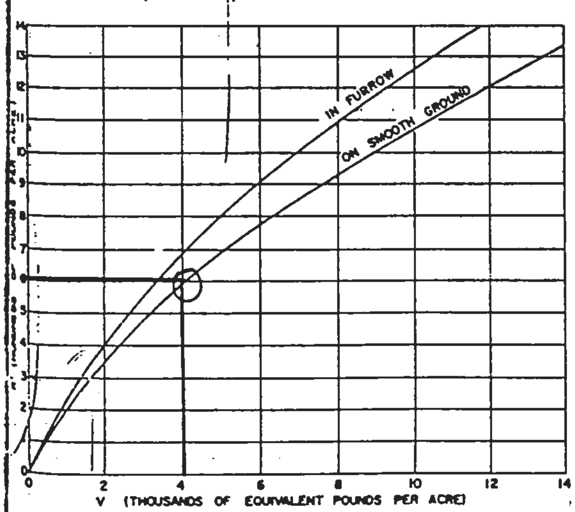


FIGURE 9.—Chart to determine V from R' or R' from V of live or dead small grain crops in seedling and stooling stage, above surface of ground, for crop in 3-inch-deep furrow as created by deep-furrow drill on smooth ground.

Values of $I'=86$, $K'=1.0$, $C'=102$ in March and 64 in October, $D_{50}=2{,}480$ in March and 1,610 in October, and $V=2{,}500$ may now be used in the wind erosion equation $E=f(I',K',C',L',V)$ to determine potential soil losses of 40 tons per acre in March and 21 tons per acre in October. The procedure for making these calculations is as follows:

(1) Determine $E_2=I'K'$. $E_2=86\times1.0=86$ tons per acre.

(2) Determine $E_3=I'K'C'$. $E_3=86\times1.0\times1.02=88$ tons per acre in March. $E_3=86\times1.0\times0.64=55$ tons per acre in October.

(3) Determine $E_4=I'K'C'f(L')$

(a) $L'=D_{50}=2{,}480$ feet in March and 1,610 feet in October.

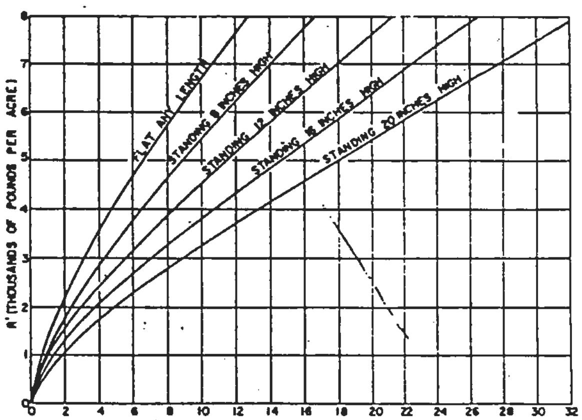


FIGURE 10.—Chart to determine V from R' or R' from V of standing and flat grain sorghum stubble of average stalk thickness, leafiness, and quantity of tops on ground.

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(b) Use figure 23 to obtain E_4. Cut out movable $E_3=I'K'C'$ scale. For March, place it along $E_2=I'K'$ ordinate so that 88 on movable scale coincides with 86 on ordinate. From movable scale move to right down along 86 interpolated between curved lines 80 and 90 to intersection of $L'=2{,}480$ feet, then move horizontally left to movable E_3 scale and read $E_4=I'K'C'f(L')=82$ tons per acre. For October, place movable scale E_2 ordinate so that 55 on movable scale coincides with 86 on ordinate. Again from movable scale move to right down along 86 interpolated between curved lines 80 and 90 to intersection of $L'=1{,}610$ feet, then move horizontally left to movable E_3 scale and read $E_4=50$ tons per acre.

(4) Determine $E_5=E=I'K'C'f(L')f(V)$

(a) V as determined from figure 8 for 800 pounds per acre of residue R' is 2,500 equivalent pounds per acre.

(b) Use figure 24 to determine $E_5=E$. For March, start with $E_4=82$ on abscissa of figure 24. Move vertically upward to intersection of $V=2{,}500$, then move horizontally left to ordinate E. $E=40$ tons per acre. For October, start with $E_4=50$ on abscissa of figure 24, move vertically to intersection of $V=2{,}500$ and horizontally to ordinate and read $E=21$ tons per acre.

Because these soil loss values are rather high, a farm operator might next logically ask "How much additional residue above the 800 pounds per acre would this field need to prevent soil losses from exceeding a tolerable 5 tons per acre?" That question can be answered by substituting 5 tons per acre for E in the equation and solving for V. If that is done using the field conditions for I', K', C', and L' indicated above, one finds that 1,800 pounds per acre of flattened wheat stubble would be required in March and 1,320 pounds per acre in October. Thus, 1,000 pounds per acre more residue than the existing 800 pounds would be required for adequate protection in March, but only an additional 520 pounds per acre would be needed in October.

Determination of Barrier Spacing

For an example of determining barrier spacing, assume we desire to establish windbreaks to reduce wind erosion of wheat and fallow fields near Goodland, Kans. Information from table 1 indicates that wind erosion forces are greatest in March and April when fields are susceptible to wind erosion. It is decided to design for conditions when wind erosion forces are greatest. Other pertinent information from table 1 indicates that the prevailing wind erosion direction is 112°, north-northwest, and preponderance or R_m is 2.5 and 2.1 for March and April, respectively. Since the field lies along grid lines and prevailing wind erosion direction is only 22° from north-south, it is decided to orient the barrier east-west.

It is decided to base the distance between barrier strips on the distance traveled by 50 percent of the wind in traversing the field strip, or the median travel distance. Based on properties of the barrier to be established and degree of protection desired, it is decided that the median travel distance should not exceed $30H$. H is barrier height. By using figure 4 and interpolating, it is found for $R_m=2.1$ and $A=22°$ that median travel distance is 1.5 (k_{50}) times the field width W. If we equate that distance (1.5 W) to $30H$ and solve for W, we obtain $20H$. Therefore, based on the design criteria and average wind conditions of the area, wind barriers should be spaced 20 times their height.

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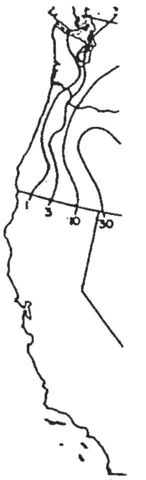

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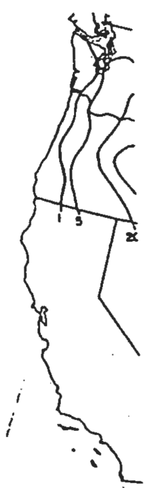

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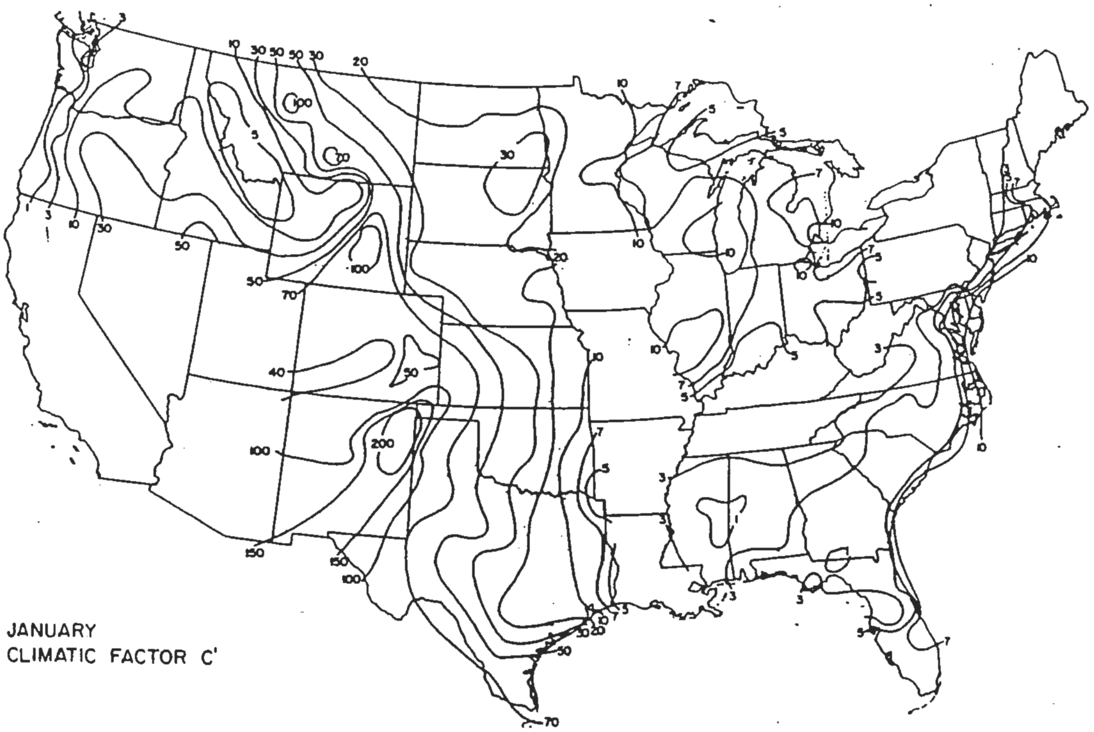

FIGURE 11.—Wind erosion climatic factor C' (percent) for January.

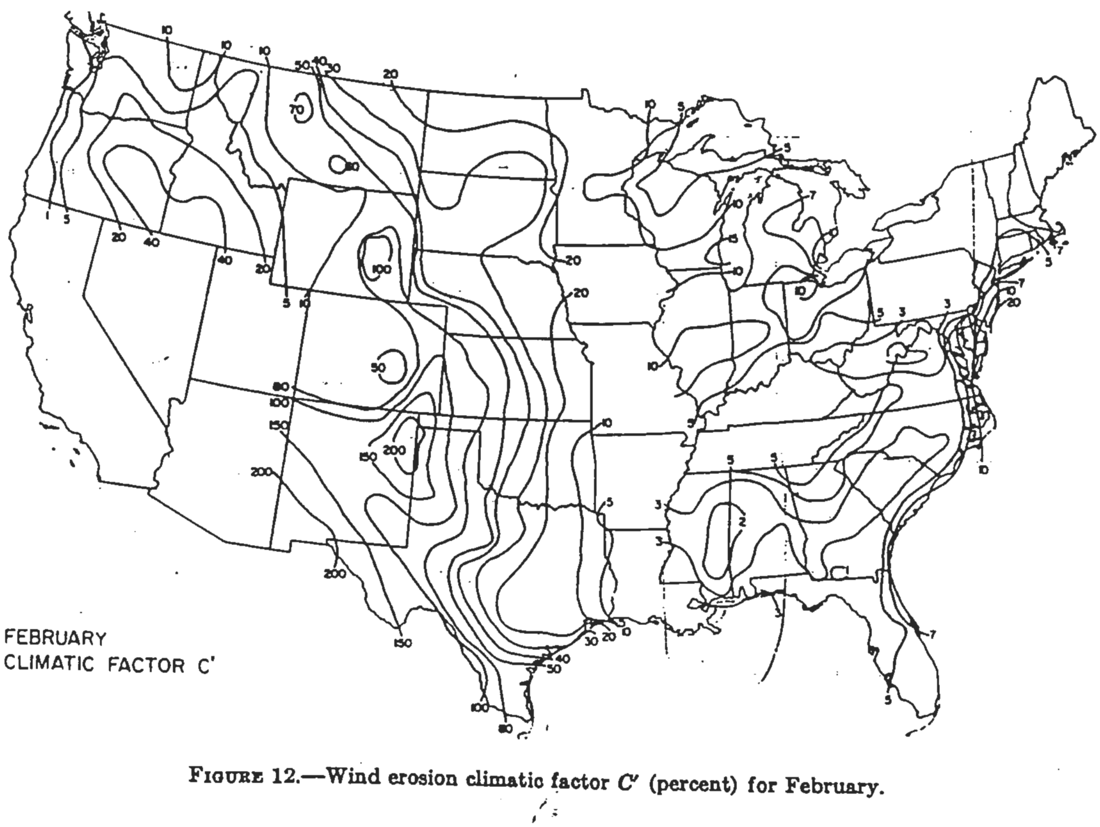

FIGURE 12.—Wind erosion climatic factor C' (percent) for February.

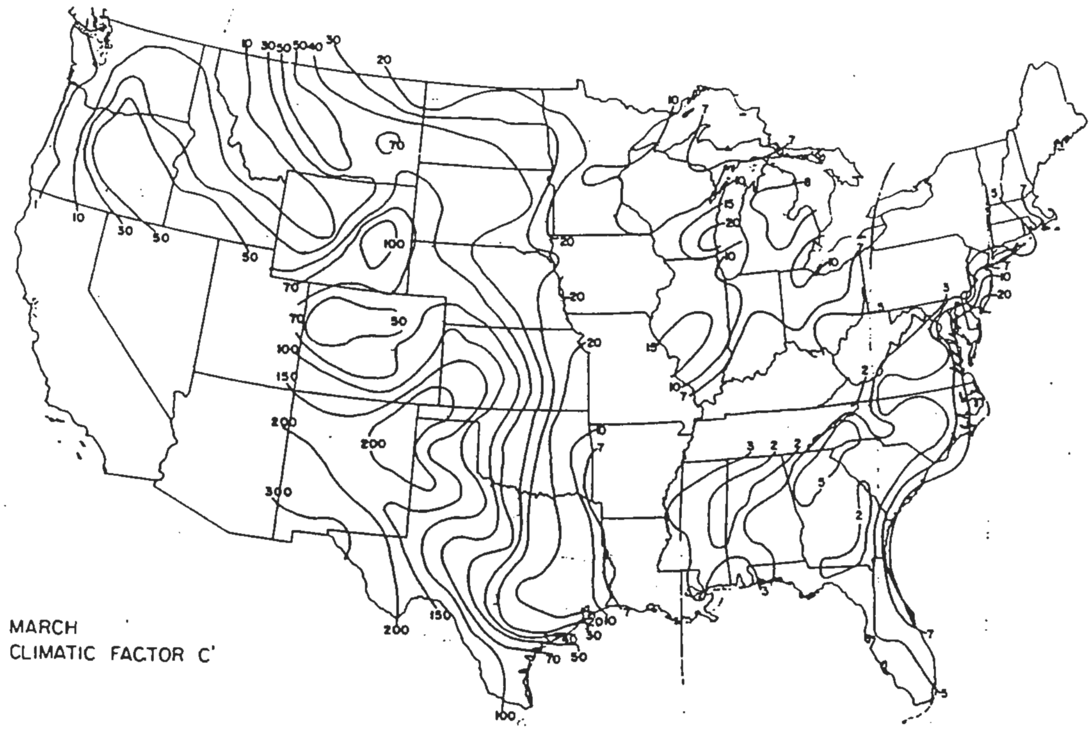

FIGURE 13.—Wind erosion climatic factor C' (percent) for March.

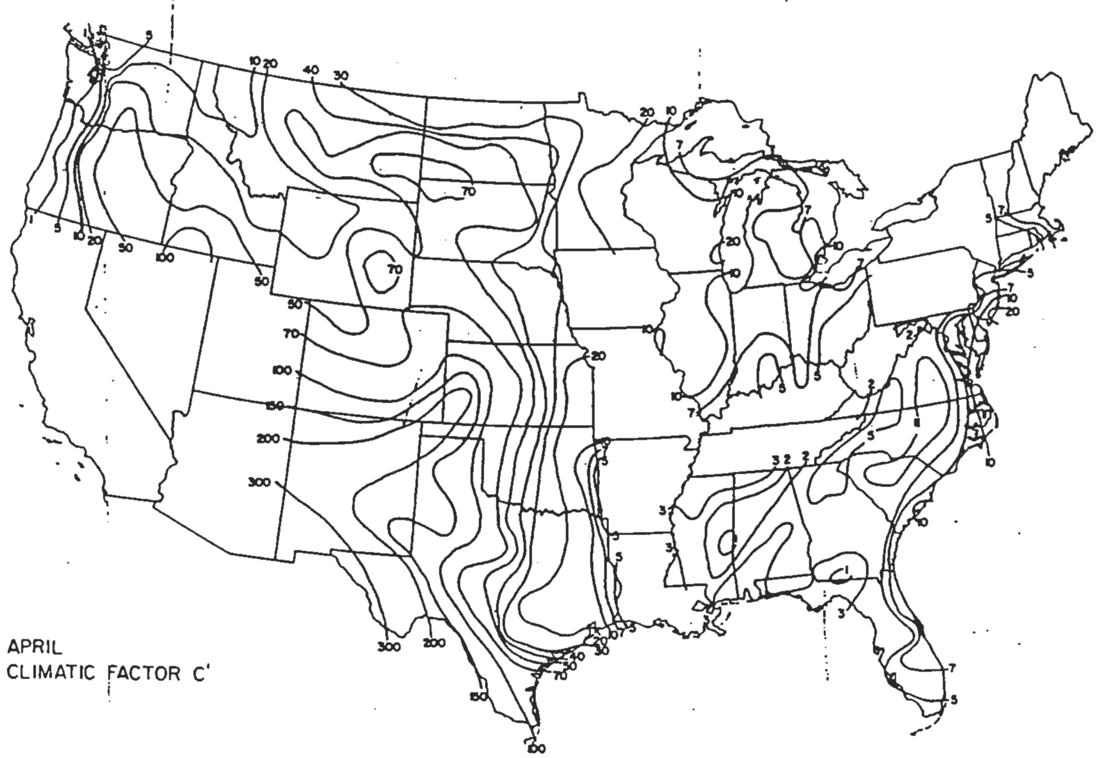

FIGURE 14.—Wind erosion climatic factor C' (percent) for April.

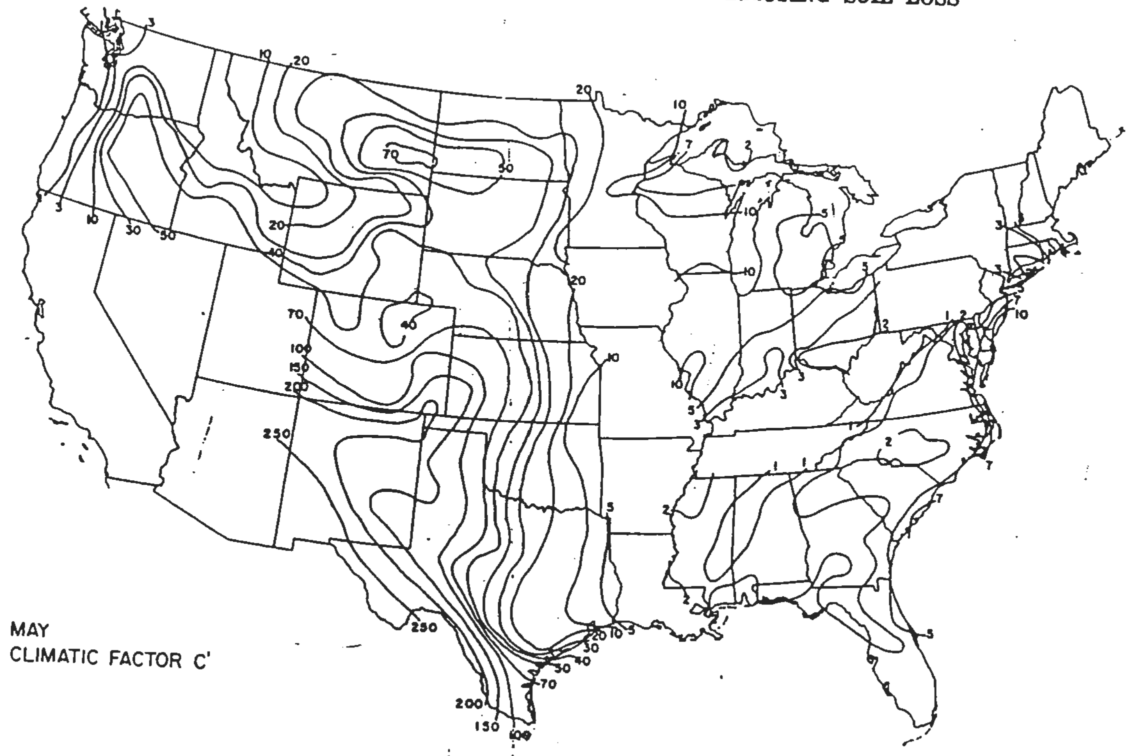

FIGURE 15.—Wind erosion climatic factor C' (percent) for May.

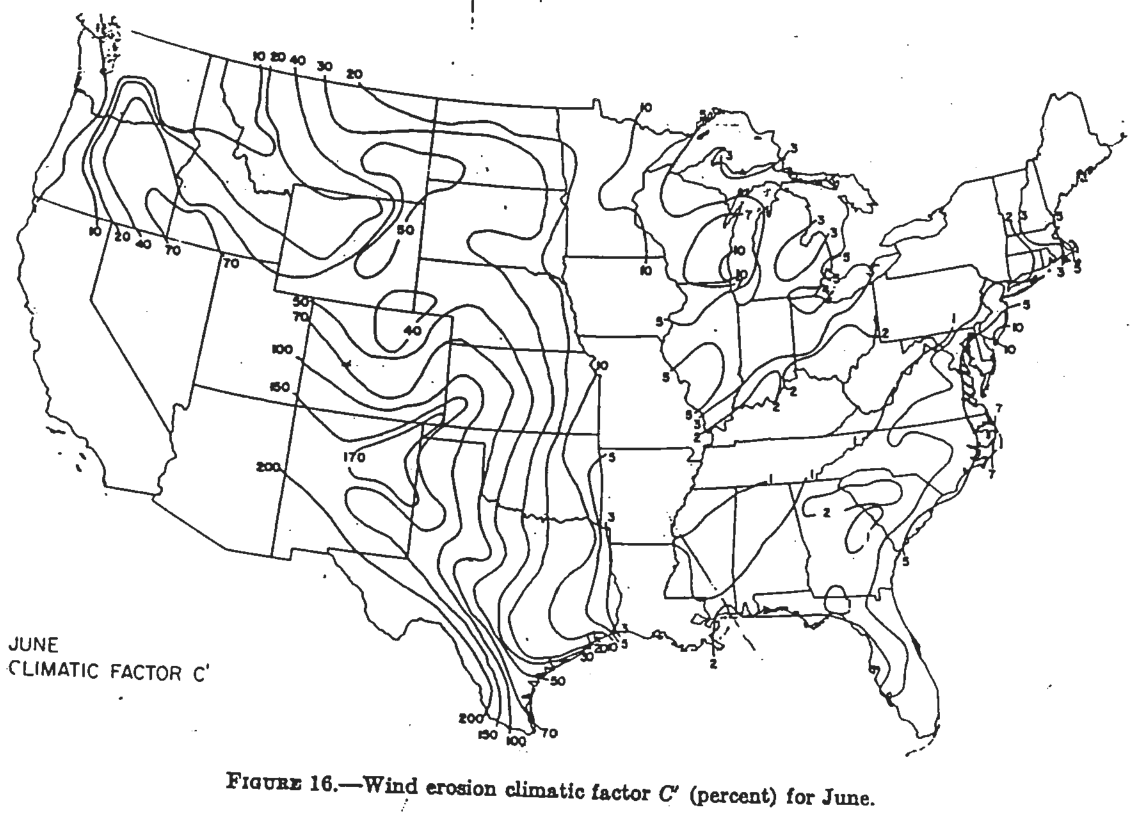

FIGURE 16.—Wind erosion climatic factor C' (percent) for June.

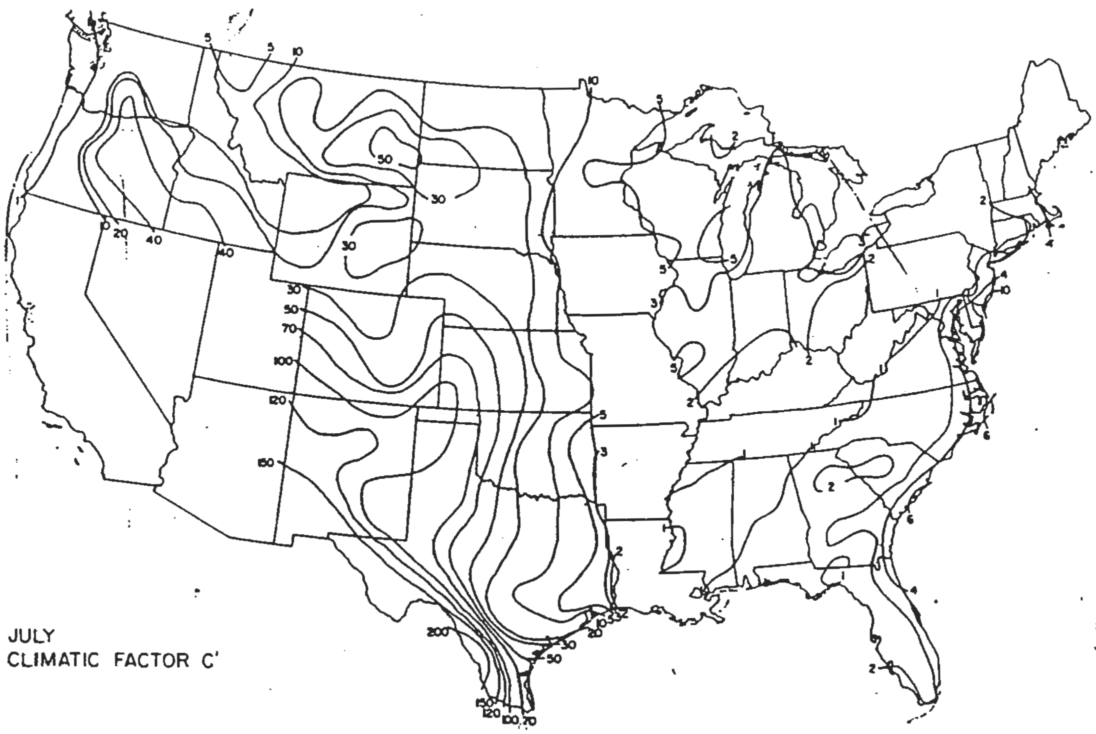

FIGURE 17.—Wind erosion climatic factor C' (percent) for July.

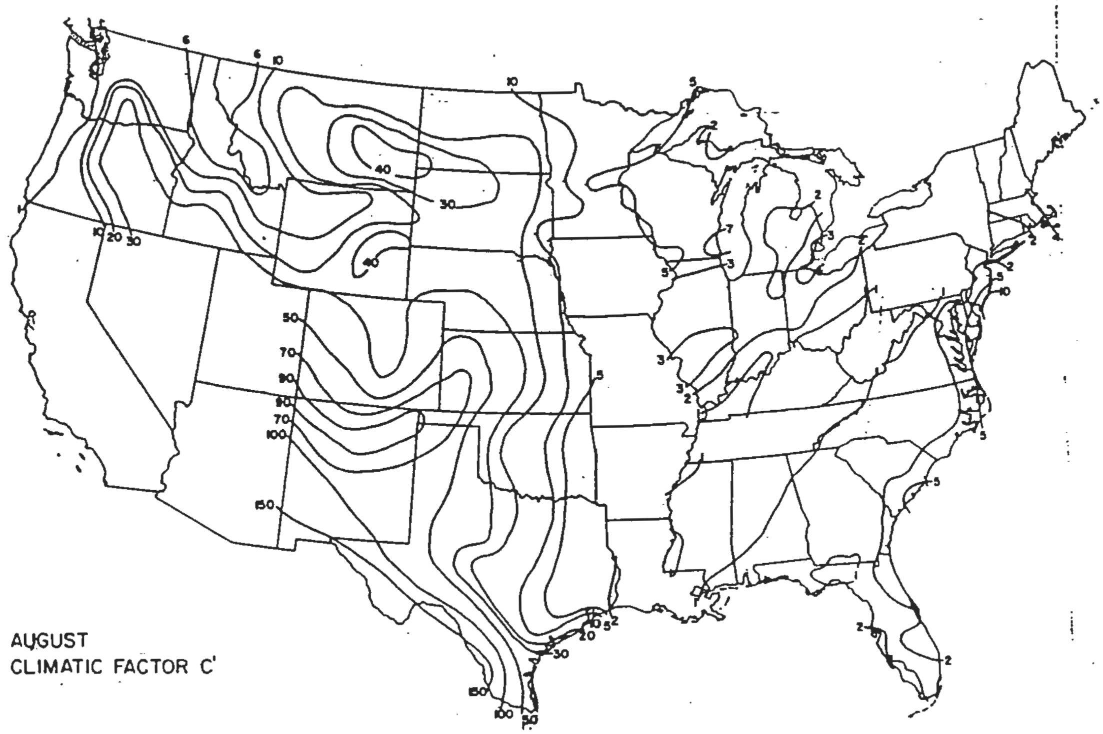

FIGURE 18.—Wind erosion climatic factor C' (percent) for August.

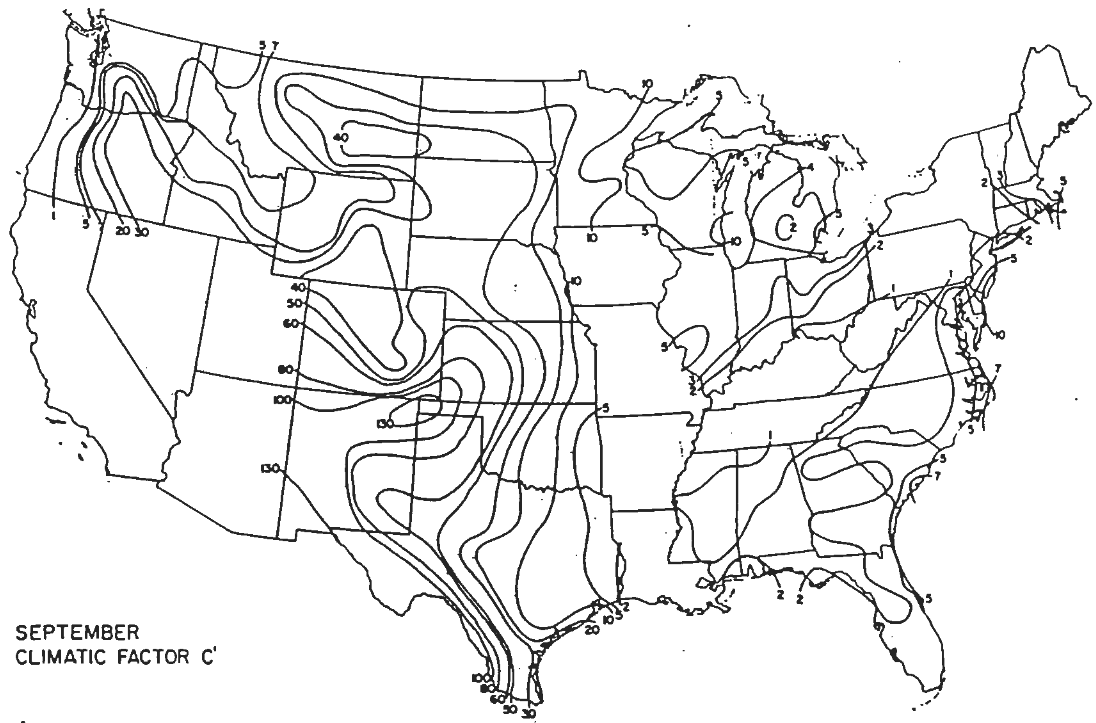

FIGURE 19.—Wind erosion climatic factor C' (percent) for September.

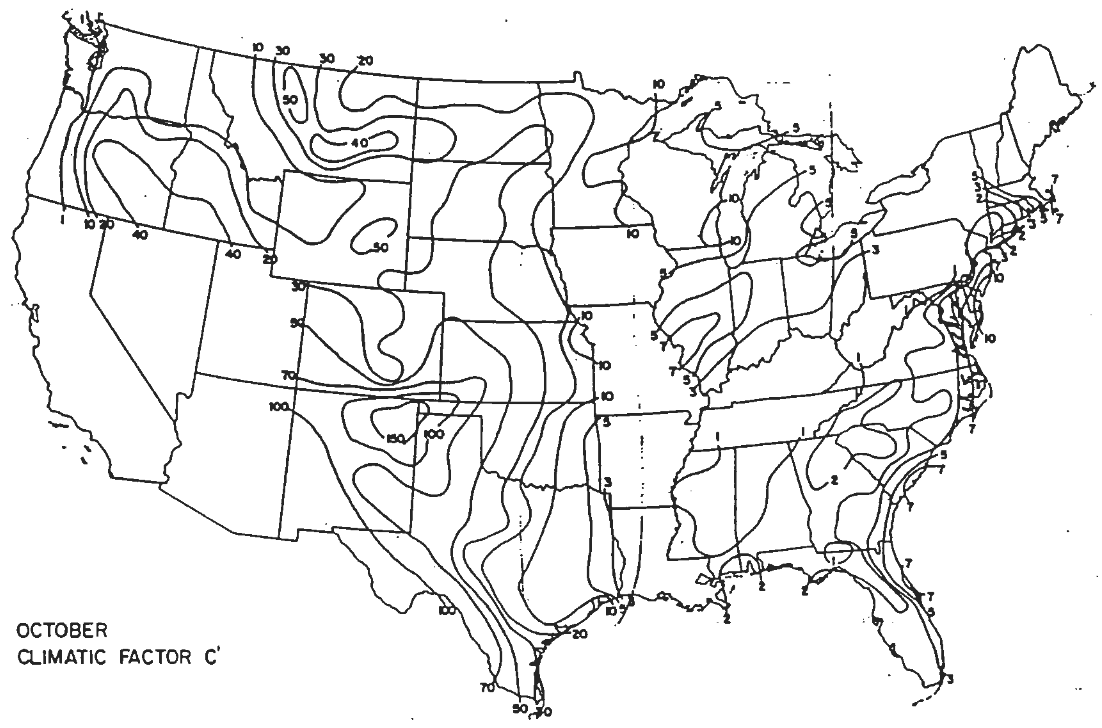

FIGURE 20.—Wind erosion climatic factor C' (percent) for October.

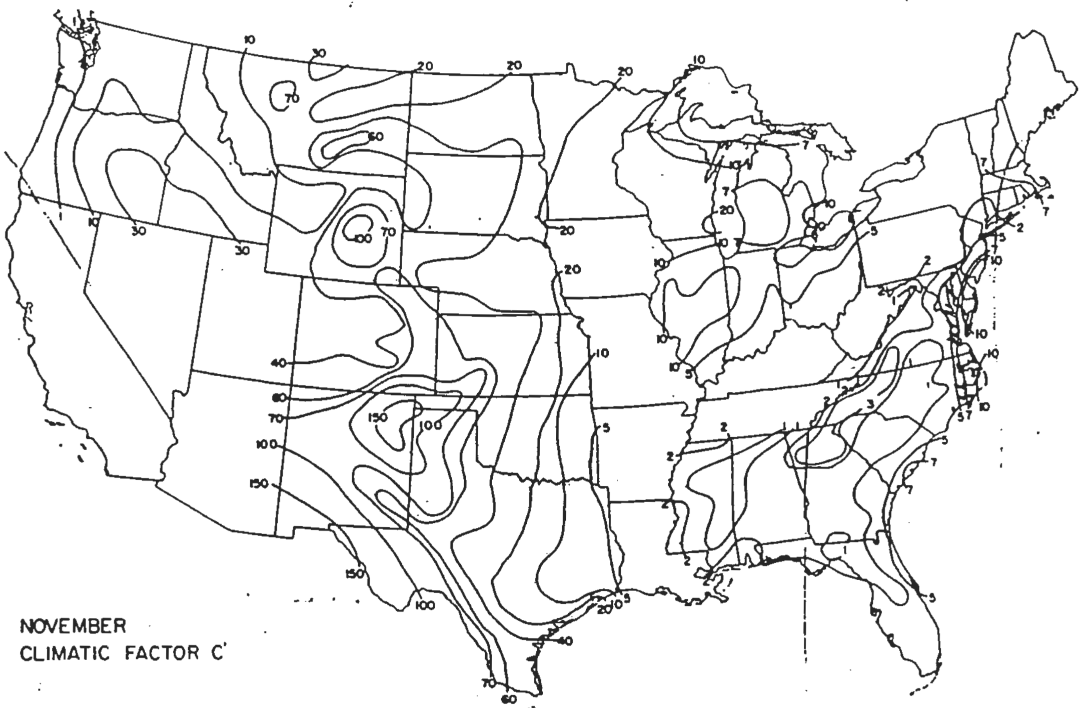

FIGURE 21.—Wind erosion climatic factor C' (percent) for November.

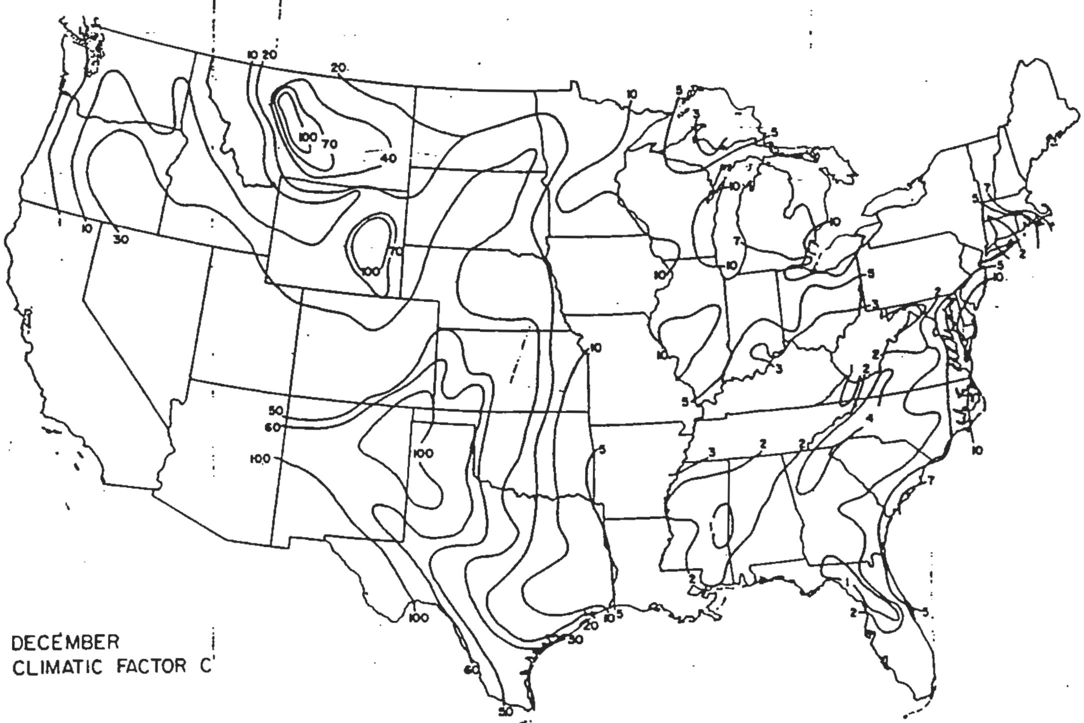

FIGURE 22.—Wind erosion climatic factor C' (percent) for December.

SOIL LOSS E_2= I'K' (TONS/ACRE/ANNUM)

FIGURE 23.-

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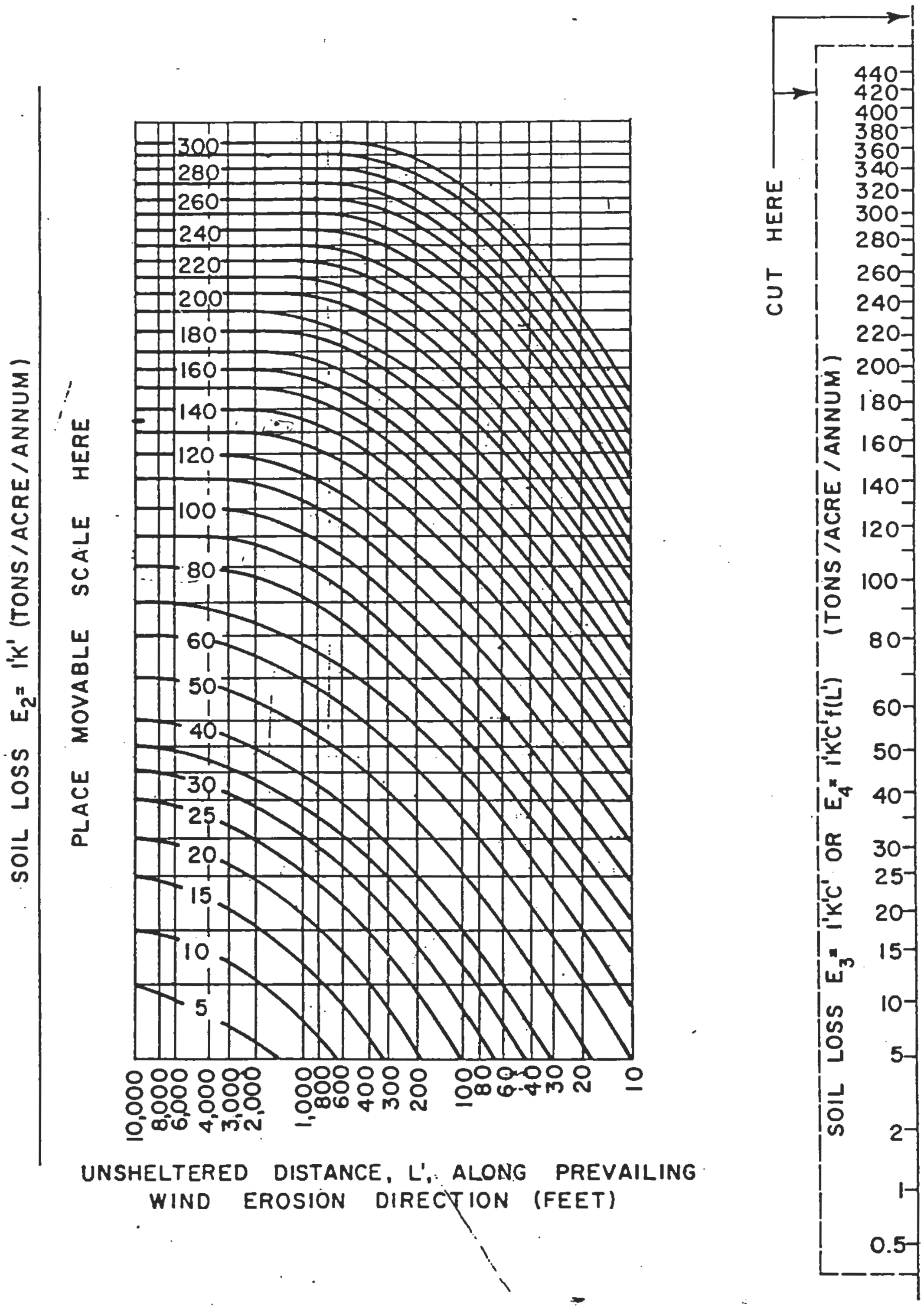

FIGURE 23.—Chart to determine soil loss $E_4=I'K'C'f(L')$ from soil loss $E_2=I'K'$ and $E_3=I'K'C'$ and from unsheltered distance L' across field.

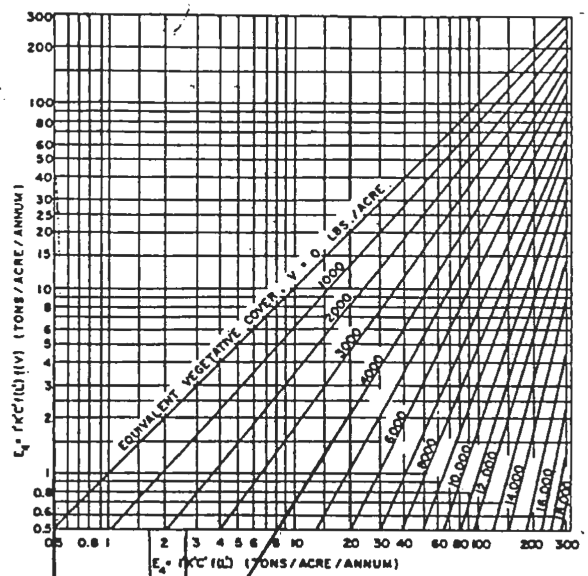

FIGURE 24.—Chart to determine soil loss $E=I'K'C'f(L')f(V)$ from soil loss $E_4=I'K'C'f(L')$ and from vegetative cover factor V. Chart can be used in reverse to determine V needed to reduce soil loss to any degree.

APPENDIX

TABLE 1.—*Relative magnitude, prevailing wind erosion direction,[1] and preponderance of wind erosion forces in prevailing wind erosion direction for 212 locations in 39 States by months*

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Anchorage, Alaska (Jan. 1956 – Dec. 1960)												
Magnitude	66	108	75	48	115	73	63	42	66	56	45	36
Direction	68	68	90	90	90	90	90	90	90	90	90	90
Preponderance	2.0	3.4	2.7	2.7	3.4	3.1	2.7	3.2	3.1	3.2	3.1	3.1
Fairbanks, Alaska (Jan. 1956 – Dec. 1960)												
Magnitude	3	12	28	30	68	34	40	24	31	25	9	2
Direction	45	45	45	45	45	23	23	23	23	23	45	45
Preponderance	2.6	2.9	2.5	1.3	1.9	2.1	2.2	2.4	2.0	2.5	1.3	3.3
Ajo, Ariz. (Jan.–Sept. 1942; Nov. 1942 – Dec. 1946)												
Magnitude	54	73	91	83	80	95	69	44	62	37	24	28
Direction	90	90	113	45	45	67	45	90	68	90	90	90
Preponderance	1.9	2.1	1.2	1.2	1.4	1.8	1.3	1.2	1.6	1.5	1.7	1.4
Douglas, Ariz. (Nov. 1942 – Nov. 1945)												
Magnitude	84	140	230	294	177	215	80	37	69	86	74	53
Direction	69	67	45	23	22	45	113	135	180	180	180	90
Preponderance	1.3	1.6	1.5	1.4	1.5	1.6	1.4	1.4	1.5	1.8	1.0	1.0

See footnote at end of table.

TABLE 1.—*Relative magnitude, prevailing wind erosion direction,*[1] *and preponderance of wind erosion forces in prevailing wind erosion direction for 212 locations in 39 States by months*—Continued

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
New York, N.Y. (Apr. 1945 – Aug. 1957)												
Magnitude	431	481	523	399	305	198	153	136	182	241	434	437
Direction	158	158	158	158	158	113	112	90	112	180	180	158
Preponderance	1.6	1.9	1.7	1.5	1.1	1.4	1.4	1.2	1.1	1.1	1.5	1.7
Niagara, N.Y. (June 1951 – July 1960; Nov.–Dec. 1961; Jan. 1962 – July and Oct. 1962)												
Magnitude	347	320	276	280	171	143	130	126	174	212	246	344
Direction	23	23	44	45	45	45	45	45	45	45	45	23
Preponderance	1.7	1.5	1.6	2.0	1.6	1.8	2.1	2.2	1.7	1.7	1.8	2.0
Plattsburgh, N.Y. (Jan. 1956 – Dec. 1962)												
Magnitude	104	153	137	122	126	90	66	63	72	94	109	94
Direction	157	135	135	135	135	135	135	135	113	135	113	113
Preponderance	1.3	1.3	1.6	1.6	2.0	1.8	1.6	2.1	1.8	2.1	1.3	1.5
Rome, N.Y. (July 1942 – Mar. 1955)												
Magnitude	177	230	231	177	131	79	56	41	70	85	140	178
Direction	158	157	157	157	157	135	157	157	157	135	157	158
Preponderance	2.7	3.1	2.6	2.5	2.5	2.1	1.7	2.1	1.9	1.7	2.2	2.5
Schenectady, N.Y. (Sept. 1950 – Feb. 1953; June 1953 – Aug. 1955)												
Magnitude	203	193	254	238	195	117	117	128	146	115	179	131
Direction	157	157	157	157	157	158	158	157	157	157	158	157
Preponderance	5.6	2.8	2.4	1.6	2.6	2.2	2.5	1.9	1.5	2.1	2.0	2.7
Westhampton Beach, N.Y. (Aug. 1943 – Nov. 1945; June 1951 – Jan. 1959)												
Magnitude	274	268	315	275	224	179	148	172	217	236	280	247
Direction	135	157	158	22	45	45	45	45	45	23	89	158
Preponderance	1.2	1.5	1.2	1.2	1.2	1.4	1.8	1.6	1.6	1.3	1.1	1.2
Cherry Point, N.C. (Mar. 1945 – Mar. 1959)												
Magnitude	199	219	274	281	169	132	108	125	155	143	129	140
Direction	67	67	67	67	67	67	67	67	67	67	67	68
Preponderance	1.7	1.7	2.0	2.6	2.9	2.5	2.8	2.2	2.5	2.3	2.0	1.7
Hatteras, N.C. (Jan. 1953 – May 1963)												
Magnitude	350	387	365	363	238	217	190	270	284	264	276	318
Direction	90	68	68	68	67	67	67	67	67	67	90	68
Preponderance	1.2	1.5	1.4	1.8	2.8	2.6	2.9	1.6	1.7	1.9	1.6	1.3

See footnote at end of table.

maintenance of roads, airports, pipelines, building foundations, and sewage disposal systems. Among the properties important to the engineer are permeability to water, shear strength, grain size, compaction characteristics, soil drainage, plasticity, and pH. Topography, depth to water table, and depth to and kind of bedrock are also important.

Information in this survey can be used to—

1. Make soil and land use studies that will aid in selecting and developing industrial, commercial, residential, and recreational sites.
2. Make preliminary estimates of the engineering properties of soils in the planning of agricultural drainage systems, farm ponds, irrigation systems, and diversion terraces.
3. Make preliminary evaluations of soil and ground conditions that will aid in selecting highway locations and in planning detailed investigations of the selected locations.
4. Locate probable sources of gravel and other construction material.
5. Correlate performance of engineering structures with soil mapping units, and thus develop information that is useful in designing and maintaining similar structures on like soils.
6. Determine the suitability of soil units for cross country movement of vehicles and construction equipment.
7. Supplement information obtained from other published maps and reports and aerial photograph

TABLE 4.—*Eng*

[Tests performed by the New York State Department of Transportation, Bureau of Soil Mechanics, in cooperation with the U.S. Depart

Soil name and location	Parent material	SCS report No. S65NY50	Depth	In-place moisture content	In-place dry density	Moisture-density relationship [1]: Optimum moisture content	Moisture-density relationship [1]: Maximum dry density	Percolation rate [2]
			In.	*Pct.*	*Lb. per cu. ft.*	*Pct.*	*Lb. per cu. ft.*	*Min. per in.*
Angola silt loam:								
Town of Lodi, 1,400 feet south of South Town Line Road and 500 feet east of Neeley Road. (More acid and coarser textured than modal profile.)	Acid, shaly glacial till, moderately deep over Genesee Shale.	13–1	0–9	25.6	87.6	26.0	94.5	------
		13–2	9–12	------	------	16.5	109.8	------
		13–3	12–20	20.2	102.3	16.6	110.0	>120
		13–4	20–22	------	------	13.4	116.8	------
		13–5	22–29	18.5	109.3	14.3	115.0	------
		------	29–36	(7)	------	------	------	------
Town of Romulus, 300 feet south of Yerkes Road and 2,260 feet east of State Route 414. (Coarser textured than modal profile.)	Semiresidual and moderately deep over fine-grained, calcareous, gray to dark-gray sandstone and shale of the Moscow Formation.	8–1	0–10	28.1	79.6	28.2	91.5	------
		8–2	10–15	22.8	97.2	19.5	105.0	>120
		8–3	15–24	------	------	15.5	114.5	------
		------	24–36	(7)	------	------	------	------
Town of Fayette, 100 feet west of Woodworth Road and 1,200 feet north of State Route 96A, southeast of Geneva. (Modal profile.)	Moderately deep over soft, gray, calcareous Skaneateles Shale bedrock.	4–1	0–10	26.7	85.3	22.7	95.0	------
		------	10–12	------	------	------	------	------
		4–3	12–18	------	------	17.7	107.0	------
		4–4	18–32	(6)	------	------	------	>120
		4–5	32–44	18.0	109.3	18.2	107.0	------
Appleton silt loam:								
Town of Ovid, 100 feet southeast of junction of County Road 131 and Combs Road.[8] (Modal profile.)	Calcareous glacial till, moderately high shale content.	10–1	0–7	27.3	88.5	28.2	91.5	------
		10–2	7–16	18.3	103.8	16.6	110.0	------
		10–3	16–28	12.3	118.0	11.2	123.5	29.7
		10–4	28–56	------	------	8.5	131.5	------
Town of Romulus, 20 feet east of Wells Hollow Road and 400 feet south of West Blaine Road.[8] (Finer textured than modal profile.)	Calcareous glacial till dominated by dark-gray shale and limestone.	9–1	0–12	37.6	74.6	34.2	81.0	------
		9–2	12–28	21.2	101.7	18.5	106.5	>120
		9–3	28–37	------	------	15.5	114.1	>120
		9–4	37–50	(7)	------	------	------	------
		9–5	50–60	10.5	122.6	11.3	123.6	------

See footnotes at end of table.

for the purpose of making maps and reports that can be used readily by engineers.

8. Develop other preliminary estimates for construction purposes pertinent to the particular area.

With the use of the soil map for identification, the engineering interpretations in this subsection can be useful for many purposes. It should be strongly emphasized, however, that the interpretations generally will not eliminate the need for subsurface investigation, subsequent testing, and engineering analysis at the site of the proposed engineering works. In most places the intensity of investigation needed is proportional to the weight of the loads to be applied, to the depth and amount of earthwork involved, and to the cost of the contemplated works. Engineers and others should not apply specific values to the estimates given for bearing capacity of soils. Nevertheless, this engineering subsection, with the soil map and the soil descriptions, is useful for planning more detailed field investigations and for suggesting the kinds of problems that may be expected.

Much of the information in this subsection is in tables 4, 5, and 6. Table 4 lists engineering test data that were obtained when selected soils in the county were tested. Table 5 lists the soils and gives an estimate of their engineering properties. In table 6 are interpretations of the engineering properties of the soils for highway location, embankments, and structures for controlling water and erosion.

Additional information about the soils in the county can be obtained by referring to other parts of this survey,

neering test data

ment of Commerce, Bureau of Public Roads, in accordance with standard procedures of the American Association of State Highway Officials (AASHO)]

Mechanical analysis [3]														Classification	
Percentage passing sieve—								Percentage smaller than—				Liquid limit	Plasticity index [4]	AASHO [5]	Unified [6]
3 in.	2 in.	1 in.	3/8 in.	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.				
												Pct.			
------	100.0	99.5	94.8	92.2	89.4	83.0	67.1	59.9	41.4	19.2	11.0	35.6	11.1	A-6(7)	ML-CL
------	100.0	97.9	92.3	90.4	88.6	85.2	72.5	64.5	45.0	26.0	16.8	29.2	12.5	A-6(8)	CL
93.9	89.7	82.4	74.2	69.9	66.0	61.1	49.8	44.3	31.5	19.1	13.8	29.5	12.5	A-6(4)	SC
------	100.0	90.1	85.0	81.5	78.7	71.8	49.1	42.0	26.6	16.3	13.8	29.5	10.7	A-6(3)	SC
------	100.0	98.6	93.5	89.9	84.5	76.0	60.9	55.0	40.1	26.8	20.2	28.4	11.3	A-6(6)	CL
------	100.0	100.0	98.2	95.5	92.0	86.7	71.8	66.0	52.2	26.9	16.1	37.8	10.4	A-4(7)	ML
------	100.0	99.9	99.6	98.4	96.9	94.3	83.2	75.0	56.1	36.4	25.0	29.8	11.7	A-6(9)	CL
------	------	96.4	95.0	93.1	91.0	86.1	68.0	59.5	40.6	26.9	20.5	26.0	11.0	A-6(7)	CL
------	100.0	96.7	95.9	94.8	93.0	89.4	79.1	71.8	53.8	35.1	23.1	42.8	14.6	A-7-6(11)	ML, OL
------	------	100.0	93.4	82.6	72.9	66.4	62.9	59.6	51.9	37.6	25.3	47.0	20.2	A-7-6(10)	ML, CL
------	100.0	85.8	40.2	29.1	23.9	21.5	20.9	19.5	15.7	9.9	6.3	32.3	10.8	A-2-6(0)	GC
------	100.0	99.9	98.6	97.1	94.4	89.2	69.2	60.4	39.9	16.9	10.5	37.1	12.1	A-6(8)	ML-CL
------	100.0	99.7	98.6	96.2	91.9	86.1	69.3	60.9	42.4	30.0	21.3	26.8	9.9	A-4(7)	CL
------	100.0	98.4	87.1	81.7	77.2	69.2	55.5	51.0	39.7	21.9	15.2	24.4	8.4	A-4(4)	CL
100.0	87.5	80.1	64.8	56.3	47.2	36.1	26.0	22.9	15.8	7.5	5.8	20.0	6.4	A-2-4(0)	GM-GC
------	100.0	98.9	97.1	95.4	93.9	89.6	75.4	[10]	------	------	------	52.2	13.7	A-7-5(12)	MH
100.0	97.0	91.1	85.7	81.9	78.0	73.8	61.3	56.2	43.6	29.9	20.8	35.7	16.8	A-6(8)	CL
100.0	98.1	97.2	94.5	91.2	87.3	82.8	69.6	63.0	47.6	32.2	23.0	26.9	10.3	A-4(7)	CL
95.6	89.6	87.2	79.1	72.8	67.9	61.7	51.4	47.0	35.6	20.9	13.7	25.0	10.4	A-4(3)	CL
96.5	91.5	84.3	76.2	71.8	66.1	58.8	47.5	42.8	31.7	17.5	12.3	21.4	8.7	A-4(3)	GC

TABLE 1.—*Estimated average acre yields of th*

[Yields in columns A are those to be expected under average management; those in column
suited to the soil or is not commonly grown on it, or that n

Soil	Corn for silage		Corn for grain		Oats		Wheat	
	A	B	A	B	A	B	A	B
	Bu.	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*
Alden mucky silt loam		20		100				
Alden mucky silt loam, till substratum		16		80				
Alluvial land								
Angola silt loam, 0 to 3 percent slopes	8	18	40	90	40	70	25	40
Angola silt loam, 3 to 8 percent slopes	10	18	50	90	40	70	30	40
Appleton gravelly silt loam, 0 to 3 percent slopes	10	17	50	85	40	90	25	50
Appleton gravelly silt loam, 3 to 8 percent slopes	12	17	60	85	50	90	30	50
Appleton silt loam, 0 to 3 percent slopes	10	20	50	100	40	90	25	50
Appleton silt loam, 3 to 8 percent slopes	12	20	60	100	50	90	30	50
Arkport loamy fine sand, 1 to 6 percent slopes	10	16	50	80	35	60	25	40
Arkport loamy fine sand, 6 to 12 percent slopes	8	14	40	70	30	50	25	40
Arkport loamy fine sand, 12 to 20 percent slopes								
Arnot channery silt loam, 15 to 25 percent slopes					40	50		
Aurora silt loam, 3 to 8 percent slopes	8	16	40	80	45	70	30	40
Aurora silt loam, 8 to 15 percent slopes	8	14	40	70	40	60	25	30
Aurora silt loam, 15 to 25 percent slopes								
Aurora and Farmington soils, 25 to 75 percent slopes								
Canandaigua silt loam		20		100				
Cazenovia silt loam, 3 to 8 percent slopes	12	20	60	100	55	80	40	60
Cazenovia silt loam, 3 to 8 percent slopes, eroded	8	18	40	90	40	60	30	35
Cazenovia silt loam, 8 to 15 percent slopes	10	15	50	75	50	70	35	50
Cazenovia silt loam, 8 to 15 percent slopes, eroded	7	10	35	50	30	40	25	30
Cazenovia soils, 15 to 25 percent slopes								
Cazenovia soils, 25 to 40 percent slopes								
Claverack loamy fine sand, 0 to 2 percent slopes	12	18	60	90	45	70	35	45
Claverack loamy fine sand, 2 to 6 percent slopes	12	18	60	90	45	70	40	45
Collamer silt loam, 0 to 2 percent slopes	12	22	60	110	45	80	35	60
Collamer silt loam, 2 to 6 percent slopes	16	22	80	110	55	80	40	60
Collamer silt loam, 6 to 12 percent slopes	12	20	60	100	40	70	35	50
Collamer silt loam, moderately shallow variant, 0 to 2 percent slopes	10	20	50	100	40	70	35	50
Collamer silt loam, moderately shallow variant, 2 to 6 percent slopes	10	18	50	90	50	80	40	55
Conesus gravelly silt loam, 0 to 3 percent slopes	10	18	60	90	50	90	35	50
Conesus gravelly silt loam, 3 to 8 percent slopes	12	18	60	90	60	90	35	50
Cosad loamy fine sand	8	18	40	90	40	70		50
Darien silt loam, 0 to 3 percent slopes	10	18	50	90	50	90	35	55
Darien-Danley-Cazenovia silt loams, 3 to 8 percent slopes	12	18	60	90	55	80	40	55
Dunkirk silt loam, 1 to 6 percent slopes	12	20	60	100	60	80	45	60
Dunkirk silt loam, 6 to 12 percent slopes, eroded	8	16	40	80	30	50	30	40
Dunkirk silt loam, 12 to 20 percent slopes					30	50	25	30
Dunkirk silt loam, limestone substratum, 1 to 6 percent slopes	10	17	50	85	50	90	40	60
Edwards muck	8	20		100				
Eel silt loam	10	18	50	90	40	70		
Elnora loamy fine sand, 0 to 2 percent slopes	10	18	50	90	40	80		40
Elnora loamy fine sand, 2 to 6 percent slopes	10	18	50	90	50	80		45
Erie channery silt loam, 0 to 3 percent slopes		16		80				
Erie channery silt loam, 3 to 8 percent slopes	10	16	50	80	50	70	25	30
Erie channery silt loam, moderately shallow variant, 0 to 3 percent slopes		16		80				
Erie channery silt loam, moderately shallow variant, 3 to 8 percent slopes	10	16	50	80	45	55		
Fonda mucky silty clay loam		16		80				
Fresh water marsh								
Honeoye silt loam, 2 to 8 percent slopes	15	22	75	110	70	100	50	60
Honeoye silt loam, 8 to 15 percent slopes	12	16	60	80	60	90	40	50

ncipal crops under two levels of management

under improved management. Absence of an entry in a column indicates that crop is not
formation is available on which to base an estimate]

Dry beans		Sugar beets		Forage mixtures (hay): Alfalfa-grass		Forage mixtures (hay): Alfalfa-birdsfoot trefoil-grass		Forage mixtures (hay): Birdsfoot trefoil-grass		Fruit: Grapes		Fruit: Peaches	
A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bu.	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Bu.*	*Bu.*
--	40	--	22	--	--	--	--	1.5	2.5	--	--	--	--
--	35	--	18	--	--	--	--	1.5	2.5	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
15	30	10	15	2.5	3.5	2.5	3.5	2.0	3.0	--	--	--	280
20	30	10	15	2.5	3.5	2.5	3.5	2.0	3.0	--	--	--	--
15	30	--	--	--	4.5	2.0	3.5	2.0	3.0	--	--	--	--
20	30	--	--	--	4.5	2.5	3.5	2.0	3.0	--	--	--	--
15	35	--	22	--	5.0	2.0	4.0	2.0	3.0	--	--	--	--
20	35	10	20	--	5.0	2.5	4.0	2.0	3.0	--	--	--	--
15	25	10	15	2.5	3.5	2.0	3.0	1.5	2.0	--	--	--	--
15	20	--	--	2.5	3.5	2.0	3.0	1.5	2.0	--	--	--	--
--	--	--	--	2.0	3.0	1.5	2.5	1.0	1.5	--	--	--	--
--	--	--	--	2.5	3.0	2.0	2.5	1.5	2.0	--	--	--	--
15	25	10	10	3.0	4.0	2.5	3.0	2.0	2.5	--	--	--	--
--	--	--	--	3.0	4.0	2.5	3.0	2.0	2.5	--	--	--	--
--	--	--	--	--	--	2.0	2.5	1.5	2.0	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	40	--	22	--	--	--	--	.5	--	--	--	--	--
25	30	15	20	3.0	5.0	2.5	4.0	3.0	--	4.0	6.5	200	300
15	20	10	10	2.5	4.0	2.0	3.5	1.5	3.0	--	--	--	--
20	30	--	--	3.0	4.5	2.5	4.0	2.0	3.0	4.0	6.5	200	300
15	15	--	--	2.5	4.0	2.0	3.5	1.5	3.0	--	--	--	--
--	--	--	--	2.5	4.0	2.0	3.5	1.5	2.5	--	--	--	--
--	--	--	--	--	--	--	--	1.0	2.0	--	--	--	--
20	30	10	15	2.0	3.0	2.0	3.0	1.5	2.5	--	--	--	--
25	30	10	15	3.0	3.5	2.5	3.0	1.5	2.5	--	--	--	--
20	35	10	20	2.5	3.5	2.5	4.0	2.0	--	--	--	--	--
30	35	15	20	3.0	4.0	3.0	4.0	2.0	--	--	--	--	--
20	30	--	--	3.0	4.0	3.0	4.0	2.0	3.0	--	--	--	--
15	30	10	20	3.0	4.0	3.0	4.0	2.0	3.0	--	--	--	--
20	35	10	20	3.0	5.0	3.0	4.0	2.0	3.0	4.0	9.0	150	200
20	35	--	--	2.0	3.5	2.5	3.5	2.0	3.0	4.0	8.0	150	225
30	35	--	--	2.5	3.5	2.5	3.5	2.0	3.0	4.0	8.0	150	225
--	30	--	15	--	4.0	--	3.5	2.0	3.0	--	--	--	--
20	35	10	20	2.5	4.0	3.0	4.0	2.0	--	4.0	8.0	150	200
30	35	15	20	3.0	4.0	3.0	4.0	2.0	3.0	4.0	8.0	150	200
30	35	20	20	3.0	5.0	2.5	4.0	2.0	--	5.0	10.0	175	225
--	--	--	--	3.0	4.0	2.5	3.5	2.0	3.0	--	--	--	--
--	--	--	--	3.0	4.0	2.5	3.0	2.0	3.0	--	--	--	--
25	30	10	15	2.5	5.0	2.5	4.0	2.0	--	4.0	9.0	150	200
20	30	15	25	--	--	--	--	--	3.0	--	--	--	--
20	30	10	20	2.0	3.5	2.5	3.5	2.0	2.5	--	--	--	--
20	30	10	15	2.0	4.0	2.0	3.0	1.5	2.0	--	--	--	--
25	30	10	15	2.0	4.0	2.0	3.0	1.5	2.0	--	--	--	--
--	--	--	--	--	--	2.0	3.0	2.0	3.0	--	--	--	--
--	--	--	--	--	--	2.5	3.0	2.0	3.0	--	--	--	--
--	--	--	--	--	--	2.0	2.5	2.0	3.0	--		--	--
--	--	--	--	--	--	3.0	3.5	2.5	3.0	--		--	--
--	30	--	20	--	--	--	3.5	2.0	3.0	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
30	40	15	20	3.5	5.0	3.0	4.0	--	--	4.5	10.0	200	300
--	--	--	--	3.5	5.0	3.0	4.0	--	--	4.0	10.0	200	300

APPENDIX P

RESPONSE TO COMMENTS

COMMENTS - NYSDEC - DRAFT-FINAL - ASH RI

Comment #1 4.5 Surface Water; Table 4-8: It is stated that the hardness dependent values of Ambient Water Quality Standard (AWQS) are based on a calculated hardness of 300 mg/ℓ. Please provide the source data and calculations.

It should be noted that only hardness values from the upstream locations of Kendaia Creek should be used for calculation of hardness dependent values of AWQS.

Response #1 Agreed. The source data and the calculations for determining the hardness of the surface water in Kendaia Creek have been included in the text (page 4-156). Based on the note in the comment, the hardness was recalculated using only data from upstream locations in Reeder Creek; there is only one (SW-801). Therefore, the recalculated hardness value is 232.5 mg/l. The new AWQS for Class "C" and "D" stream classifications have been included in Table 4-8. However, when the new AWQS are compared to the site data, there are no changes to the number of samples above the Class "C" and "D" standards (Table 4-8).

Comment #2 5.3 Contaminant Transport and 7.1.2 Fate and Transport: The RI report states that "...TCE will never reach the off-site farmhouse wells since it degrades and disperses before it reaches that point." We disagree with this statement for the following reasons:

A. The assumption that the TCE concentration at PT-18 and 1,2-DCE at PT-12 are source concentration (Co) for modelling purposes is incorrect because:

i) The monitoring well MW-44 is at the known source of contamination area and exhibits the highest concentration of TCE and 1,2-DCE. RI groundwater sampling results from this well for TCE and 1,2-DCE are 44,000 μg/ℓ and 101,500 μg/ℓ, respectively. In comparison, monitoring well PT-18 is side gradient of the plume and exhibits a much lower concentration than MW-44 (TCE-10,000 μg/ℓ and 1,2-DCE-400 μg/ℓ). Monitoring well PT-12, which is used as source for 1,2-DCE, historically does not show consistent values. Two rounds of RI sampling results are 200 μg/ℓ and 1,400 μg/ℓ which are not consistent and no where close to the 1,2-DCE concentration found in MW-44 (101,500 μg/ℓ).

ii) Non-availability of historical data from MW-44 does not justify not using this well as source concentration (Co).

iii) Another reason for selection of PT-18 and PT-12 as source concentration (Co) that PT-18, PT-12, PT-22, MW-29 and MW-56 are essentially along the center line of the groundwater plume is incorrect. The plume originates from MW-44, based on soil and groundwater results, and because of the possible heterogeneity of the till/weathered shale aquifer, the center line of the plume may not be in a straight line.

B. The hydraulic influence of the farmhouse wells has not been considered.

Response #2

Acknowledged, NYSDEC's comments regarding the source concentration term (C_o) and the model assumptions are reasonable. However, the modeling scenario as performed is believed to produce results that are generally representative of contaminant fate and transport conditions at the site, given that this analytical model allows for a rapid preliminary analysis of groundwater contamination at the site. The NYSDEC comments concerning the choice of the source concentration terms (C_o) for both TCE and 1,2-DCE have merit in that they represent a second modelling scenario, but they do not necessarily invalidate the modeling results using PT-18 and PT-12 as source concentration terms (C_o)s for TCE and 1,2-DCE.

It is clear from the soil and groundwater analytical data that there are likely to be two source areas for volatile organics at the Ash Landfill site (one in the area of PT-18 and one in the area of MW-44), although both have different source concentrations. The source concentration at PT-18 is less than the concentration at MW-44. However, the modeling scenario using PT-18 as a source (considering established groundwater flow directions on-site) is valid in that it represents an analysis of groundwater contaminant transport originating at or near PT-18. Given the established groundwater flow directions on-site and the current array of monitoring wells available for the model, this scenario is believed to best represent flow along the centerline of the plume originating at PT-18.

As the NYSDEC comment points out, MW-44 is also source area and has a higher initial concentration of both TCE and 1,2-DCE than PT-18. Modeling MW-44 as a source area would yield a scenario where the centerline of the plume may not be a straight line (i.e., the well array MW-44, PT-12, PT-22, MW-29, MW-56 and the farmhouse). To evaluate this scenario, the model was run using the same set of parameters and assumptions as was used for the initial scenario, except the concentrations of TCE and 1,2-DCE at MW-44 were used as source concentration terms (C_o)s. For this scenario, new distances for the wells in the model array were calculated and resulted in an increase in the distances between the source concentration at MW-44 and the downgradient wells.

For TCE, the model results indicated that the steady-state concentrations in the downgradient wells are similar to the actual concentrations; they are slightly less. The computed and actual (computed/actual) TCE concentrations are, respectively, 478.2/575 $\mu g/\ell$ in PT-12, 36.9/89 $\mu g/\ell$ in PT-22, 0.075/2 $\mu g/\ell$ in MW-29, $1.07 \times 10^3/<0.5 \mu g/\ell$ in MW-56, and $0.0/<0.5 \mu g/\ell$ at the farmhouse.

For 1,2-DCE, the model results are also generally similar, however, 1,2-DCE concentrations predicted by the model are higher in wells closer to the source area (PT-12 and PT-22) and are lower in farther downgradient wells (PT-29, MW-56 and the farmhouse), with the shift occurring between wells PT-22 and MW-29. The computed and actual (computed/actual) 1,2-DCE concentrations are, respectively, 2,267.5/1,400 $\mu g/\ell$ in PT-12 264.3/150.0 $\mu g/\ell$ in PT-22, 1.46/97.0 $\mu g/\ell$ in MW-29, 0.041/0.2 $\mu g/\ell$ in MW-56, and 1.0 x 10^{-8}/>0.5 $\mu g/\ell$ at the farmhouse.

While there are several contaminant transport scenarios that can be modeled for the site, and considering that certain assumptions are necessary for the model, the results indicate that it is unlikely that the TCE and 1,2-DCE plume would reach the farmhouse. However, as the intent of NYSDEC's comment is to object to the statements in the RI claiming that "the plume will never reach the off-site farmhouse", it may be appropriate to rephrase these statements to reflect the nature of the comment: the nature of the comment is believed to question the complexity of the model and the certainty of the conclusions that can be drawn from such a model. Thus, the text has been modified to include the MW-44 modeling scenario and to suggest that the TCE and 1,2-DCE plume may have reached a steady state condition. In Section 5.3 the changes occur on pages 5-26, 5-28, 5-34, and 5-35; also two tables, Table 5-9 and 5-10, have been added to Section 5.3.

Although the analytical model did not consider the hydraulic influence from the farmhouse wells, these wells are not believed to significantly impact contaminant fate and transport due to the limited, periodic pumping of water from these wells. In addition, they are a great distance from the plume (over 1,200 feet).

COMMENTS - USEPA - ASH RI

3.1 OUTSTANDING ISSUES

Section 4.0 - Nature and Extent of Contamination

Comment #47, Appendix J in the PSCR

NYS Class GA groundwater standards and TAGM values are provided in the Section 4 tables, but no reference to the values is provided on the tables. No federal MCLs are evident on the tables. Tables listing CRQLs have been included in Appendix J, which also include method detection limits.

Response on Section 4.0 - Nature and Extent of Contamination and comment #47, Appendix J in PSCR:

Acknowledged. NYS Class GA groundwater standards and TAGM values are provided in the Section 4.0 tables. Some of the tables (Table 4-3, Table 4-5 and Table 4-9) do reference the values, although not necessarily on the last page of the table. However, Table 4-9 does not provide a reference to the values. To respond to this comment, and to improve the consistency in referencing these values on the tables, the information provided in the "Notes" has been moved to the last page of each table. Also, "Notes" have been added to the last page of Table 4-9.

Federal MCLs have been added to Table 4-5, Summary of Compounds Detected - Groundwater. Also, the notes have been updated with a reference for the MCL values.

The comment regarding the tables listing CRQLs in Appendix J (and also method detection limits) is acknowledged as this was added based on the previous response to comments.

In response to this comment, the table inserts include: 1) The last page of Table 4-3; 2) all of Table 4-5; 3) all of Table 4-8 (1 page); and the last page of Table 4-9.

ECOLOGICAL RISK ASSESSMENT

EPA's comments have been addressed or adequately explained in the Draft Final Report. Minor comments (mostly typographical errors) are given below:

Comment on Page 6-156:

1st Paragraph, 8th line should read "...AshLandfill and an area...".

2nd Paragraph, 10th line - "measured" is spelled incorrectly.

2nd Paragraph, 16th and 17th lines - "macroinvertebrate" is spelled incorrectly twice.

Response on Page 6-156:	Agreed. The three typographical errors noted on page 6-156 have been corrected.
Comment on Page 6-158:	1st Paragraph, 4th and 5th lines - "macroinvertebrate" is spelled incorrectly twice.
Response on Page 6-158:	Agreed. The typographical errors on page 6-158 have been corrected.
Comment on Page 6-171:	2nd Paragraph, last line - sentence is confusing, should be reworded.
Response on Page 6-171:	Agreed. The sentence has been reworded.
Comment on Table 6-49:	1st line under "CONSIDERATION" heading - "contaminant" is spelled incorrectly.
Response on Table 6-49:	Agreed. The typographical error noted on Table 6-49 has been corrected.
Comment on Table 6-51:	3rd bullet under "Caddisfly - CHARACTERISTIC" heading should read "Important in aquatic foodchains". 4th bullet under "Check Chub - CHARACTERISTIC" heading - "available" is spelled incorrectly.
Response on Table 6-51:	Agreed. The two typographical errors noted on Table 6-51 have been corrected.
Comment on Page 6-177:	Section 6.6.4.2.2Wildlife - remove space between 11th and 12th lines.
Response on Page 6-177:	Agreed. The typographical error on Page 6-177 has been corrected.
Comment on Table 6-56:	Note d - "benthic" is spelled incorrectly.
Response on Table 6-56:	Agreed. The typographical error on Table 6-56 has been corrected.

Comment on Page 6-196: Under "Soil" heading - 2nd line - "10 percent" should read "1.5 percent" to be consistent with Table 6-53.

Response on Page 6-196: Agreed. The correction has been made to page 6-196 of the text.

Comment on Page 6-197: Under "Surface Water" heading, last line should read "...any applicable guideline or standard."

Response on Page 6-197: Agreed. The typographical error on page 6-197 has been corrected.

Comment on Page 6-199: Under "Sediment" heading, first paragraph - should make it clear that NYSDEC LOT concentrations are available for metals only.

Response on Page 6-199: Agreed. The text has been modified to make it clear that NYSDEC LOT concentrations are available for metals only.

Comment on Page 6-200: Section 6.6.4.6.2 "Wildlife", 2nd paragraph, 2nd line should read "...concentrations of contaminants in surface waters...".

Response on Page 6-200: Agreed. The typographical error noted on Page 6-200 has been corrected.

Comment on Page 6-202: 2nd line should read "...highly pH dependent...".

10th line - "because" is spelled incorrectly.

25th line should read "...wetland W-E do not support...".

Response on Page 6-202: Agreed. The three typographical errors noted on Page 6-202 have been corrected.

Comment on Page 6-207: Under "Aquatic Life" heading, 11th line - "samples" is spelled incorrectly.

Response on Page 6-207: Agreed. The typographical error on Page 6-207 has been corrected.

HUMAN HEALTH RISK ASSESSMENT

The following issue relates to the EPA's comments on the volatile organic "hot spot", Page 6-4, P2.

Comment on Page 6-96, Section 6.3.5.8.1: A discussion should be added that indicates which soil data constitute the "hot spot" used to estimate emission rates and exposure point concentrations for the volatile organic compounds.

Response on Page 6-96, Section 6.3.5.8.1: Agreed. The soil locations of the data that constitute the "hot spot" area have been added to Page 6-96 Section 6.3.5.8.1).

The following issues relate to the EPA's comments on their guidance for dermal exposure assessment, Page 6-66:

Comment on Page 6-68, Section 6.3.5.1.2: The "chemical concentration in water" units should be provided.

Response on Page 6-68, Section 6.3.5.1.2: Agreed. The chemical concentration in water has been added to the text on Page 6-68 and Page 6-77.

Comment on Pages 6-78 and 6-79, Tables 6-12 and 6-13: Also the "PC" value for zinc is the default value for water while in Table 6-8 a zinc-specific value is used; this discrepancy should be corrected.

Response on Pages 6-78 and 6-79, Tables 6-12 and 6-13: Agreed. The PC value for zinc of 6.0×10^{-4} m/hr was used in Tables 6-12 and 6-13 in place of 1.0×10^{-3} cm/hr. The PC value in Table 6-8 was not changed.

Comment on Page 6-92, 4th Paragraph: A statement should be added regarding the "ABS" for the PCBs as PCBs were not chemicals of potential concern in sediment. In addition, the "ABS" for PCBs (10 percent or 0.1) indicated in Tables 6-21 to 6-23 is greater than the recommended ABS range (0.6-6 percent) provided in EPA guidance (Dermal Exposure Assessment: Principles and Applications, EPA/600/8-91/011B, January 1992). The use of the 10 percent value should be discussed.

Response on Page 6-92, 4th Paragraph: Agreed. Because no ABS for PCBs was previously cited in the sediment scenarios, a statement regarding the ABS for PCBs in soil has been added to the 4th paragraph on page 6-92. Additionally, the ABS for PCBs in soil is now 6 percent (and not 10 percent) which is in keeping with the recommended ABS range (0.6 to 6 percent) provided in EPA guidance (Dermal Exposure Assessment: Principles and Applications, EPA/600/8-91/011B, January 1992).

Comment on Page 6-94, Table 6-22: For consistency, the "assumption" for the "ABS" variable should read "varies, EPA, 1992".

Response on Page 6-94, Table 6-22: Agreed. This note has been added to the Table.

The following relates to the EPA comments on Exposure Concentrations for Inhalation of Volatile Organics in Air, Page 6-89:

Comment on Page 6-99, Table 6-24: To corroborate the use of the average emission rate equation presented in Section 6.3.5.8.1, a calculation of the saturation concentration for each of the volatile organic compounds should be included in the table. Consideration should also be given to comparing the estimated on-site and off-site volatile organic compound concentrations in the ambient air to the guideline concentrations provided in the NYSDEC's Air Guide - 1.

Response on Page 6-99, Table 6-24: Agreed. The calculated saturation concentrations and the NYSDEC annual guideline concentrations were added to Table 6-24.

The following issues relate to the EPA's comments on the methodology used to derive the molecular diffusions volumes of contaminants of concern, Page 6-90:

The "E" in the numerator of the average emission rate equation should be "ϵ". Recent EPA guidance recommends use of $D_{el} = P_a^{10/3}/P_t^2$ and not $D_{el} = D_l X \epsilon^{0.33}$, this should be verified and incorporated, as appropriate. The units for F_{∞} should be mg/mg and not mg/Kg as indicated.

Response on Page 6-90 (really pages 6-96 and 6-97): The "E" in the numerator of the average emission rate equation on page 6-96 has been changed to "ϵ".

The calculation of D_{ei} on page 6-96 has been modified to incorporate the expression $P_a^{10/3}/P_t^2$ as suggested in the comment. The equation for D_{ei} is as follows:

$$D_{ei} = (D_i \times (P_a^{10/3}/P_t^2)$$

This is the same equation proposed by Millington and Quirk (1961) for the apparent vapor diffusion coefficient that includes a porosity term to account for the geometric effects of the soil.

Comment on Page 6-97, 2nd Paragraph:

The annual average temperature of the ambient air assumed in the calculation should be provided.

Response on Page 6-97, 2nd Paragraph:

Agreed. The annual average temperature of the ambient air used in the calculation of E_i is 281° Kelvin. This has been added to the definition of the term "T" on page 6-96.

Comment on Page 6-97, 3rd Paragraph:

The on-site receptor location is 48 m downwind of the ash landfill; this represents the closest that the SCREEN2 model can get to an area source of the size modelled. A discussion should be provided as to why this is a valid on-site receptor location.

Response on Page 6-97, 3rd Paragraph:

Acknowledged. The on-site receptor location is 48 meters (157 feet) downwind of the Ash landfill because 48 meters represents the greatest downwind impact location that can be modelled using the SCREEN2 Model. Since the source of emissions is an area source rather than a point source, this location is the closest point that is affected by the entire area. If a closer distance is to be considered then the area source will need to be smaller. This on-site receptor is well within the boundary of SEDA and is believed to represent a good approximation of a maximum exposed downwind individual.

Comment on Page 6-98, 1st Paragraph:

The SCREEN2 normalized impacts for the on-site and off-site receptor locations should be provided. Sample calculations for the average emission rate and the off-site and on-site concentration impacts should also be provided since a SCREEN2 run to verify the off-site and on-site concentration impacts resulted in different concentration impacts.

Response on Page 6-98, 1st Paragraph:

Agreed. The SCREEN2 normalized impacts for the on-site (48M) and off-site (730M) receptor locations have been included as Appendix O. Sample calculations for the average emission rate and the off-site and on-site concentration impacts is also provided in this appendix. The calculations provided, verify the results presented on Table 6-24.

The following issues relate to the EPA's comments on oral absorption efficiencies and adjustment of oral toxicity criteria for assessment of dermal contact exposure, Page 6-100, P2:

Comment on Page 6-109, 3rd Paragraph:

The oral absorption efficiencies used to adjust the oral RfDs and SFs should be provided in either the text or in a table.

Response on Page 6-109, 3rd Paragraph: Agreed. The oral absorption efficiencies were added on page 6-109 and referenced on page 6-115.

Comment on Page 6-213, 4th Paragraph: The statement that "Oral toxicity values were used without adjustment...", is incorrect as written and should be corrected. Oral toxicity values were used without adjustment for those chemicals of potential concern with default oral absorption efficiencies of 100 percent. The statement that "carcinogenic risks from dermal exposure to PAH's..."is incorrect and should be deleted as dermal exposure to the PAHs was not evaluated in the exposure assessment.

Response on Page 6-213, 4th Paragraph: Agreed. The text has been modified as suggested.

The following issue relates to the EPA's comment on Figure 6-3:

Comment on Page 6-56, Figure 6-3: "Dust" should be removed as a primary release mechanism in the figure since it was discounted on Page 6-55 "due to the vegetative ground cover that exists on the Ash Landfill and adjoining properties".

Response on Page 6-56, Figure 6-3: Agreed. Dust has been removed as a primary release mechanism in Figure 6-3.

In addition, the following technical comments on Sections 6.0 and 7.0 of the Draft Final RI Report were made during the review of the document.

General Comment: An exposure duration of 150 days/year for 25 years seems excessive for a construction worker in the future land use scenario. More reasonable scenarios could be constructed for a worker involved in the construction of the assumed residential development or for a worker that might have to open a shallow trench for utility maintenance or repair.

Response on General Comment: Agreed. The exposure duration has been reduced to 7 days/year for 25 years to approximate a worker repairing an underground utility. Text on page 6-88 and Tables 6-20, 23, 28, 45, 46, 47 and 48 were revised.

Comment on Page 6-10, 4th Paragraph: A statement should be added to make it clear that only data from unfiltered groundwater samples were used in the baseline risk assessment. However, the use of unfiltered groundwater sampling data to assess risk associated with water borne contaminants may be an overestimate as colloidal particles are unlikely to penetrate the skin.

Response on Page 6-10, 4th Paragraph:

Agreed. The statement that only unfiltered groundwater samples were used in the baseline risk assessment has been added to paragraph 4 on Page 6-10. The full statement has been added to the 3rd paragraph on Page 6-211 (Section 6.7.2,Uncertainty in Exposure Assessment).

Comment on Page 6-42, 1st Paragraph:

In the concentration-toxicity screening, the maximum concentration was divided by the Rfd, not multiplied as stated. The text should be corrected.

Response on Page 6-42, 1st Paragraph:

Agreed. The word "multiplied" has been changed to "divide"in the 1st paragraph on Page 6-42.

Comment on Page 6-69, Table 6-8:

The units for "95th UCL Surface Water" should be mg/L and not mg/kg as indicated.

Response on Page 6-69, Table 6-8:

Agreed. The units under "95th UCL Surface Water" have been corrected on Table 6-8.

Comment on Page 6-72, 2nd Paragraph:

The dermal absorption factor reference (i.e., Ryan et.al., 1987) indicated here is different from the reference indicated in Table 6-9 (i.e., EPA, 1992). This discrepancy should be corrected.

Response on Page 6-72, 2nd Paragraph:

Agreed. The dermal absorption factor reference in the 2nd paragraph on Page 6-72 has been changed to "EPA, 1992". Table 6-9 remains unchanged.

Comment on Page 6-88, 1st Paragraph:

The "conversion factor" should be 1 kg/10^6 mg and not 1 liter/1000 cm^3 as provided.

Response on Page 6-88, 1st Paragraph:

Agreed. The conversion has been changed to 1 kg/10^6 mg in the 1st paragraph on Page 6-88.

Comment on Page 6-88, 4th Paragraph:

For completeness, a statement should be added regarding the assumed years of exposure for each of the potentially exposed populations.

Response on Page 6-88, 4th Paragraph: Agreed. Statements on years of exposure for each potentially exposed population were added.

Comment on Page 6-103, Table 6-28: "EF" and "ED" should be 150 days/yr and 25 years, respectively. The table should be corrected.

Response on Page 6-103, Table 6-28: Agreed. The EF and ED on Table 6-28 have been changed to 150 and 25, respectively.

Comment on Table 6-23: The arsenic oral slope factor has been under review by IRIS; however, IRIS lists a unit risk factor which when combined with standard exposure assumptions results in a slope factor of 1.75 $(mg/kg/day)^{-1}$. While the recommendation to delete was appropriate at the time the comment was made, in the interim, an acceptable EPA methodology was embraced for deriving the slope factor from the unit risk. Therefore, the information should now be included as originally stated.

Response on Table 6-23: Agreed. The arsenic slope factor has been added to Table 6-29. Additionally since arsenic is a chemical of concern in surface water and sediment, all exposure and risk characterization tables for these media (6-8, 6-9, 6-30 and 6-31) were also revised.

Comment on Page 6-126, 1st and 6th Paragraphs: The total hazard indices in the referenced subsections should be the same. The text should be corrected.

Response on Page 6-126, 1st and 6th Paragraphs: Agreed. The revised total hazard indices is 0.15. The 6th paragraph on page 6-126 has been changed to 0.15.

Comment on Page 6-132, 5th Paragraph: A statement should be provided regarding the significance of the pathway hazard index relative to the EPA criterion for noncancer health effects.

Response on Page 6-132, 5th Paragraph: Agreed. A statement regarding the significance of the pathway was added to the end of the 5th paragraph on Page 6-132.

Comment on Page 6-141, 4th Paragraph: This paragraph should relate to the on-site hunter and not future on-site residents as indicated. The first sentence in the paragraph should be corrected.

Response on Page 6-141, 4th Paragraph:	Agreed. The first sentence of the 4th paragraph on Page 6-141 has been corrected.
Comment on Page 7-3, 4th Paragraph:	The paragraph summarizes potential exposure and risks to future on-site residents, and not future off-site residents as stated.
Response on Page 7-3, 4th Paragraph:	The 4th paragraph of Page 7-3 has been corrected to read "on-site" and not "off-site".

<u>The Air Programs Branch</u>

- Chapter 6 of the Draft-Final Report appears to adequately address the estimation of VOC emissions to the air; however, there does not appear to be an estimate made for metals-contaminated PM_{10}.

- The report indicates that the Screen2 model was used to estimate ambient concentrations at sensitive receptors, and that an area of 73,400 square feet was used as the size of the VOC-emitting "point" source. However, since the size of the landfill is about 130 acres (5.76E6 square feet), it is not clear why 73,400 square feet was used as the size of the "point" source. There is also a need for dispersion analysis of the PM_{10} at downwind receptors.

Response: The investigation showed that the 1.9 acre (not 130 acre) Ash Landfill (where ash and debris form a slightly elevated plateau) itself is not the source for all of the VOCs. The reason that an area of 73,400 square feet was used as the size of the VOC emitting "point" source was because this is the area represented by the soils that are believed to be the source of the VOCs. The locations of the soil data that constitute the "area" source for VOCs are from borings B2, B10, B15, B17, B20, B23, B28, B29, B30, B31, B32, B33, B34, B35, B36, B37, B38, B39, B45, B46, B47 and B48.

The entire Ash Landfill site (cited as about 130 acres in the comment) does not constitute the area source for VOCs.

An analysis was performed to estimate downwind concentration of metals-contaminated PM_{10}. This analysis used a wind erosion model (Skidmore and Woodruff) and SCREEN2 Modeling. The results are included in Appendix O. The calculated metal concentrations were very low and neglected from further consideration.