

Tables

Table 1-1
Alphabetical Listing of Site-Related Chemicals
 Upgradient Investigation, Tronox Facility - Henderson, Nevada
 September 2004 (revised September 2006)

1,1,1-TCA	chlorinated organics	napthalene	sulfide
1,4-dioxane	chlorinated paraffins	nickel	sulfur dioxide
2-butanone	chlorine	nitrate	sulfuric acid
2-hexanone	chlorobenzol (monochlorobenzene, chlorobenzene)	nitrobenzene	synthetic detergent
acenaphthene	chloroform	octachlorostyrene	tank mud
acenaphthylene	chromium (hexavalent)	orthodichlorobenzene (1,2-dichlorobenzene)	TDS (total dissolved solids)
acetone	chromium (total)	PAHs (polycyclic aromatic hydrocarbons)	tetrachloroethylene
actinium 228	chrysene	paints	thallium
all organophosphorous pesticides	citric acid	paradichlorobenzene	thorium (isotopic)
aluminum	coagulants	paraffin wax	tin
ammonia	coal	PCBs	titanium
ammonium perchlorate	cobalt	perchlorate	titanium tetrachloride
anthracene	coke	pesticides	toluene
anti-foam agent	copper	pH	TPH (total petroleum hydrocarbons)
antimony	cyanide	phenanthrene	tricalcium phosphate
argon	DDD	phosphate	trichloroethylene
aroclor 1016	DDE	phosphorous	TSS (total suspended solids)
aroclor 1221	DDT	platinum	tumbleaf defoliant
aroclor 1232	diatomaceous earth	polonium 210	tungsten
aroclor 1242	dibenz(a,h)anthracene	polonium 215	unknowns
aroclor 1248	dioxins/furans	potassium	uranium (isotopic)
aroclor 1254	ethylbenzene	potassium chlorate	uranium (total)
aroclor 1260	filter aid	potassium chloride	urea
arsenic	flammables	potassium perchlorate	vanadium
asbestos	flocculants	potassium phosphate	various lab wastes
barite	fluoranthene	protactinium 231	xylene
barium	fluorene	pyrene	zinc
barium hydroxide	glycols	pyridine	
barium sulfate	graphite	radium 226	
barium sulfide	gross alpha (adjusted)	radium 228	
benz(a)anthracene	hexachlorobenzene	radon 219	
benzene	hydrochloric acid	radon 222	
benzo(a)pyrene	hydrogen chloride	selenium	
benzo(b)fluoranthene	hydrogen peroxide	silica	
benzo(g,h,i)perylene	hydrogen sulfide	silicon tetrabromide	
benzo(k)fluoranthene	indeno(1,2,3-cd)pyrene	silicon tetrachloride	
beryllium	insecticides	silver	
bismuth 212	iron	Silvex	
boric acid	iron oxide	sodium	
boron	lead	sodium alpha olefin sulfonate	
boron carbide	lead (isotopic)	sodium arsenite	
boron tribromide	magnesium	sodium borate	
boron trichloride	magnesium carbonate	sodium carbonate	
C ₁₃ -C ₂₂	magnesium chlorate	sodium chlorate	
C ₂₃₊	magnesium chloride	sodium chloride	
C ₄ -C ₁₂	magnesium perchlorate	sodium dichromate	
cadmium	manganese	sodium hexametaphosphate	
calcium	manganese dioxide	sodium hydrosulfide	
calcium carbonate	manganese oxide	sodium hydroxide	
calcium chloride	manganese sulfate	sodium oxide	
calcium hypochlorite	mercury	sodium perchlorate	
calcium oxide (lime)	methanol	sodium sulfite	
calcium sulfate	methyl isobutyl ketone (orthodichlorobenzene, 4-methyl 2-pentanone)	strontium	
chelant (Nalco 1745)	methyl mercury	strontium carbonate	
chlorate	methyl tert-butyl ether (MTBE)	sulfate	
chloride	molybdenum		

Notes:

(Synonyms) Selected synonyms are shown in parentheses.

The Site Related Chemical list was approved by NDEP on March 9, 2006. The list was revised to include Protactinium 231, Polonium 215, and Radon 219, on February 21, 2006, and 1,4-Dioxin on March 11, 2006. September 2006, selected synonyms were added.

Table 3-1
Complete Analyte List for Upgradient Samples
Upgradient Investigation, Tronox Facility - Henderson, Nevada

Soil and Water Samples were tested for the following metals:	
	Analytical Method
Aluminum	EPA 6020
Antimony	EPA 6020
Arsenic	EPA 6020
Barium	EPA 6020
Beryllium	EPA 6020
Boron	EPA 6010B/6020
Cadmium	EPA 6020
Calcium	EPA 6010B/6020
Chromium (total)	EPA 6020
Chromium (hexavalent)	EPA 7199/3060A+7199
Cobalt	EPA 6020
Copper	EPA 6020
Iron	EPA 6010B/6020
Lead	EPA 6020
Magnesium	EPA 6010B/6020
Manganese	EPA 6020
Mercury	EPA 7470/6020
Molybdenum	EPA 6020
Nickel	EPA 6020
Platinum	EPA 6020
Potassium	EPA 6010B/6020
Selenium	EPA 6020
Silver	EPA 6020
Sodium	EPA 6010B/6020
Titanium	EPA 6010B/6020
Thallium	EPA 6020
Tungsten	EPA 6020
Uranium	EPA 6020
Vanadium	EPA 6020
Zinc	EPA 6020
In addition, selected soil samples from boring M-120 and the groundwater sample from well M-120 were also tested for the following parameters:	
Methyl mercury	EPA 1630
Silicon	EPA 6010B/370.1
Strontium	EPA 6020
Tin	EPA 6020
All Soil and Water Samples were tested for the TPH and Fuel Alcohols according to the following:	
	Analytical Method
Gasoline-Range Organics (C ₆ - C ₁₀)	EPA 8015B
Diesel-Range Organics (C ₁₀ - C ₂₈)	EPA 8015B
Oil-Range Organics (C ₂₈ - C ₃₈)	EPA 8015B
Methanol	EPA 8015B
Ethanol	EPA 8015B
Ethylene glycol	EPA 8015B

Table 3-1
Complete Analyte List for Upgradient Samples
Upgradient Investigation, Tronox Facility - Henderson, Nevada
(continued)

All Soil and Water Samples were tested for the following VOCs:	
Volatile Organic Compounds	Analytical Method Water / Soil
1,1,1,2-Tetrachloroethane	EPA 8260
1,1,1-Trichloroethane	EPA 8260
1,1,2,2-Tetrachloroethane	EPA 8260
1,1,2-Trichloroethane	EPA 8260
1,1-Dichloroethane	EPA 8260
1,1-Dichloroethene	EPA 8260
1,1-Dichloropropene	EPA 8260
1,2,3-Trichlorobenzene	EPA 8260
1,2,3-Trichloropropane	EPA 8260
1,2,4-Trichlorobenzene	EPA 8260
1,2,4-Trimethylbenzene	EPA 8260
1,2-Dibromo-3-chloropropane	EPA 8260
1,2-Dibromoethane	EPA 8260
1,2-Dichlorobenzene	EPA 8260
1,2-Dichloroethane	EPA 8260
1,2-Dichloropropane	EPA 8260
1,3,5-Trimethylbenzene	EPA 8260
1,3-Dichlorobenzene	EPA 8260
1,3-Dichloropropane	EPA 8260
1,4-Dichlorobenzene	EPA 8260
1-Chlorohexane	EPA 8260
2,2-Dichloropropane	EPA 8260
2-Butanone	EPA 8260
2-Chlorotoluene	EPA 8260
2-Hexanone	EPA 8260
4-Chlorotoluene	EPA 8260
4-Methyl-2-pentanone	EPA 8260
Acetone	EPA 8260
Benzene	EPA 8260
Bromobenzene	EPA 8260
Bromochloromethane	EPA 8260
Bromodichloromethane	EPA 8260
Bromoform	EPA 8260
Bromomethane	EPA 8260
Carbon Tetrachloride	EPA 8260
Chlorobenzene	EPA 8260
Chloroethane	EPA 8260
Chloroform	EPA 8260
Chloromethane	EPA 8260
cis-1,2-Dichloroethene	EPA 8260
cis-1,3-Dichloropropene	EPA 8260
Dibromochloromethane	EPA 8260
Dibromomethane	EPA 8260

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 (continued)

Dichlorodifluoromethane	EPA 8260
Diisopropyl ether (DIPE)	EPA 8260
Ethylbenzene	EPA 8260
Ethyl-tert-butyl ether (ETBE)	EPA 8260
Hexachlorobutadiene	EPA 8260
Isopropyl Benzene	EPA 8260
Xylenes (total)	EPA 8260
Methylene Chloride	EPA 8260
Methyl-tert-butyl ether (MTBE)	EPA 8260
Naphthalene	EPA 8260
n-Butylbenzene	EPA 8260
n-Propylbenzene	EPA 8260
p-Isopropyltoluene	EPA 8260
sec-Butylbenzene	EPA 8260
Styrene	EPA 8260
tert-Amyl-methyl ether (TAME)	EPA 8260
tert-Butyl alcohol (TBA)	EPA 8260
tert-Butylbenzene	EPA 8260
Tetrachloroethene	EPA 8260
Toluene	EPA 8260
trans-1,2-Dichloroethene	EPA 8260
trans-1,3-Dichloropropene	EPA 8260
Trichloroethene	EPA 8260
Trichlorofluoromethane	EPA 8260
Vinyl Chloride	EPA 8260
All Soil and Water Samples were tested for the following Radionuclides:	
	Analytical Method
Radionuclides	Water / Soil
Actinium 228	EPA 901.1/ EML HASL 300
Bismuth 212	EPA 901.1/ EML HASL 300
Gross alpha (adjusted) ⁽³⁾	EPA 900/ 9310
Lead 210	EML HASL 300 Gas Flow
Lead 212	EPA 901.1/ EML HASL 300
Polonium 210	EML HASL 300 Alpha Spec
Protactinium 231	EPA 901.1/ EML HASL 300
Radium 226	EPA 903.1
Radium 228	EPA 904.0
Radon 222	SM7500-RN-B
Thorium 228	EML HASL 300 Alpha Spec
Thorium 230	EML HASL 300 Alpha Spec
Thorium 232	EML HASL 300 Alpha Spec
Uranium 234	EML HASL 300 Alpha Spec
Uranium 235	EML HASL 300 Alpha Spec
Uranium 238	EML HASL 300 Alpha Spec
Uranium (total)	ASTM D5174

Table 3-1
Complete Analyte List for Upgradient Samples
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(continued)

All Soil and Water Samples were tested for the following General Chemistry Parameters :		
	Parameter	Analytical Method Water / Soil
	Alkalinity (HCO ₃ ⁻)	EPA 310.1
	Alkalinity (total)	EPA 310.1
	Chlorate	EPA 9056
	Chloride	EPA 9056
	Cyanide (total)	EPA 9012A/9014
	Electrical Conductivity	EPA 9050A/SM 2510B
	Nitrate	EPA 9056
	Nitrite	EPA 9056/300.0
	Perchlorate	EPA 314.0
	Sulfate	EPA 9056
	TDS	EPA 160.1
	pH	EPA 9040B
In addition, selected soil samples from boring M-120 and the groundwater sample from well M-120 were also tested for the following parameters:		
	Ammonia	EPA 350.1
	Asbestos	EPA 100.1/PLM
	Bromide	EPA 9056
	Fluoride	EPA 9214/EPA 9056
	Surfactants (MBAS)	EPA 425.1/425.1
	Phosphate (ortho)	EPA 9056
	Phosphate (total)	EPA 365.2
	Sulfide	EPA 9030/376.2
	TSS	EPA 160.2
	Chlorine (residual)	EPA 4500CLG/EPA 330.3
	Total Organic Carbon	EPA 9060/ WB
	Flashpoint	EPA 1010
	Sulfite	EPA 377.1
Selected soil samples from boring M-120 and the groundwater sample from well M-120 were tested for the following Organochlorine Pesticides:		
	4,4'-DDD	EPA 8081A
	4,4'-DDE	EPA 8081A
	4,4'-DDT	EPA 8081A
	Aldrin	EPA 8081A
	alpha-BHC	EPA 8081A
	beta-BHC	EPA 8081A
	Chlordane, technical	EPA 8081A
	alpha-Chlordane	EPA 8081A
	gamma-Chlordane	EPA 8081A
	delta-BHC	EPA 8081A
	Dieldrin	EPA 8081A
	Endosulfan I	EPA 8081A
	Endosulfan II	EPA 8081A

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(continued)

	Endosulfan sulfate	EPA 8081A
	Endrin	EPA 8081A
	Endrin aldehyde	EPA 8081A
	Endrin Ketone	EPA 8081A
	gamma-BHC (Lindane)	EPA 8081A
	Heptachlor	EPA 8081A
	Heptachlor epoxide	EPA 8081A
	Methoxychlor	EPA 8081A
	Toxaphene	EPA 8081A
Selected soil samples from boring M-120 and the groundwater sample from well M-120 were tested for the following PCB compounds:		
	Aroclor 1016	EPA 8082
	Aroclor 1221	EPA 8082
	Aroclor 1232	EPA 8082
	Aroclor 1242	EPA 8082
	Aroclor 1248	EPA 8082
	Aroclor 1254	EPA 8082
	Aroclor 1260	EPA 8082
Selected soil samples from boring M-120 and the groundwater sample from well M-120 were tested for the following Organophosphorous Pesticides:		
	Azinphos-methyl	EPA 8141
	Bolstar	EPA 8141
	Chlorpyrifos	EPA 8141
	Coumaphos	EPA 8141
	Demeton-O	EPA 8141
	Demeton-S	EPA 8141
	Diazinon	EPA 8141
	Dichlorvos	EPA 8141
	Dimethoate	EPA 8141
	Disulfoton	EPA 8141
	EPN	EPA 8141
	Ethoprop	EPA 8141
	Famphur	EPA 8141
	Fensulfothion	EPA 8141
	Fenthion	EPA 8141
	Malathion	EPA 8141
	Merphos	EPA 8141
	Mevinphos	EPA 8141
	Naled	EPA 8141
	Parathion-ethyl	EPA 8141
	Parathion-methyl	EPA 8141
	Phorate	EPA 8141
	Ronnel	EPA 8141
	Stirphos	EPA 8141
	Sulfotepp	EPA 8141
	Thionazin	EPA 8141

Table 3-1
Complete Analyte List for Upgradient Samples
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(continued)

	Tokuthion	EPA 8141
	Trichloronate	EPA 8141
Selected soil samples from boring M-120 and the groundwater sample from well M-120 were tested for the following dioxins/furans:		
	PCDD/PCDFs	EPA 8290
	1,2,3,4,6,7,8,9-OCatchlorodibenzofuran	EPA 8290
	1,2,3,4,6,7,8,9-OCatchlorodibenzo-p-dioxin	EPA 8290
	1,2,3,4,6,7,8-Heptatchlorodibenzofuran	EPA 8290
	1,2,3,4,6,7,8-Heptatchlorodibenzo-p-dioxin	EPA 8290
	1,2,3,4,7,8,9-Heptatchlorodibenzofuran	EPA 8290
	1,2,3,4,7,8-Hexachlorodibenzofuran	EPA 8290
	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290
	1,2,3,6,7,8-Hexachlorodibenzofuran	EPA 8290
	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290
	1,2,3,7,8,9-Hexachlorodibenzofuran	EPA 8290
	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	EPA 8290
	1,2,3,7,8-Pentachlorodibenzofuran	EPA 8290
	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	EPA 8290
	2,3,4,6,7,8-Hexachlorodibenzofuran	EPA 8290
	2,3,4,7,8-Pentachlorodibenzofuran	EPA 8290
	2,3,7,8-Tetrachlorodibenzofuran	EPA 8290
	2,3,7,8-Tetrachlorodibenzo-p-dioxin	EPA 8290
Selected soil samples from boring M-120 and the groundwater sample from well M-120 were tested for the following SVOCs:		
	1,2-Dichlorobenzene	EPA 8270
	1,3-Dichlorobenzene	EPA 8270
	1,4-Dichlorobenzene	EPA 8270
	2,4,5-Trichlorophenol	EPA 8270
	2,4,6-Trichlorophenol	EPA 8270
	2,4-Dichlorophenol	EPA 8270
	2,4-Dimethylphenol	EPA 8270
	2,4-Dinitrophenol	EPA 8270
	2,4-Dinitrotoluene	EPA 8270
	2,6-Dinitrotoluene	EPA 8270
	2-Chloronaphthalene	EPA 8270
	2-Chlorophenol	EPA 8270
	2-Methylnaphthalene	EPA 8270 SIM
	2-Methylphenol	EPA 8270
	2-Nitroaniline	EPA 8270
	2-Nitrophenol	EPA 8270
	3,3'-Dichlorobenzidine	EPA 8270
	3-Nitroaniline	EPA 8270
	4-Chloro-3-methylphenol	EPA 8270
	4-Chloroaniline	EPA 8270
	4-Chlorophenyl-phenylether	EPA 8270
	4-Methylphenol	EPA 8270

Table 3-1
Complete Analyte List for Upgradient Samples
Upgradient Investigation, Tronox Facility - Henderson, Nevada

(continued)

4-Nitroaniline	EPA 8270
4-Nitrophenol	EPA 8270
Acenaphthene	EPA 8270 SIM
Acenaphthylene	EPA 8270 SIM
Anthracene	EPA 8270 SIM
Benzo(a)anthracene	EPA 8270 SIM
Benzo(a)pyrene	EPA 8270 SIM
Benzo(b)fluoranthene	EPA 8270 SIM
Benzo(g,h,i)perylene	EPA 8270 SIM
Benzo(k)fluoranthene	EPA 8270 SIM
Benzoic acid	EPA 8270
Benzyl alcohol	EPA 8270
Bis(2-chloroethoxy)methane	EPA 8270
Bis(2-chloroethyl)ether	EPA 8270
Bis(2-chloroisopropyl)ether	EPA 8270
Bis(2-ethylhexyl)phthalate	EPA 8270
Butylbenzylphthalate	EPA 8270
Carbazole	EPA 8270
Chrysene	EPA 8270
Dibenzo(a,h)anthracene	EPA 8270 SIM
Dibenzofuran	EPA 8270
Diethylphthalate	EPA 8270
Dimethylphthalate	EPA 8270
Di-n-butylphthalate	EPA 8270
Di-n-octylphthalate	EPA 8270
Fluoranthene	EPA 8270 SIM
Fluorene	EPA 8270 SIM
Hexachlorobenzene	EPA 8270 SIM
Hexachlorobutadiene	EPA 8270
Hexachlorocyclopentadiene	EPA 8270
Hexachloroethane	EPA 8270
Indeno(1,2,3-cd)pyrene	EPA 8270 SIM
Isophorone	EPA 8270
Naphthalene	EPA 8270 SIM
Nitrobenzene	EPA 8270
n-Nitroso-di-n-propylamine	EPA 8270
n-Nitrosodiphenylamine	EPA 8270
Pentachlorophenol	EPA 8270 SIM
Phenanthrene	EPA 8270 SIM
Phenol	EPA 8270
Pyrene	EPA 8270 SIM
Pyridine	EPA 8270
Octachlorostyrene	EPA 8270

Table 3-2
Upgradient Monitoring Well Information
Upgradient Investigation, Tronox Facility - Henderson, Nevada

Well Cluster	Well ID	Screened Interval (ft.)	Total Depth (ft.)	Formation Screened
1	TR-07	260 - 290	290	MCcg2
	TR-08	63 - 93	93	MCcg1
2	TR-09	230 - 250	250	MCcg2
	TR-10	80 - 100	101	MCcg1
--	M-103	69.5 - 89.5	90	MCcg1
--	M-117	130 - 150	155	MCfg2
--	M-118	138 - 158	163	MCfg2
--	M-120	80 - 100	105	MCcg1
--	M-121	77 - 97	102	MCcg1
--	H-11	95 - 105	107	MCcg1
Notes:				
MCfg2 Muddy Creek second (lower) fine-grained facies				
MCcg1 Muddy Creek first (upper) coarse grained facies				
MCcg2 Muddy Creek second (lower) coarse-grained facies				

Table 4-2
Metal Concentrations in Groundwater Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Well Cluster	Well ID	Screened Interval (ft)	Metals ¹												
			Aluminum EPA 6020 ug/L	Antimony EPA 6020 ug/L	Arsenic EPA 6020 ug/L	Barium EPA 6020 ug/L	Beryllium EPA 6020 ug/L	Boron EPA 6010B mg/L	Cadmium EPA 6020 ug/L	Calcium EPA 6010B mg/L	Chromium EPA 6020 ug/L	Chromium-hex EPA 7199 ug/L	Cobalt EPA 6020 ug/L	Copper EPA 6020 ug/L	Cyanide EPA 9012A mg/L
--	H-11	95 - 105	78 J	1.000 UJ	3.5 J	22 J	1.000 UJ	1.0	0.500 UJ	72	2.2 J	0.100 U	2.000 UJ	2.000 UJ	0.005 U
--	M-103	69.5 - 89.5	1600 J	1.000 UJ	115 J	50 J	1.000 UJ	1.2	0.500 UJ	120	16 J	16.9	2.000 UJ	7.0 J	0.020 U
--	M-117	130 - 150	31000 J	1.000 UJ	58 J	310 J	1.5 J	0.76	0.500 UJ	100	54 J	5.3	9.4 J	24 J	0.005 U
--	M-118	138 - 158	1100 J	1.000 UJ	36 J	37 J	1.000 UJ	0.74	0.500 UJ	60	9.1 J	7.5	2.000 UJ	2.000 UJ	0.005 U
--	M-120	80 - 100	38 J	1 UJ	155 J	37 J	1.000 UJ	1.6	0.5 U	260	2.5 J	2.7	2.000 UJ	2.6 J	0.005 U
--	M-121	77 - 97	250 J	1.000 UJ	88 J	39 J	1.000 UJ	3.8	0.500 UJ	240	23 J	22.6	2.000 UJ	2.9 J	0.005 U
1	TR-07	260 - 290	640 J	1.000 UJ	50 J	38 J	1.000 UJ	0.47	0.500 UJ	59	31 J	na	2.000 UJ	2.1 J	0.005 U
	TR-08	63 - 93	2800 J	1.000 UJ	75 J	85 J	1.000 UJ	1.2	0.500 UJ	99	17 J	14.8	2.000 UJ	4.3 J	0.007
	TR-08D	63 - 93	1500 J	1.000 UJ	74 J	58 J	1.000 UJ	1.2	0.500 UJ	89	15 J	14.9	2.000 UJ	2.5 J	0.005 U
2	TR-09	230 - 250	185 J	1.000 UJ	39 J	29 J	1.000 UJ	0.54	0.500 UJ	59	11 J	12.7	2.000 UJ	2.000 UJ	0.005 U
	TR-10	80 - 100	115 J	1.000 UJ	63 J	53 J	1.000 UJ	1.4	0.500 UJ	140	41 J	na	2.000 UJ	2.0 J	0.005 U
USEPA PRG ² (ug/L)			36,500	15	0.0448			7,300	18	NE			730		730
MCL ³						2,000	4			NE	100	50		1300	

Well Cluster	Well ID	Screened Interval (ft)	Metals ¹												
			Iron EPA 6010B mg/L	Lead EPA 6020 ug/L	Magnesium EPA 6010B mg/L	Manganese EPA 6020 ug/L	Mercury EPA 7470 ug/L	Methyl mercury EPA 1630 ng/L	Molybdenum EPA 6020 ug/L	Nickel EPA 6020 ug/L	Platinum EPA 6020 ug/L	Potassium EPA 6010B mg/L	Selenium EPA 6020 ug/L	Silicon EPA 6010B mg/L	Silver EPA 6020 ug/L
--	H-11	95 - 105	340	1.8	22 J	4000 J	0.200 U	na	2.000 UJ	5.000 UJ	1.000 U	4.8	5.000 UJ	na	0.500 UJ
--	M-103	69.5 - 89.5	1.6	2.1	69 J	56 J	0.200 U	na	49 J	5.000 UJ	1.000 U	11	5.000 U	na	0.500 UJ
--	M-117	130 - 150	31	15	95 J	530 J	0.200 U	na	13 J	33 J	1.000 U	19	5.000 U	na	0.500 UJ
--	M-118	138 - 158	1.3	0.67	23 J	55 J	0.200 U	na	13 J	5.000 UJ	1.000 U	9.5	5.000 UJ	na	0.500 UJ
--	M-120	80 - 100	0.054	0.5 U	140 J	82 J	0.2 U	0.025 U	18	6 J	1 U	12	0.5 UJ	42	0.5 U
--	M-121	77 - 97	0.42	0.500 U	120 J	84 J	0.200 U	na	125 J	5.3 J	1.000 U	18	5.000 UJ	na	0.500 UJ
1	TR-07	260 - 290	1.2	1.2	26 J	25 J	0.200 U	na	5.2 J	5.000 UJ	1.000 U	9.2	5.000 UJ	na	0.500 UJ
	TR-08	63 - 93	3.0 J	2.3	51 J	53 J	0.200 U	na	13 J	5.1 J	1.000 U	11	5.000 UJ	na	0.500 UJ
	TR-08D	63 - 93	1.2 J	1.2	46 J	26 J	0.200 U	na	13 J	5.000 UJ	1.000 U	10	5.000 UJ	na	0.500 UJ
2	TR-09	230 - 250	0.18	0.67	23 J	10 J	0.200 U	na	5.2 J	5.000 UJ	1.000 U	9.0	5.000 UJ	na	0.500 UJ
	TR-10	80 - 100	0.14	0.500 U	53 J	4.6 J	0.200 UJ	na	21 J	5.000 UJ	1.000 U	15	5.000 UJ	na	0.500 UJ
USEPA PRG ²				15	NE			11	182	730	NE	NE	182	NE	182
MCL ³			0.6	15	NE	100	2				NE			NE	

Notes:

1. All results on this table based on low-flow purge and sampling.
2. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).
3. Maximum Contaminant Level in groundwater established by Nevada Department of Environmental Protection

ug/L micrograms per liter
 mg/L milligrams per liter

TR-08D Denotes a duplicate sample of TR-08.

- U Not detected at concentrations below the listed laboratory quantitation limit.
- J Estimated value; concentration was less than the quantitation limit.
- na Not analyzed.
- NE Not established.

Bold Bold values are constituents detected above the laboratory quantitation limit.

Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-2
Metal Concentrations in Groundwater Samples
Upgradient Investigation, Tronox Facility - Henderson, Nevada

(continued)

Well Cluster	Well ID	Screened Interval (ft)	Metals ¹				
			Sodium EPA 6010B mg/L	Strontium EPA 6010B mg/L	Thallium EPA 6020 ug/L	Tin EPA 6020 ug/L	Titanium EPA 6010B mg/L
--	H-11	95 - 105	150 J	na	1.000 U	na	0.020 U
--	M-103	69.5 - 89.5	330 J	na	1.000 U	na	0.074
--	M-117	130 - 150	170 J	na	1.000 U	na	1.4
--	M-118	138 - 158	160 J	na	1.000 U	na	0.064
--	M-120	80 - 100	250 J	5.3	1 U	1 U	0.02 U
--	M-121	77 - 97	420 J	na	1.000 U	na	0.026
1	TR-07	260 - 290	160 J	na	1.000 U	na	0.026
	TR-08	63 - 93	230 J	na	1.000 U	na	0.16 J
	TR-08D	63 - 93	220 J	na	1.000 U	na	0.064 J
2	TR-09	230 - 250	170 J	na	1.000 U	na	0.020 U
	TR-10	80 - 100	310 J	na	1.000 U	na	0.020 U
USEPA PRG ¹ (ug/L)			NE	22,000	2.409	22,000	146,000
MCL ²			NE				

Well Cluster	Well ID	Screened Interval (ft)	Metals ¹			
			Tungsten EPA 6020 ug/L	Uranium-Total EPA 6020 ug/L	Vanadium EPA 6020 ug/L	Zinc EPA 6020 ug/L
--	H-11	95 - 105	2.000 UJ	1.000 U	3.000 U	290 J
--	M-103	69.5 - 89.5	2.000 UJ	3.0	26 J	11 J
--	M-117	130 - 150	2.000 U	6.4	55 J	105 J
--	M-118	138 - 158	2.000 U	1.9	21 J	10 J
--	M-120	80 - 100	2 U	43	12 J	5 UJ
--	M-121	77 - 97	2.000 U	13	14 J	5.000 UJ
1	TR-07	260 - 290	2.000 UJ	2.4	28 J	43 J
	TR-08	63 - 93	2.000 U	4.8	33 J	75 J
	TR-08D	63 - 93	2.000 U	4.7	30 J	41 J
2	TR-09	230 - 250	2.000 UJ	2.1	25 J	52 J
	TR-10	80 - 100	2.000 UJ	4.0	27 J	5.0 J
USEPA PRG ² (ug/L)			NE	7	36	10950
MCL ³						

Notes:

- ug/L micrograms per liter
- mg/L milligrams per liter
- TR-08D Denotes a duplicate sample of TR-08.
- U Not detected at concentrations below the listed laboratory quantitation limit.
- J Estimated value; concentration was less than the quantitation limit.
- na Not analyzed.
- NE Not established.
- Bold** Bold values are constituents detected above the laboratory quantitation limit.
- Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-3
Perchlorate Concentrations in Soil Samples
Upgradient Investigation, Tronox Facility - Henderson, Nevada

Boring No.	Sample ID No.	Sample Depth (ft)	Perchlorate ug/kg
M-116	M116-0.5	0.5	600 J
	M116-0.5D	0.5	803 J
	M116-05	5	1340 J
	M116-10	10	202 J
	M116-20	20	22.4 J
	M116-30	30	48.7 UJ
	M116-40	40	46.7 UJ
	M116-50	50	273 J
M-117	M117-0.5	0.5	42.1 UJ
	M117-05	5	41.3 J
	M117-10	10	35 J
	M117-20	20	na
	M117-30	30	45.5 UJ
	M117-40	40	44.8 UJ
	M117-50	50	49 UJ
	M117-60	60	50.8 UJ
	M117-80	80	94.7 J
M117-80D	80	83.1 J	
M-118	M118-0.5	0.5	298
	M118-05	5	449
	M118-10	10	278
	M118-20	20	42.2 U
	M118-20D	20	131
	M118-30	30	45.5 U
	M118-40	40	45.8 U
	M118-50	50	48.6 U
	M118-60	60	43.3 U
	M118-80	80	47.1
M-119	M119-0.5	0.5	43.7 U
	M119-0.5D	0.5	22.1 J
	M119-05	5	235
	M119-10	10	2640
	M119-20	20	2070
	M119-32	32	57 U
	M119-40	40	65.7 U
	M119-50	50	46.1 U
M-120	M120-0.5	0.5	44.7 U
	M120-05	5	41.9 J
	M120-10	10	27.5 J
	M120-20	20	42.3 U
	M120-30	30	44.6 U
	M120-40	40	43.9 U
	M120-40D	40	44.8 U
	M120-50	50	61.3 U
	M120-60	60	47.9 U
	M120-80	80	181

Table 4-3
Perchlorate Concentrations in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

(Continued)

Boring No.	Sample ID No.	Sample Depth (ft)	Perchlorate ug/kg
M-121	M121-0.5	0.5	42.6
	M121-05	5	3610
	M121-05D	5	3010
	M121-10	10	42.4 U
	M121-20	20	41.5 U
	M121-30	30	42.5 U
	M121-40	40	43.9 U
	M121-50	50	42.6 U
	M121-60	60	48.7 U
	M121-80	80	116
USEPA PRG ² ug/kg			102,200
Notes:			
1. Analysis for perchlorate was by EPA Method 314.0.			
2. Preliminary Remediation Goal for industrial sites established by U.S. EPA Region 9 (October 2004).			
ug/kg	Micrograms per kilogram.		
U	Not detected at concentrations below the listed laboratory quantitation limit.		
J	Estimated value; concentration was less than the quantitation limit.		
Bold	Bold values are constituents detected above the laboratory quantitation limit.		
Gray	Grayed out values are non-detected values with the laboratory quantitative limits shown.		

Table 4-4
Perchlorate Concentrations in Groundwater Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Well Cluster	Well ID	Date Sampled	Perchlorate¹ EPA 314.0 ug/L
--	H-11	3/23/2006	16.000 U
--	M-103	3/21/2006	230
	M-103A	3/20/2006	310
--	M-117	3/23/2006	16.000 U
--	M-118	3/22/2006	56
--	M-120	3/22/2006	550
--	M-121	3/23/2006	2000
1	TR-07	3/21/2006	4.000 U
	TR-07A	3/20/2006	4.000 U
	TR-08	3/20/2006	64
	TR-08A	3/20/2006	65
	TR-08D	3/20/2006	65
2	TR-09	3/21/2006	4.000 U
	TR-09A	3/14/2006	4.000 U
	TR-10	3/21/2006	970
	TR-10A	3/13/2006	860
USEPA PRG ²			4
<p>Notes:</p> <p>1. Analysis for perchlorate was by EPA Method 314.0.</p> <p>2. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).</p> <p>ug/L Micrograms per liter.</p> <p>TR-08D Denotes a duplicate sample of TR-08.</p> <p>U Not detected at concentrations below the listed laboratory quantitation limit.</p> <p>Bold Bold values are constituents detected above the laboratory quantitation limit.</p> <p>Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.</p>			

Table 4-5
TPH and Fuel Alcohol Concentrations in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Boring No.	Sample ID	Sample Depth (ft)	Date Sampled	Total Petroleum Hydrocarbons ¹			Fuel Alcohols ²		
				TPH-G (C ₆ -C ₁₀) (mg/kg)	TPH-D (C ₁₀ -C ₂₈) (mg/kg)	TPH-O (C ₂₈ -C ₃₈) (mg/kg)	Methanol (mg/kg)	Ethanol (mg/kg)	Ethylene Glycol (mg/kg)
M-116	M116-0.5	0.5	3/12/2006	1.1 U	11 U	11 U	R	1.1 U	42 U
	M116-0.5D	0.5	3/12/2006	1.1 U	11 U	11 U	R	1.1 U	43 U
	M116-0.5R ⁴	0.5	3/24/2006	na	na	na	1.1 U	1.1 U	na
	M116-5	5	3/12/2006	1.1 U	11 U	11 U	2.4 Z	1.1 U	45 U
	M116-10	10	3/12/2006	1.3 U	11 U	11 U	1.2 Z	1.1 U	43 U
	M116-30	30	3/12/2006	1.2 U	12 U	12 U	11 Z	1.2 U	49 U
M116-50	50	3/12/2006	1.2 U	12 U	12 U	2.1 Z	1.2 U	50 U	
M-117	M117-0.5	0.5	3/11/2006	0.98 U	11 U	11 U	R	1.1 U	42 U
	M117-0.5R ⁴	0.5	3/24/2006	na	na	na	1.1 U	1.1 U	na
	M117-5	5	3/11/2006	1.2 U	11 U	11 U	47 Z	1.1 U	44 U
	M117-10	10	3/11/2006	1.1 U	11 U	11 U	14 Z	1.1 U	43 U
	M117-30	30	3/11/2006	1.4 U	11 U	11 U	16 Z	1.1 U	45 U
	M117-50	50	3/11/2006	1.2 U	12 U	12 U	20 Z	1.2 U	49 U
M117-80	80	3/11/2006	1.2 U	12 U	12 U	12 JZ	1.2 U	50 U	
M117-80D	80	3/11/2006	0.93 U	11 U	11 U	5 JZ	1.1 U	46 U	
M-118	M118-0.5	0.5	3/8/2006	0.98 U	11 U	11 U	R	1.1 U	42 U
	M118-0.5R ⁴	0.5	3/24/2006	na	na	na	1.1 U	1.1 U	na
	M118-5	5	3/8/2006	1 U	11 U	11 U	6.6 Z	1.1 U	43 U
	M118-10	10	3/8/2006	1.3 U	12 U	12 U	0.62 JZ	1.2 U	46 U
	M118-30	30	3/8/2006	1.2 U	11 U	11 U	3.1 Z	1.1 U	45 U
	M118-50	50	3/8/2006	1.2 U	12 U	12 U	0.77 JZ	1.2 U	49 U
M118-80	80	3/8/2006	1 U	12 U	12 U	2.9 Z	1.2 U	47 U	
M-119	M119-0.5	0.5	3/14/2006	1.4 U	11 U	11 U	1.1 U	1.1 U	44 U
	M119-0.5D	0.5	3/14/2006	1.1 U	6.2 J	11 U	1.1 U	1.1 U	44 U
	M119-5	5	3/14/2006	1.2 U	11 U	11 U	1.1 U	1.1 U	44 U
	M119-10	10	3/14/2006	1.4 U	11 U	11 U	1.1 U	1.1 U	44 U
	M119-32	32	3/14/2006	1.7 U	14 U	14 U	1.4 U	1.4 U	57 U
M119-50	50	3/14/2006	1.2 U	12 U	12 U	1.2 U	1.2 U	46 U	
M-120	M120-0.5	0.5	3/7/2006	0.99 U	11 U	11 U	R	1.1 U	45 U
	M120-0.5R ⁴	0.5	3/24/2006	na	na	na	1.1 U	1.1 U	na
	M120-5	5	3/7/2006	1 U	11 U	11 U	1.1 U	1.1 U	43 U
	M120-10	10	3/7/2006	0.98 U	11 U	11 U	1.3 Z	1.1 U	43 U
	M120-30	30	3/7/2006	1 U	11 U	11 U	1.1 U	1.1 U	45 U
	M120-50	50	3/7/2006	1.5 U	15 U	15 U	1.5 U	1.5 U	61 U
M120-80	80	3/7/2006	1 U	12 U	12 U	0.86 JZ	1.2 U	48 U	
M-121	M121-0.5	0.5	3/10/2006	1.1 U	290	800	1 U	1 U	42 U
	M121-0.5R ⁴	0.5	3/24/2006	na	na	na	1.1 U	1.1 U	na
	M121-5	5	3/10/2006	1.2 U	11 U	11 U	0.72 JZ	1.1 U	45 U
	M121-5D	5	3/10/2006	1.1 U	11 U	11 U	3.7 Z	1.1 U	44 U
	M121-10	10	3/10/2006	0.9 U	11 U	11 U	2.3 Z	1.1 U	42 U
	M121-30	30	3/10/2006	0.93 U	9 J	11 U	0.92 JZ	1.1 U	42 U
	M121-50	50	3/10/2006	0.99 U	11 U	11 U	23 Z	1.1 U	43 U
	M121-60	60	3/10/2006	1.1 U	12 U	12 U	na	na	na
M121-70	70	3/10/2006	1.2 U	13 U	13 U	na	na	na	
M121-80	80	3/10/2006	1.3 U	14 U	14 U	3.8 Z	1.4 U	55 U	
USEPA PRG ³ (mg/kg)				NE	NE	NE	100,000	NE	100,000
Notes: 1. Total petroleum hydrocarbon analyses was by EPA Method 8015B/5035 2. Fuel Alcohol analysis was by EPA Method 8015B/5035 for methanol, ethanol, and ethylene glycol. 3. Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9 (October 2004). 4. Re-collection and analysis of sample. mg/kg milligrams per kilograms M116-0.5D Duplicate sample of M116-0.5 U Not detected at concentrations below the listed laboratory quantitation limit. J Estimated value; concentration was less than the quantitation limit. R Rejected data; methanol cross-contamination suspected. JZ Estimated value; concentration was less than the quantitation limit; Probable false positive. Z Probable false positive. na Not analyzed. NE None established. Bold Bold values are constituents detected above the laboratory quantitation limit. Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.									

Table 4-6
TPH and Fuel Alcohol Concentrations in Groundwater Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Well Cluster	Well ID	Screened Interval (ft)	Date Sampled	TPH ^{1.}			Fuel Alcohols ^{2.}		
				Gasoline-range (C ₆ -C ₁₀) mg/L	Diesel-range (C ₁₀ -C ₂₈) mg/L	Oil-range (C ₂₈ -C ₃₈) mg/L	Ethanol mg/L	Ethylene Glycol mg/L	Methanol mg/L
--	H-11	95 - 105	3/23/2006	0.083J	0.18 J	0.94 U	1 U	10 U	1 U
--	M-103	69.5 - 89.5	3/21/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
--	M-117	130 - 150	3/23/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
--	M-118	138 - 158	3/22/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
--	M-120	80 - 100	3/22/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
--	M-121	77 - 97	3/23/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
1	TR-07	260 - 290	3/21/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
	TR-08	63 - 93	3/20/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
	TR-08D	63 - 93	3/20/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
2	TR-09	230 - 250	3/21/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
	TR-10	80 - 100	3/21/2006	0.1U	0.47 U	0.94 U	1 U	10 U	1 U
USEPA PRG ^{3.}				NE	NE	NE	NE	73	18

Notes:

mg/L milligrams per liter

TR-08D Denotes a duplicate sample of TR-08.

NE None established.

J Estimated value; concentration was less than the quantitation limit.

U Not detected at concentrations below the listed laboratory quantitation limit.

1. Total Petroleum Hydrocarbon analysis was by EPA Method 8015B.

2. Methanol, ethanol, and ethylene glycol analyses by EPA Method 8015B.

3. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).

Bold Bold values are constituents detected above the laboratory quantitation limit.

Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-7
Volatile Organic Compound (VOC) Concentrations in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

			Volatile Organic Compounds ¹ : (Continued)								
Boring No.	Sample ID No.	Sample Depth (ft)	Tetrachloroethene	Toluene	trans-1,2-Dichloroethylene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinylchloride	Xylene (Total)	
			ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
M-116	M116-0.5	0.5	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	9.8 U	
	M116-0.5D	0.5	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	12 U	
	M116-05	5	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	16 U	
	M116-10	10	7 U	7 U	7 U	7 U	7 U	7 U	7 U	14 U	
	M116-30	30	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	16 U	
	M116-50	50	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	12 U	
M-117	M117-0.5	0.5	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	9.6 U	
	M117-05	5	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	2.7 J	5.2 U	10 U	
	M117-10	10	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	10 U	
	M117-30	30	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	15 U	
	M117-50	50	6.7 U	6.7 U	6.7 U	6.7 U	6.7 U	6.7 U	6.7 U	13 U	
	M117-80	80	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	
	M117-80D	80	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	2.4 J	5.2 U	10 U	
M-118	M118-0.5	0.5	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	9.1 U	
	M118-05	5	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	9.9 U	
	M118-10	10	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	11 U	
	M118-30	30	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	11 U	
	M118-50	50	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	15 U	
	M118-80	80	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	13 U	
M-119	M119-0.5	0.5	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	11 U	
	M119-0.5D	0.5	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	11 U	
	M119-05	5	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	13 U	
	M119-10	10	5.3 U	5.3 U	5.3 U	5.3 U	5.3 U	5.3 U	5.3 U	11 U	
	M119-32	32	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	16 U	
	M119-50	50	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	13 U	
M-120	M120-0.5	0.5	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	12 U	
	M120-05	5	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	9.8 U	
	M120-10	10	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	10 U	
	M120-30	30	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	9.6 U	
	M120-50	50	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	15 U	
	M120-80	80	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	10 U	
M-121	M121-0.5	0.5	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	10 U	
	M121-05	5	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	12 U	
	M121-05D	5	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	11 U	
	M121-10	10	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	9.7 U	
	M121-30	30	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	9.4 U	
	M121-50	50	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	9.5 U	
	M121-60	60	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U	12 U	
	M121-70	70	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	12 U	
	M121-80	80	9 U	9 U	9 U	9 U	9 U	9 U	9 U	18 U	
US EPA PRG ³ (ug/kg)			1,300	520,000	234,822	1,760	110	2,000,000	746	420,000	
			1.	VOC analysis by EPA Method 8260B/5035.				R	Rejected data		
			2.	2-Butanone is also known as Methyl Ethyl/Ketone (MEK)				ug/kg	micrograms per kilogram		
			3.	Preliminary Remediation Goal for industrial sites established by U.S. EPA Region 9 (October 2004).				NE	None established.		
			J	Estimated value; concentration was less than the quantitation limit.				Gray	Grayed out values are non-detected values with the laboratory quantitative limits shown.		
			U	Not detected at concentrations below the listed laboratory quantitation limit.							
			Bold	Bold values are constituents detected above the laboratory quantitation limit							

Table 4-8
Volatile Organic Compound (VOC) Concentrations in Groundwater
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Well Cluster	Well ID	Screened Interval (ft)	Date Sampled	Volatile Organic Compounds ¹																			
				1,1,1,2-Tetrachloroethane ug/L	1,1,1-Trichloroethane ug/L	1,1,2,2-Tetrachloroethane ug/L	1,1,2-Trichloroethane ug/L	1,1-Dichloroethane ug/L	1,1-Dichloroethene ug/L	1,1-Dichloropropene ug/L	1,2,3-Trichlorobenzene ug/L	1,2,3-Trichloropropane ug/L	1,2,4-Trichlorobenzene ug/L	1,2,4-Trimethylbenzene ug/L	1,2-Dibromo-3-chloropropane ug/L	1,2-Dichlorobenzene ug/L	1,2-Dichloroethane ug/L	1,2-Dichloropropane ug/L	1,3,5-Trimethylbenzene ug/L	1,3-Dichlorobenzene ug/L	1,3-Dichloropropane ug/L	1,4-Dichlorobenzene ug/L	
--	H-11	95 - 105	3/23/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
--	M-103	69.5 - 89.5	3/21/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
--	M-117	130 - 150	3/23/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
--	M-118	138 - 158	3/22/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
--	M-120	80 - 100	3/22/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
--	M-121	77 - 97	3/23/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1	TR-07	260 - 290	3/21/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
	TR-08	63 - 93	3/20/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
	TR-08D	63 - 93	3/20/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
2	TR-09	230 - 250	3/21/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
	TR-10	80 - 100	3/21/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
US EPA PRG ³ (ug/L)				0.432	3172	0.055	0.200	811	339	0.395	7	0.006	7	12	0.048	0.037	0.123	0.165	12	180	122	0.502	
Notes:																							
1. VOC analysis was by EPA Method 8260B.																							
2. 2-Butanone is also known as Methyl Ethyl/Ketone (MEK) Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).																							
3. ug/L micrograms per liter																							
J Estimated value; concentration was less than the quantitation limit.																							
U Not detected at concentrations below the listed laboratory quantitation limit.																							
UJ Not detected; estimated value below quantitation limit.																							
TR-08D Denotes a duplicate sample of TR-08.																							
Bold Bold values are constituents detected above the laboratory quantitation limit.																							
Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.																							

Table 4-8
Volatile Organic Compound (VOC) Concentrations in Groundwater
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

(Continued)

Well Cluster	Well ID	Screened Interval (ft)	Date Sampled	Volatile Organic Compounds ¹																			
				1-Chlorohexane ug/L	2,2-Dichloropropane ug/L	2-Butanone ² ug/L	2-Chlorotoluene ug/L	2-Hexanone ug/L	2-Methoxy-2-methyl-butane ug/L	4-Chlorotoluene ug/L	4-Isopropyltoluene ug/L	4-Methyl-2-pentanone ug/L	Acetone ug/L	Benzene ug/L	Bromobenzene ug/L	Bromochloromethane ug/L	Bromodichloromethane ug/L	Bromoform ug/L	Bromomethane ug/L	Carbon tetrachloride ug/L	Chlorobenzene ug/L	Chloroethane ug/L	
--	H-11	95 - 105	3/23/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	11	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
--	M-103	69.5 - 89.5	3/21/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
--	M-117	130 - 150	3/23/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	5 J	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
--	M-118	138 - 158	3/22/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
--	M-120	80 - 100	3/22/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
--	M-121	77 - 97	3/23/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
1	TR-07	260 - 290	3/21/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
	TR-08	63 - 93	3/20/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
	TR-08D	63 - 93	3/20/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
2	TR-09	230 - 250	3/21/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
	TR-10	80 - 100	3/21/2006	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	
US EPA PRG ³ (ug/L)				417	0.165	6968	122	6,968	NE	122	658	1993	5,475	0.354	20	0.181	0.181	9	9	0.171	106	5	
Notes:																							
1. VOC analysis was by EPA Method 8260B.																							
2. 2-Butanone is also known as Methyl Ethyl/Ketone (MEK) Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).																							
3. U.S. EPA Region 9 (October 2004).																							
ug/L micrograms per liter																							
J Estimated value; concentration was less than the quantitation limit.																							
U Not detected at concentrations below the listed laboratory quantitation limit.																							
UJ Not detected; estimated value below quantitation limit.																							
TR-08D Denotes a duplicate sample of TR-08.																							
Bold Bold values are constituents detected above the laboratory quantitation limit.																							
Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.																							

Table 4-8
Volatile Organic Compound (VOC) Concentrations in Groundwater
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

(Continued)

Well Cluster	Well ID	Screened Interval (ft)	Date Sampled	Volatile Organic Compounds ¹																			
				Chloroform ug/L	Chloromethane ug/L	cis-1,2-Dichloroethene ug/L	cis-1,3-Dichloropropene ug/L	Dibromochloromethane ug/L	Dibromomethane ug/L	Dichlorodifluoromethane ug/L	Ethyl t-butyl ether ug/L	Ethylbenzene ug/L	Ethylene dibromide ug/L	Hexachlorobutadiene ug/L	isopropyl ether ug/L	Isopropylbenzene ug/L	Methyl tert butyl ether ug/L	Methylene chloride ug/L	Naphthalene ug/L	N-Butylbenzene ug/L	N-Propylbenzene ug/L	sec-Butylbenzene ug/L	
--	H-11	95 - 105	3/23/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 UJ	5 U	5 U	5 U
--	M-103	69.5 - 89.5	3/21/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
--	M-117	130 - 150	3/23/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 UJ	5 U	5 U	5 U
--	M-118	138 - 158	3/22/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 UJ	5 U	5 U	5 U
--	M-120	80 - 100	3/22/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 UJ	5 U	5 U	5 U
--	M-121	77 - 97	3/23/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 UJ	5 U	5 U	5 U
1	TR-07	260 - 290	3/21/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
	TR-08	63 - 93	3/20/2006	14	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
	TR-08D	63 - 93	3/20/2006	13	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
2	TR-09	230 - 250	3/21/2006	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
	TR-10	80 - 100	3/21/2006	1.6 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
US EPA PRG ³ (ug/L)				0.166	158	61	0.395	0.133	61	395	NE	1340	0.006	0.862	NE	658	6	4	6	243	243	243	

Notes:

- VOC analysis was by EPA Method 8260B.
- 2-Butanone is also known as Methyl Ethyl/Ketone (MEK)
- Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).

ug/L micrograms per liter
 J Estimated value; concentration was less than the quantitation limit
 U Not detected at concentrations below the listed laboratory quantitation limit.
 UJ Not detected; estimated value below quantitation limit.
 TR-08D Denotes a duplicate sample of TR-08.
Bold Bold values are constituents detected above the laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-8
Volatile Organic Compound (VOC) Concentrations in Groundwater
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

(Continued)

Well Cluster	Well ID	Screened Interval (ft)	Date Sampled	Volatile Organic Compounds ¹										
				Styrene ug/L	t-Butyl alcohol ug/L	tert-Butylbenzene ug/L	Tetrachloroethene ug/L	Toluene ug/L	trans-1,2-Dichloroethylene ug/L	trans-1,3-Dichloropropene ug/L	Trichloroethene ug/L	Trichlorofluoromethane ug/L	Vinylchloride ug/L	Xylene (Total) ug/L
--	H-11	95 - 105	3/23/2006	5 U	R	5 U	5 U	33	5 U	5 U	5 U	5 U	5 U	10 U
--	M-103	69.5 - 89.5	3/21/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
--	M-117	130 - 150	3/23/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
--	M-118	138 - 158	3/22/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
--	M-120	80 - 100	3/22/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
--	M-121	77 - 97	3/23/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
1	TR-07	260 - 290	3/21/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
	TR-08	63 - 93	3/20/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	1.3 J	5 U	5 U	10 U
	TR-08D	63 - 93	3/20/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	1.1 J	5 U	5 U	10 U
2	TR-09	230 - 250	3/21/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
	TR-10	80 - 100	3/21/2006	5 U	R	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
US EPA PRG ³ (ug/L)				1,641	NE	243	0.104	723	122	0.395	0.028	1288	0.020	206
Notes: 1. VOC analysis was by EPA Method 8260B. 2. 2-Butanone is also known as Methyl Ethyl/Ketone (MEK) Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004). 3. U.S. EPA Region 9 (October 2004). ug/L micrograms per liter J Estimated value; concentration was less than the quantitation limit U Not detected at concentrations below the listed laboratory quantitation limit. UJ Not detected; estimated value below quantitation limit. TR-08D Denotes a duplicate sample of TR-08. Bold Bold values are constituents detected above the laboratory quantitation limit. Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.														

Table 4-9
Semi-Volatile Organic Compounds (SVOC) Concentrations in Soil
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Analyte ¹	Unit	Soil Boring M-120 ²			US EPA PRG ³ (ug/kg)
		M120-0.5 0.5 ft.	M120-10 10 ft.	M120-30 30 ft.	
2,4,5-Trichlorophenol	ug/kg	370 U	350 U	370 U	61,651,000
2,4,6-Trichlorophenol	ug/kg	370 U	350 U	370 U	61,560
2,4-Dichlorophenol	ug/kg	370 U	350 U	370 U	1,847,000
2,4-Dimethylphenol	ug/kg	370 U	350 U	370 U	12,312,000
2,4-Dinitrophenol	ug/kg	740 U	710 U	740 U	1,231,000
2,4-Dinitrotoluene	ug/kg	370 U	350 U	370 U	1,231,000
2,6-Dinitrotoluene	ug/kg	370 U	350 U	370 U	615,606
2-Chloronaphthalene	ug/kg	370 U	350 U	370 U	23,383,000
2-Chlorophenol	ug/kg	370 U	350 U	370 U	235,800
2-Methylphenol	ug/kg	370 U	350 U	370 U	30,780,000
2-Nitroaniline	ug/kg	370 U	350 U	370 U	1,830,000
2-Nitrophenol	ug/kg	370 U	350 U	370 U	1230000
3,3-Dichlorobenzidine	ug/kg	370 U	350 U	370 U	3830
3-Nitroaniline	ug/kg	370 U	350 U	370 U	82,080
4,6-Dinitro-2-methylphenol	ug/kg	740 U	710 U	740 U	1230000
4-Bromophenyl-phenylether	ug/kg	370 U	350 U	370 U	1230000
4-Chloro-3-methylphenol	ug/kg	370 U	350 U	370 U	1850000
4-Chloroaniline	ug/kg	370 U	350 U	370 U	2,462,400
4-Chlorophenyl-phenylether	ug/kg	370 U	350 U	370 U	1230000
4-Methylphenol	ug/kg	370 U	350 U	370 U	3,078,000
4-Nitroaniline	ug/kg	370 U	350 U	370 U	82,080
4-Nitrophenol	ug/kg	740 U	710 U	740 U	1230000
Benzoic acid	ug/kg	930 U	890 U	930 U	100,000,000
Benzyl alcohol	ug/kg	370 U	350 U	370 U	100,000,000
bis(2-Chloroethoxy)methane	ug/kg	370 U	350 U	370 U	7350
bis(2-Chloroethyl)ether	ug/kg	370 U	350 U	370 U	575
bis(2-Chloroisopropyl)ether	ug/kg	370 U	350 U	370 U	7,351
bis(2-Ethylhexyl)phthalate	ug/kg	370 U	350 U	370 U	123,121
Butyl benzyl phthalate	ug/kg	370 U	350 U	370 U	100,000,000
Carbazole	ug/kg	370 U	350 U	370 U	86,184
Dibenzofuran	ug/kg	370 U	350 U	370 U	1,563,300
Diethyl phthalate	ug/kg	370 U	350 U	370 U	100,000,000
Dimethyl phthalate	ug/kg	370 U	350 U	370 U	100,000,000
Di-N-Butyl phthalate	ug/kg	370 U	350 U	370 U	61600000
Di-N-Octyl phthalate	ug/kg	370 U	350 U	370 U	24,624,000
Hexachlorocyclopentadiene	ug/kg	370 U	350 U	370 U	3,659,000
Hexachloroethane	ug/kg	370 U	350 U	370 U	123,121
Isophorone	ug/kg	370 U	350 U	370 U	512,000
Nitrobenzene	ug/kg	370 U	350 U	370 U	103,000
N-Nitroso-di-N-propylamine	ug/kg	370 U	350 U	370 U	246
N-Nitrosodiphenylamine	ug/kg	370 U	350 U	370 U	352,000
Octachlorostyrene	ug/kg	930 U	890 U	930 U	NE
Phenol	ug/kg	370 U	350 U	370 U	100,000,000
Pyridine	ug/kg	930 U	890 U	930 U	616,000
2-Methylnaphthalene	ug/kg	22 U	21 U	22 U	188000
Acenaphthene	ug/kg	22 U	21 U	22 U	29,219,000
Acenaphthylene	ug/kg	22 U	21 U	22 U	29200000

Table 4-9
Semi-Volatile Organic Compounds (SVOC) Concentrations in Soil
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

(Continued)

Analyte ¹	Unit	Soil Boring M-120 ²			US EPA PRG ³ (ug/kg)
		M120-0.5 0.5 ft.	M120-10 10 ft.	M120-30 30 ft.	
Anthracene	ug/kg	22 U	21 U	22 U	100,000,000
Benz(a)anthracene	ug/kg	22 U	21 U	22 U	2,109
Benzo(a)pyrene	ug/kg	22 U	21 U	22 U	211
Benzo(b)fluoranthene	ug/kg	22 U	21 U	22 U	2,109
Benzo(g,h,i)perylene	ug/kg	22 U	21 U	22 U	29,100,000
Benzo(k)fluoranthene	ug/kg	22 U	21 U	22 U	21,096
Chrysene	ug/kg	22 U	21 U	22 U	210,962
Dibenz(a,h)anthracene	ug/kg	22 U	21 U	22 U	211
Fluoranthene	ug/kg	22 U	21 U	22 U	22,000,000
Fluorene	ug/kg	22 U	21 U	22 U	26,281,000
Hexachlorobenzene	ug/kg	22 U	21 U	22 U	1,077
Indeno(1,2,3-cd)pyrene	ug/kg	22 U	21 U	22 U	2,109
Pentachlorophenol	ug/kg	22 U	21 U	22 U	8,998
Phenanthrene	ug/kg	22 U	21 U	22 U	100000000
Pyrene	ug/kg	22 U	21 U	22 U	29,126,000
1,2-Dichlorobenzene	ug/kg	370 U	350 U	370 U	600,000
1,3-Dichlorobenzene	ug/kg	370 U	350 U	370 U	600,000
1,4-Dichlorobenzene	ug/kg	370 U	350 U	370 U	7,866
Hexachlorobutadiene	ug/kg	370 U	350 U	370 U	22,100
Naphthalene	ug/kg	22 U	21 U	22 U	187,700

Notes:

1. Analysis for semi-volatile organic compounds was by EPA Methode 8270C
 2. No other soil samples were tested for semi-volatile organic compounds.
 3. Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9 (October 2004).
- ug/kg micograms per kilogram
 U Not detected at concentrations below the listed laboratory quantitation limit.
 NE None established.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-10
Semi-Volatile Compound (SVOC) Concentrations
in Groundwater
Upgradient Investigation, Tronox Facility - Henderson, Nevada

Analyte ¹	Unit	M-120 ²	US EPA PRG ³
2,4,5-Trichlorophenol	ug/kg	9.4 U	3650
2,4,6-Trichlorophenol	ug/kg	9.4 U	4
2,4-Dichlorophenol	ug/kg	9.4 U	109
2,4-Dimethylphenol	ug/kg	9.4 U	730
2,4-Dinitrophenol	ug/kg	19 U	73
2,4-Dinitrotoluene	ug/kg	9.4 U	0.099
2,6-Dinitrotoluene	ug/kg	9.4 U	0.099
2-Chloronaphthalene	ug/kg	9.4 U	487
2-Chlorophenol	ug/kg	9.4 U	30
2-Methylphenol	ug/kg	9.4 U	1825
2-Nitroaniline	ug/kg	9.4 U	109
2-Nitrophenol	ug/kg	9.4 U	73
3,3-Dichlorobenzidine	ug/kg	R	0.15
3-Nitroaniline	ug/kg	9.4 U	3
4,6-Dinitro-2-methylphenol	ug/kg	19 U	73
4-Bromophenyl-phenylether	ug/kg	9.4 U	73
4-Chloro-3-methylphenol	ug/kg	9.4 U	109
4-Chloroaniline	ug/kg	9.4 U	146
4-Chlorophenyl-phenylether	ug/kg	9.4 U	73
4-Methylphenol	ug/kg	9.4 U	182
4-Nitroaniline	ug/kg	9.4 U	3
4-Nitrophenol	ug/kg	19 U	73
Benzoic acid	ug/kg	19 U	145979
Benzyl alcohol	ug/kg	9.4 U	10950
bis(2-Chloroethoxy)methane	ug/kg	9.4 U	0.274
bis(2-Chloroethyl)ether	ug/kg	9.4 U	0.274
bis(2-Chloroisopropyl)ether	ug/kg	9.4 U	0.274
bis(2-Ethylhexyl)phthalate	ug/kg	9.4 U	4.802
Butyl benzyl phthalate	ug/kg	9.4 U	7300
Carbazole	ug/kg	9.4 U	3
Dibenzofuran	ug/kg	9.4 U	12
Diethyl phthalate	ug/kg	9.4 U	29199
Dimethyl phthalate	ug/kg	9.4 U	29199
Di-N-Butyl phthalate	ug/kg	9.4 U	3650
Di-N-Octyl phthalate	ug/kg	9.4 U	1460
Hexachlorocyclopentadiene	ug/kg	9.4 U	219
Hexachloroethane	ug/kg	9.4 U	5
Isophorone	ug/kg	9.4 U	71
Nitrobenzene	ug/kg	9.4 U	3
N-Nitroso-di-N-propylamine	ug/kg	9.4 U	0.010
N-Nitrosodiphenylamine	ug/kg	9.4 U	14
Octachlorostyrene	ug/kg	9.4 U	NE
Phenol	ug/kg	9.4 U	10950
Pyridine	ug/kg	38 U	36
2-Methylnaphthalene	ug/kg	0.19 U	6
Acenaphthene	ug/kg	0.19 U	365
Acenaphthylene	ug/kg	0.19 U	365
Anthracene	ug/kg	0.19 U	1825

Table 4-10
Semi-Volatile Compound (SVOC) Concentrations
in Groundwater
 Upgradient Investigation, Tronox Facility - Henderson, Nevada
 (Continued)

Analyte ¹	Unit	M-120 ²	US EPA PRG ³
Benzo(a)pyrene	ug/kg	0.19 U	0.009
Benzo(b)fluoranthene	ug/kg	0.19 U	0.092
Benzo(g,h,i)perylene	ug/kg	0.19 U	183
Benzo(k)fluoranthene	ug/kg	0.19 U	0.921
Chrysene	ug/kg	0.19 U	9
Dibenz(a,h)anthracene	ug/kg	0.19 U	0.009
Fluoranthene	ug/kg	0.19 U	1460
Fluorene	ug/kg	0.19 U	243
Hexachlorobenzene	ug/kg	0.94 U	0.042
Indeno(1,2,3-cd)pyrene	ug/kg	0.19 U	0.092
Pentachlorophenol	ug/kg	0.94 U	0.560
Phenanthrene	ug/kg	0.19 U	1825
Pyrene	ug/kg	0.19 U	183
1,2-Dichlorobenzene	ug/kg	9.4 U	370
1,3-Dichlorobenzene	ug/kg	9.4 U	183
1,4-Dichlorobenzene	ug/kg	9.4 U	0.502
Hexachlorobutadiene	ug/kg	9.4 U	0.862
Naphthalene	ug/kg	0.19 U	6

Notes:

1. Analysis for semi-volatile organic compounds was by EPA Methode 8270C.
2. No other soil samples were tested for semi-volatile organic compounds.
3. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).

ug/kg micorgrams per kilogram
 U Not detected at concentrations below the listed laboratory quantitation limit.
 R Rejected.
 NE None established.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-11
Radionuclide Concentrations in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Soil Boring No.	Sample Sample ID	Sample Depth (ft)	Radionuclides ¹																
			Actinium-228 pCi/g	Gross Alpha pCi/g	Bismuth-212 pCi/g	Lead-210 pCi/g	Lead-212 pCi/g	Ra-226 pCi/g	Ra-228 pCi/g	Protactinium pCi/g	Polonium - 210 pCi/g	Th-228 pCi/g	Th-230 pCi/g	Th-232 pCi/g	U-234 pCi/g	U-235 pCi/g	U-238 pCi/g	U-natural (total) ug/g	Gross Alpha pCi/g
M-116	M116-0.5	0.5	na	na	na	0.687 U	1.78	0.791	1.78	na	na	2.11	0.704 B	1.90	1.36	0.043 U	0.805	3.64	na
	M116-0.5D	0.5	na	na	na	0.694 U	1.91	1.04	1.98	na	na	1.81	1.24 B	1.56	1.18	0.253 U	1.16	3.57	na
	M116-5	5	na	na	na	0.443 U	1.52	0.907	1.35	na	na	1.32	0.873 B	1.10	0.872	0.0916 U	0.904	2.18	na
M-117	M117-0.5	0.5	na	na	na	-0.0493 U	1.85	0.891	1.92	na	na	2.22	1.15 B	1.59	0.775	0.0123 U	1.49	1.45	na
	M117-5	5	na	na	na	0.261 U	1.60	0.940	1.59	na	na	1.34	1.33 JB	1.05	1.22	0.198 U	0.979	3.15	na
M-118	M118-0.5	0.5	na	na	na	0.174 U	1.76	0.975	1.80	na	na	2.01	0.892 B	1.86	0.987	0.138 U	1.08	2.01	na
	M118-5	5	na	na	na	0.628 U	1.88	1.02	1.77	na	na	1.79	1.18 B	1.88	1.24	0.0445 U	1.12	2.50	na
M-119	M119-0.5	0.5	na	na	na	0.284 U	1.77	0.950	1.75	na	na	1.77	0.948 B	1.32	0.782	0.0476 U	0.944	1.74	na
	M119-0.5D	0.5	na	na	na	0.449 U	1.65	1.07	1.65	na	na	1.51	1.12 B	1.30	0.926	0.0608 U	1.04	2.33	na
	M119-5	5	na	na	na	0.595 U	1.83	0.986	1.92	na	na	1.55	0.687 B	1.30	1.69	0.0203 U	0.938	2.11	na
	M119-50	50	na	na	na	0.623 U	1.82	2.06	1.84	na	na	1.24	1.85	1.20	2.14	0.101U	2.02	6.44	na
M-120	M120-0.5	0.5	1.87	19.9	1.28	0.462 UJ	1.97	1.02	1.87	0.177 U	1.76	2.01	1.09	1.94	0.962	-0.00891 U	0.911	21.1	19.9
	M120-5	5	na	na	na	0.0735 UJ	1.79	0.907	1.86	na	na	1.88	1.26	1.99	1.18	0.0953 U	1.16	26.2	na
	M120-10	10	1.87	20.1	1.18	-0.0593 UJ	1.86	1.06	1.87	-0.753 U	0.648	1.44	1.13	1.98	1.24	0.197	0.812	2.73	20.1
	M120-30	30	2.24	18.9	1.33	0.0294 UJ	2.26	1.73	2.24	0.00123 U	0.623	2.06	1.77	1.74	2.00	0.280	1.39	3.45	18.9
	M120-50	50	na	na	na	0.533 UJ	1.50	1.34	1.45	na	na	1.80	1.55	1.28	2.36	0.0797 U	1.97	4.10	na
M-121	M121-0.5	0.5	na	na	na	0.582 U	2.13	1.06	1.86	na	na	3.04	0.824 B	2.42	0.804	0.162	1.21	2.45	na
	M121-5	5	na	na	na	-0.0573 U	1.34	1.39	1.24	na	na	1.21	1.32 B	1.23	1.79	0.0889 U	1.22	3.02	na
	M121-05D	5	na	na	na	0.171 U	1.55	1.28	1.35	na	na	1.71	1.26 B	1.37	1.47	0.111 U	0.689	2.62	na
	M121-80	80	na	na	na	0.0537 U	1.48	1.09	1.38	na	na	1.25	1.13 B	0.965	0.914	0.186 U	0.905	2.53	na
US EPA PRG ²			1,190	NE	37,000	4	6,130	4	8	NE	273	NE	20	19	32	0.417	37	NE	NE

Notes:

- Analytical Methods:
 HASL-300 for Actinium-228, Bismuth-212, Lead-212, Radium-226, and Radium-228
 HASL-300 Po Modified for Polonium-210;
 HASL-300 Th Modified for Thorium-228, Thorium-230, and Thorium-232;
 HASL-300 U Modified for Uranium-234, Uranium-235, and Uranium-238
 ASTM D5174 for Uranium (natural) total
 EPA 900.0 Mod for Gross Alpha
 - Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9 (October 2004).
- Ra-226 Radium-226
 Th-228 Thorium-228
 U-234 Uranium-234
- U Not detected at concentrations below the listed laboratory quantitation limit.
 UJ Not detected; Estimated value below quantitation limit
 B Analyte detected in blank sample
- pCi/g picoCuries per gram
 ug/g micrograms per gram
 na Not analyzed
 NE None established
- Bold** Bold values are constituents detected above the laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-12
Radionuclide Concentrations in Groundwater Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Well Cluster	Well ID	Screened Interval (ft)	Date Sampled	Radionuclides ¹																			
				U-nat - total ug/L	Lead - 210 total pCi/L	Lead - 212 total pCi/L	Gross Alpha pCi/L	Actinium - 228 total pCi/L	Bismuth - 212 total pCi/L	Polonium - 210 total pCi/L	Protactinium - 231 total pCi/L	Ra-226 - total pCi/L	Ra-228 - total pCi/L	Thorium-228 pCi/L	Thorium-230 pCi/L	Thorium-232 pCi/L	Uranium (natural) ug/L	Uranium-234 pCi/L	Uranium-235 pCi/L	Uranium-238 pCi/L	Radon-222 pCi/L	U-Total ug/L	
--	H-11	95 - 105	3/23/2006	0.227 U	-0.215 U	1.05 U	na	na	na	na	na	na	0.422 B	0.934 U	0.335 U	0.0194 U	0.018 U	0.227U	0.0851 U	-0.0411 U	-0.0777 U	na	1.000 U
--	M-103	69.5 - 89.5	3/21/2006	3.41	1.03 U	0.412 U	na	na	na	na	na	na	0.390 U	0.177 U	0.200 U	0.136 U	-0.00725 U	3.41	1.44	-0.0962 U	0.680	na	3
--	M-117	130 - 150	3/23/2006	3.20	0.411 U	10 U	na	na	na	na	na	na	0.828	1.35	0.237 U	0.0123 U	0.138 U	3.20	1.22	0.00157 U	1.28	na	6.4
--	M-118	138 - 158	3/22/2006	2.57	-0.707 U	2.22 U	na	na	na	na	na	na	0.737	0.828 U	0.121 U	-0.0231 U	0.113 U	2.57	1.31	-0.0265 U	1.01	na	1.9
--	M-120	80 - 100	3/22/2006	47.5	-0.346 UJ	10 U	48.2	-6.36 U	10 U	-0.0487 U	28.2 U	28.2 U	0.232 U	0.381 UJ	0.451	0.422	0.436	47.5	26.1	1.14	15.6	514	43
--	M-121	77 - 97	3/23/2006	13.7	1.08 U	0.777 U	na	na	na	na	na	na	0.471 U	1.24	0.311	0.114 U	0.0416 U	13.7	9.54	0.311	4.98	na	13
1	TR-07	260 - 290	3/21/2006	2.65	1.15 U	4.71 U	na	na	na	na	na	na	0.529 U	0.276 U	0.161 U	0.0866 U	0.0402 U	2.65	1.46	-0.0886 U	0.725	na	2.4
	TR-08	63 - 93	3/20/2006	5.29	1.13 U	3.69 U	na	na	na	na	na	na	0.356 U	0.674 U	0.181	0.192	0.0847 U	5.29	3.06	0.132	1.58	na	4.8
	TR-08D	63 - 93	3/20/2006	5.25	1.80 U	0.0126 U	na	na	na	na	na	na	0.277 U	0.606 U	0.232	0.109	0.0814	5.25	3.93	0.524	1.83	na	4.7
2	TR-09	230 - 250	3/21/2006	2.35	1.55 U	2.75 U	na	na	na	na	na	na	0.402 U	0.389 U	0.191 U	0.00 U	0.0191 U	2.35	1.07	0.238 U	1.13	na	2.1
	TR-10	80 - 100	3/21/2006	4.26	1.04 U	10 U	na	na	na	na	na	na	0.848	1.03	0.0682 U	-0.0346 U	0.015 U	4.26	2.94	0.0571 U	1.77	na	4
USEPA PRG ¹ (pCi/L)				7	0.054	2	NE	24	67	0.126	NE	0.001	0.046	NE	0.523	0.471	7	0.674	0.684	0.547	NE	NE	
MCL ² (pCi/L)							15							NE	NE	NE	NE	NE	NE	NE	NE	300	

Notes:

- Analytical Methods:
 EPA 901.1 for Actinium-228, Bismuth-212, and Lead-212
 EPA 903.1 Modified for Radium-226
 EPA 904.0 Modified for Radium-228
 HASL-300 Po Modified for Polonium-210;
 HASL-300 Th Modified for Thorium-228, Thorium-230, and Thorium-232;
 HASL-300 U Modified for Uranium-234, Uranium-235, and Uranium-238
 ASTM D5174 for Uranium (natural) total
 EPA 900.0 Mod for Gross Alpha
- Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).
- Maximum Contaminant Level in groundwater established by Nevada Department of Environmental Protection.

Ra-226 Radium-226

Th-228 Thorium-228

U-234 Uranium-234

pCi/L picoCuries per liter

ug/L micrograms per liter

B Analyte detected in blank sample.

U Not detected at concentrations below the listed laboratory quantitation limit.

UJ Not detected; *Estimated value below quantitation limit

na Not sampled.

Bold Bold values are constituents detected above the laboratory quantitation limit.

Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-13
Organochlorine Pesticide (OCP) Concentrations in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Date Sampled	Chemical Name	Unit	Soil Boring M-120 ¹			US EPA PRG ² (ug/kg)
			M120-0.5 0.5 ft.	M120-10 10 ft.	M120-30 30 ft.	
3/7/2006	4,4'-DDD	ug/kg	4.5 U	4.3 U	4.5 U	9,951
3/7/2006	4,4'-DDE	ug/kg	4.5 U	4.3 U	4.5 U	7,024
3/7/2006	4,4'-DDT	ug/kg	4.5 U	4.3 U	4.5 U	7,024
3/7/2006	Aldrin	ug/kg	2.2 U	2.1 U	2.2 U	101
3/7/2006	Alpha-BHC	ug/kg	2.2 U	2.1 U	2.2 U	359
3/7/2006	Alpha-chlordane	ug/kg	2.2 U	2.1 U	2.2 U	6,500
3/7/2006	Beta-BHC	ug/kg	2.2 U	2.1 U	2.2 U	1,257
3/7/2006	Delta-BHC	ug/kg	2.2 U	2.1 U	2.2 U	360
3/7/2006	Dieldrin	ug/kg	4.5 U	4.3 U	4.5 U	107
3/7/2006	Endosulfan I	ug/kg	2.2 U	2.1 U	2.2 U	36,694,000
3/7/2006	Endosulfan II	ug/kg	4.5 U	4.3 U	4.5 U	36,694,000
3/7/2006	Endosulfan Sulfate	ug/kg	4.5 U	4.3 U	4.5 U	36,694,000
3/7/2006	Endrin	ug/kg	4.5 U	4.3 U	4.5 U	185,000
3/7/2006	Endrin Aldehyde	ug/kg	4.5 U	4.3 U	4.5 U	180,000
3/7/2006	Endrin Ketone	ug/kg	4.5 U	4.3 U	4.5 U	180,000
3/7/2006	Gamma-BHC (Lindane)	ug/kg	2.2 U	2.1 U	2.2 U	1,741
3/7/2006	Gamma-Chlordane	ug/kg	2.2 U	2.1 U	2.2 U	6,500
3/7/2006	Heptachlor	ug/kg	2.2 U	2.1 U	2.2 U	383
3/7/2006	Heptachlor Epoxide	ug/kg	2.2 U	2.1 U	2.2 U	189
3/7/2006	Methoxychlor	ug/kg	22 U	21 U	22 U	3,078,000
3/7/2006	Technical-chlordane	ug/kg	110 U	110 U	110 U	6467
3/7/2006	Toxaphene	ug/kg	56 U	54 U	56 U	1,566

Notes:

1. No other soil samples were tested for OCPs.
 2. Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9. (October 2004).
- ug/kg microgram per kilogram
 U Not detected at concentrations above the listed laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-14
Organochlorine Pesticide (OCP) Concentrations in Groundwater Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Date Sampled	Chemical Name	Unit	Equipment Blank	M-120¹	US EPA PRG (ug/L)²
3/24/2006	4,4'-DDD	ug/L	0.094 U	0.094 U	0.280
3/24/2006	4,4'-DDE	ug/L	0.094 U	0.094 U	0.198
3/24/2006	4,4'-DDT	ug/L	0.094 U	0.094 U	0.198
3/24/2006	Aldrin	ug/L	0.047 U	0.047 U	0.004
3/24/2006	Alpha-BHC	ug/L	0.047 U	0.047 U	0.011
3/24/2006	Alpha-chlordane	ug/L	0.047 U	0.047 U	0.192
3/24/2006	Beta-BHC	ug/L	0.047 U	0.047 U	0.037
3/24/2006	Delta-BHC	ug/L	0.047 U	0.047 U	0.011
3/24/2006	Dieldrin	ug/L	0.094 U	0.094 U	0.004
3/24/2006	Endosulfan I	ug/L	0.047 U	0.047 U	219
3/24/2006	Endosulfan II	ug/L	0.094 U	0.094 U	219
3/24/2006	Endosulfan Sulfate	ug/L	0.094 U	0.094 U	219
3/24/2006	Endrin	ug/L	0.094 U	0.094 U	11
3/24/2006	Endrin Aldehyde	ug/L	0.047 U	0.047 U	11
3/24/2006	Endrin Ketone	ug/L	0.047 U	0.047 U	11
3/24/2006	Gamma-BHC (Lindane)	ug/L	0.047 U	0.047 U	0.052
3/24/2006	Gamma-Chlordane	ug/L	0.047 U	0.047 U	0.192
3/24/2006	Heptachlor	ug/L	0.047 U	0.047 U	0.015
3/24/2006	Heptachlor Epoxide	ug/L	0.047 U	0.047 U	0.007
3/24/2006	Methoxychlor	ug/L	0.47 U	0.47 U	182
3/24/2006	Technical-Chlordane	ug/L	0.47 U	0.47 U	0.19
3/24/2006	Toxaphene	ug/L	0.94 U	0.94 U	0.061

Notes:

1. No other soil samples were tested for OCPs.
 2. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9. (October 2004).
- ug/L micrograms per liter
 U Not detected at concentrations above the listed laboratory quantitation limit.
- Bold** Bold values are constituents detected above the laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-15
Organophosphorous Pesticide (OPP) Concentrations in Soil Samples
Upgradient Investigation, Tronox Facility - Henderson, Nevada

Date Sampled	Chemical Name	Unit	Soil Boring M-120 ¹			US EPA PRG (mg/kg) ²
			M120-0.5 0.5 ft.	M120-10 10 ft.	M120-30 30 ft.	
3/7/2006	Azinphos-methyl	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Bolstar	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Chlorpyrifos	mg/kg	0.037 U	0.035 U	0.037 U	1846
3/7/2006	Coumaphos	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Demeton-O	mg/kg	0.037 U	0.035 U	0.037 U	25
3/7/2006	Demeton-S	mg/kg	0.037 U	0.035 U	0.037 U	25
3/7/2006	Diazinon	mg/kg	0.037 U	0.035 U	0.037 U	554
3/7/2006	Dichlorvos	mg/kg	0.074 U	0.071 U	0.074 U	6
3/7/2006	Dimethoate	mg/kg	0.037 UJ	0.035 UJ	0.037 UJ	123
3/7/2006	Disulfoton	mg/kg	0.037 U	0.035 U	0.037 U	24
3/7/2006	EPN	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Ethoprop	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Famphur	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Fensulfothion	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Fenthion	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Malathion	mg/kg	0.037 U	0.035 U	0.037 U	12,312
3/7/2006	Merphos	mg/kg	0.037 U	0.035 U	0.037 U	18
3/7/2006	Methyl parathion	mg/kg	0.037 U	0.035 U	0.037 U	153
3/7/2006	Mevinphos	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Naled	mg/kg	0.037 UJ	0.035 UJ	0.037 UJ	1231
3/7/2006	Parathion	mg/kg	0.037 U	0.035 U	0.037 U	3,693
3/7/2006	Phorate	mg/kg	0.037 U	0.035 U	0.037 U	123
3/7/2006	Ronnel	mg/kg	0.037 U	0.035 U	0.037 U	30,780
3/7/2006	Stirophos	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Sulfotep	mg/kg	0.074 U	0.071 U	0.074 U	NE
3/7/2006	Thionazin	mg/kg	0.074 U	0.071 U	0.074 U	NE
3/7/2006	Tokuthion	mg/kg	0.037 U	0.035 U	0.037 U	NE
3/7/2006	Trichloronate	mg/kg	0.037 U	0.035 U	0.037 U	NE

Notes:

1. No other soil samples were tested for OPPs.
 2. Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9. (October 2004)
- mg/kg milligram per kilogram
U Not detected at concentrations above the listed laboratory quantitation limit.
J Estimated value; concentration was less than the quantitation limit.
UJ Not detected; Estimated value below quantitation limit
Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.
NE None established.

Table 4-16
Organophosphorous Pesticide (OPP) Concentrations in Groundwater Sample
Upgradient Investigation, Tronox Facility - Henderson, Nevada

Date Sampled	Chemical Name	Unit	Equipment Blank	M-120 ¹	US EPA PRG (ug/L) ²
3/24/2006	Azinphos-methyl	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Bolstar	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Chlorpyrifos	ug/L	1.2 U	0.94 UJ	109
3/24/2006	Coumaphos	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Demeton-O	ug/L	1.2 UJ	0.94 UJ	1.5
3/24/2006	Demeton-S	ug/L	1.2 UJ	0.94 UJ	1.5
3/24/2006	Diazinon	ug/L	1.2 U	0.94 UJ	33
3/24/2006	Dichlorvos	ug/L	1.2 U	0.94 UJ	0.232
3/24/2006	Dimethoate	ug/L	1.2 UJ	0.94 UJ	7
3/24/2006	Disulfoton	ug/L	1.2 UJ	0.94 UJ	1
3/24/2006	EPN	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Ethoprop	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Famphur	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Fensulfothion	ug/L	1.2 UJ	0.94 UJ	NE
3/24/2006	Fenthion	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Malathion	ug/L	1.2 U	0.94 UJ	730
3/24/2006	Merphos	ug/L	1.2 U	0.94 UJ	1
3/24/2006	Methyl parathion	ug/L	1.2 U	0.94 UJ	220
3/24/2006	Mevinphos	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Naled	ug/L	1.2 UJ	0.94 UJ	73
3/24/2006	Parathion	ug/L	1.2 U	0.94 UJ	220
3/24/2006	Phorate	ug/L	1.2 U	0.94 UJ	7
3/24/2006	Ronnel	ug/L	1.2 U	0.94 UJ	1825
3/24/2006	Stirophos	ug/L	1.2 U	0.94 UJ	3
3/24/2006	Sulfotep	ug/L	1.2 U	0.94 UJ	18
3/24/2006	Thionazin	ug/L	2.4 U	1.9 UJ	NE
3/24/2006	Tokuthion	ug/L	1.2 U	0.94 UJ	NE
3/24/2006	Trichloronate	ug/L	1.2 U	0.94 UJ	NE

Notes:

1. No other groundwater samples were tested for OCPs.
2. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9. (October 2004).

ug/L micrograms per liter

U Not detected at concentrations above the listed laboratory quantitation limit.

UJ Not detected; 'Estimated value below quantitation limit.

NE None established

Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-17
Concentrations of Polychlorinated Biphenyl Compounds in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Analyte ¹	Unit	Soil Boring M-120 ²			US EPA PRG ³ (ug/kg)
		M120-0.5 0.5 ft.	M120-10 10 ft.	M120-30 30 ft.	
Aroclor-1016	ug/kg	56 U	54 U	56 U	21,245
Aroclor-1221	ug/kg	56 U	54 U	56 U	743
Aroclor-1232	ug/kg	56 U	54 U	56 U	743
Aroclor-1242	ug/kg	56 U	54 U	56 U	743
Aroclor-1248	ug/kg	56 U	54 U	56 U	743
Aroclor-1254	ug/kg	56 U	54 U	56 U	743
Aroclor-1260	ug/kg	56 U	54 U	56 U	743

Notes:

1. Analysis for polychlorinated biphenyl compounds was by EPA Method 8082.
2. No other soil samples were tested for organochlorine pesticides.
3. Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9 (October 2004).

ug/kg micrograms per kilogram
 U Not detected at concentrations below the listed laboratory quantitation limit.
 NE None established
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-18
Concentrations of Polychlorinated Biphenyl Compounds (PCB) in Groundwater Sample
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Analyte¹	Unit	Well M-120²	US EPA PRG³ (ug/L)
Aroclor-1016	ug/L	0.47 U	0.960
Aroclor-1221	ug/L	0.47 U	0.034
Aroclor-1232	ug/L	0.47 U	0.034
Aroclor-1242	ug/L	0.47 U	0.034
Aroclor-1248	ug/L	0.47 U	0.034
Aroclor-1254	ug/L	0.47 U	0.034
Aroclor-1260	ug/L	0.47 U	0.034

Notes:

1. Analysis for PCB compounds was by EPA Method 8082.
2. No other groundwater samples were tested for PCBs.
3. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).

ug/L micrograms per liter
 U Not detected at concentrations below the listed laboratory quantitation limit.
 No other soil samples were tested for Organo Chlorine Pesticides (OCP) in soil.

Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-19
Dioxin / Furan Concentrations in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Analyte ¹	Unit	Soil Boring M-120 ²			US EPA PRG ³ (pg/g)
		M120-0.5 0.5 ft.	M120-10 10 ft.	M120-30 30 ft.	
1,2,3,4,5,6,7,8-Octachlorodibenzofuran	pg/g	54 J	1.3 U	1.4 UJ	16
1,2,3,4,5,6,7,8-Octachlorodibenzo-p-dioxin	pg/g	33 J	1.4 U	5.6 UJ	16
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	30 J	2.8 UJ	0.56 UJ	16
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	pg/g	6.7 J	0.84 UJ	0.81 UJ	16
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	6.5	0.59 UJ	0.63 UJ	16
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	11 J	2.8 UJ	0.54 UJ	16
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	7.7 J	0.65 UJ	0.51 UJ	16
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	4.7 J	0.48 UJ	0.34 UJ	16
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	2.8 J	0.71 UJ	0.55 UJ	16
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	2.7 J	0.47 UJ	0.33 UJ	16
2,3,7,8-Tetrachlorodibenzofuran	pg/g	2.9 J	0.55 UJ	0.56 U	16
Total Heptachlorodibenzofuran	pg/g	52 J	2.8 UJ	0.63 UJ	16
Total Heptachlorodibenzo-p-dioxin	pg/g	12 J	0.84 UJ	0.81 UJ	16
Total Hexachlorodibenzofuran	pg/g	51 J	0.87 UJ	0.56 UJ	16
Total Pentachlorodibenzofuran	pg/g	22 J	2.8 UJ	2.8 UJ	16
Total Tetrachlorodibenzofuran	pg/g	20 J	0.74 J	0.56 U	16
Total Tetrachlorodibenzo-p-dioxin	pg/g	0.55 J	0.27 UJ	0.23 U	16

Notes:

- Analysis for dioxins/furans was by EPA Method 8290.
- No other soil samples were tested for dioxins/furans.
- Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9. (October 2004).

U Not detected at concentrations below the listed laboratory quantitation limit.
 J Estimated value; concentration is less than the quantitation limit
 UJ Not detected at concentrations above the listed laboratory quantitation limit.

pg/g Picogram per gram = 1 part per trillion (ppt)
 NE None established

Bold Bold values are constituents detected above the laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-20
Dioxins/Furans Concentrations in Groundwater Sample
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Date Sampled	Analytical Method	Chemical Name	Well No. M-120 ¹ (ug/L)	US EPA PRG ² (ug/L)
3/22/2006	SW 846 8290	1,2,3,4,5,6,7,8-Octachlorodibenzofuran	5.00E-05 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,4,5,6,7,8-Octachlorodibenzo-p-dioxin	1.10E-04	4.40E-07
3/22/2006	SW 846 8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.50E-05 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	2.70E-05 J	4.40E-07
3/22/2006	SW 846 8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	2.50E-05 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,4,7,8-Hexachlorodibenzofuran	7.40E-06 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	5.60E-06 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,6,7,8-Hexachlorodibenzofuran	6.80E-06 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	5.00E-06 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,7,8,9-Hexachlorodibenzofuran	8.30E-06 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	4.90E-06 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,7,8-Pentachlorodibenzofuran	3.40E-06 U	4.40E-07
3/22/2006	SW 846 8290	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	5.70E-06 U	4.40E-07
3/22/2006	SW 846 8290	2,3,4,6,7,8-Hexachlorodibenzofuran	7.60E-06 U	4.40E-07
3/22/2006	SW 846 8290	2,3,4,7,8-Pentachlorodibenzofuran	3.30E-06 U	4.40E-07
3/22/2006	SW 846 8290	2,3,7,8-Tetrachlorodibenzofuran	3.90E-06 U	4.40E-07
3/22/2006	SW 846 8290	2,3,7,8-Tetrachlorodibenzo-p-dioxin	2.60E-06 U	4.40E-07
3/22/2006	SW 846 8290	Total Heptachlorodibenzofuran	2.50E-05 U	4.40E-07
3/22/2006	SW 846 8290	Total Heptachlorodibenzo-p-dioxin	2.70E-05 J	4.40E-07
3/22/2006	SW 846 8290	Total Hexachlorodibenzofuran	8.30E-06 U	4.40E-07
3/22/2006	SW 846 8290	Total Hexachlorodibenzo-p-dioxin	5.60E-06 U	4.40E-07
3/22/2006	SW 846 8290	Total Pentachlorodibenzofuran	4.30E-06 U	4.40E-07
3/22/2006	SW 846 8290	Total Pentachlorodibenzo-p-dioxin	5.70E-06 U	4.40E-07
3/22/2006	SW 846 8290	Total Tetrachlorodibenzofuran	3.90E-06 U	4.40E-07
3/22/2006	SW 846 8290	Total Tetrachlorodibenzo-p-dioxin	2.60E-06 U	4.40E-07

Notes:

1. No other groundwater samples were tested for dioxins furans.
 2. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).
- J Estimated value; concentration was below the listed practical quantitation limit.
 U Not detected at concentrations above the listed laboratory quantitation limit.
 ug/L Micrograms per liter
Bold Bold values are constituents detected above the laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-21
General Chemistry Analyte Concentrations in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Boring No.	Sample ID	Sample Date	Sample Depth (ft)	Percent Moisture ASTM D 2216 %	Chlorate EPA 300.0 mg/kg	Alkalinity as CaCO ₃ EPA 310.1 mg/kg	Bicarbonate EPA 310.1 mg/kg	Carbonate EPA 310.1 mg/kg	Electrical Conductivity SM 2510B umhos/cm	pH SW 846 9045C S.U.	Chloride SW 846 9056 mg/kg	Nitrate (as N) SW 846 9056 mg/kg	Nitrite SW 846 9056 mg/kg	Sulfate SW 846 9056 mg/kg	Cyanide (total) SW 846 9014 mg/kg
M-117	M117-30	3/11/2006	30	na	11.4 U	391	391	56.8 U	98.4	9.03	7.94	1.14 U	1.14 U	40.3	0.28 U
	M117-50	3/11/2006	50	na	12.3 U	314	314	61.3 U	89.1	8.81	17.6	1.23 U	1.23 U	147	0.306 U
M-118	M118-30	3/8/2006	30	na	11.4 U	280	280	56.8 U	79.9	8.81	8.45	1.12 J	1.14 U	75.5	0.284 U
	M118-50	3/8/2006	50	na	12.2 U	299	299	60.8 U	104	8.76	14.9	1.22 U	1.22 U	89.2	0.304 U
M-119	M119-32	3/14/2006	32	na	14.2 U	491	491	71.2 U	1430	8.26	81.2	0.906 J	1.42 U	15400	0.356 U
M-120	M120-0.5	3/7/2006	0.5	5.9	11.2 U	2777	2777	55.9 U	87.4	9.13	3.73	1.28	1.12 U	19.9	0.279 U
	M120-10	3/7/2006	10	9.1	10.7 U	2460	2460	53.7 U	206	8.63	11.9	2.03	1.07 U	88.9	0.269 U
	M120-30	3/7/2006	30	11.3	11.2 U	385	385	55.8 U	85.5	9.11	6.99	0.709 J	1.12 U	24.4	0.279 U
M-121	M121-30	3/10/2006	30	na	10.6 U	548	548	53.1 U	399	8.91	162	4.25	1.06 U	293	0.265 U
	M121-50	3/10/2006	50	na	10.6 U	369	369	53.2 U	127	8.79	45.7	1.06 U	1.06 U	56.9	0.266U
US EPA PRG ¹ :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	12,313

Notes:

- 1. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).
- s.u. Standard units.
- mg/kg milligrams per kilogram
- umhos/cm micromhos per centimeter
- U Undetected at concentrations below the listed reporting limit.
- J Estimated value; concentration was below the listed practical quantitation limit.
- na Not analyzed.
- NE None established.
- Bold** Bold values are constituents detected above the laboratory quantitation limit.
- Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-22
General Chemistry Parameter Concentrations in Groundwater Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Well Cluster	Well ID	Screened Interval (ft)	Date Sampled	TDS EPA 160.1 mg/L	Alkalinity as CaCO ₃ SM 2320B mg/L	Bicarbonate SM 2320B mg/L	Carbonate SM 2320B mg/L	Ignitability EPA 1010 degrees C	Cyanide (total) 9012A mg/L	pH EPA 9040B unitless	Electrical Conductivity EPA 9050A um/cm	Bromide EPA 9056 ug/L	Chloride EPA 9056 mg/L	Chlorate EPA 160.1 ug/L	Nitrate (as N) EPA 9056 mg/L	Nitrite SW 846 9056 mg/L	Sulfate EPA 9056 mg/L	TOC EPA 9060 mg/L	Fluoride EPA 9214 mg/L	Ortho Phosphate SM 4500 P-E mg/L
--	H-11	95 - 105	3/23/2006	1360	2.0 UJ	na	na	na	0.005 U	5 J	2050	na	209	10.000U	0.500 U	0.500 U	735	na	na	na
--	M-103	69.5 - 89.5	3/21/2006	1560	82	na	na	na	0.005 U	6.7 J	2320	na	127	808	2.5	0.500 U	1027	na	na	na
--	M-117	130 - 150	3/23/2006	788	76 J-	na	na	na	0.005 U	8.0	1260	na	148	10.000U	1.0	0.500 U	314	na	na	na
--	M-118	138 - 158	3/22/2006	768	66	na	na	na	0.005 U	8.2 J	1240	na	152	237	1.27	0.500 U	310	na	na	na
--	M-120	80 - 100	3/22/2006	2430	108	130	2 U	>60	0.005 U	7.6	2760	370	167	917	2.1	0.5 U	1432	1.8	0.67	0.014
--	M-121	77 - 97	3/23/2006	2820	93 J-	na	na	na	0.005 U	7.7 J	3320	na	121	1000	7.9 J-	1.0 UJ	1512	na	na	na
1	TR-07	260 - 290	3/21/2006	760	82	na	na	na	0.005 U	7.9 J	1310	na	198	10.000U	1.1	0.500 U	255	na	na	na
	TR-08	63 - 93	3/20/2006	1210	78	na	na	na	0.007	8.0 J	1680	na	150	2310	2.2	0.500 U	594	na	na	na
	TR-08D	63 - 93	3/20/2006	1174	83	na	na	na	0.005 U	7.9 J	1690	na	150	2100	2.3	0.500 U	587	na	na	na
2	TR-09	230 - 250	3/21/2006	750	70	na	na	na	0.005 U	8.0 J	1300	na	190	10.000U	1.2	0.500 U	269	na	na	na
	TR-10	80 - 100	3/21/2006	1380	65	na	na	na	0.005 U	7.9 J	2210	na	122	8950	0.77	0.500 U	971	na	na	na
USEPA PRG ¹				NE	NE	NE	NE	NE	0.73	NE	NE	NE	NE	NE	10	1	NE	NE	2	NE
MCL ²					NE	NE		NE		NE	NE	NE	NE	NE	10		500	NE		

Notes:

1. Preliminary Remediation Goal for Tap Water established by U.S. EPA Region 9 (October 2004).
 2. Maximum Contaminant Level in groundwater established by the Nevada Department of Environmental Protection.
- TDS Total Dissolved Solids
 CaCO₃ Calcium Carbonate
 TOC Total Organic Carbon
 mg/L milligram per liter
 ug/L microgram per liter
 um/cm micromhos per centimeter
 degrees C degrees Celsius
- U Not detected at concentrations below the listed laboratory quantitation limit.
 J Estimated value; concentration was less than the quantitation limit.
 J- Estimated value; Biased low
 na Not analyzed
 > Greater than
- Bold** Bold values are constituents detected above the laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.
 NE None established.

Table 4-23
Other Parameter Concentrations in Soil Samples
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

Boring No.	Sample ID	Sample Depth (ft)	Analyte											
			Residual chlorine	Ammonia (as N)	Phosphorus P (Total)	Phosphate (ortho)	Sulfide	Sulfite	MBAS	Asbestos	Flashpoint	Bromide	Fluoride	Total Organic Carbon
			EPA 330.3 mg/kg	EPA 350.2 mg/kg	EPA 365.2 mg/kg	SW 846 9056 mg/kg	EPA 376.2 mg/kg	EPA 377.1 mg/kg	EPA 425.1 mg/kg	EPA600/R-93/116 percent	SW 846 1010 deg C	SW 846 9056 mg/kg	SW 846 9056 mg/kg	Walkley-Black mg/kg
M-120 ¹	M120-0.5	0.5	6.69	4.63	11.7	5.59 U	2.23 U	11.2	1.12 U	0.250 U	60 >	5.59 U	1.62	1070 J
	M120-10	10	1.07 J	2.66	12.4	5.37 U	2.15 U	16.1	0.34 J	0.250 U	60 >	5.37 U	2.04	1070 U
	M120-30	30	2.23 U	1.22	17.6	5.58 U	2.23 U	16.7	1.12 U	0.250 U	60 >	5.58 U	1.85	1120 U
US EPA PRG ²			NE	NE	20	NE	NE	NE	NE	NE	NE	NE	37,000	NE

Notes:

1. No other soil samples were analyzed for Other Parameters.
 2. Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9 (October 2004).
- mg/kg milligrams per kilogram
 MBAS Methylene blue active substances; Surfactants
 deg C degrees celsius
 U Undetected at concentrations below the listed reporting limit.
 J Estimated value; concentration was less than the quantitation limit.
Bold Bold values are constituents detected above the laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table 4-24
Other Parameter Concentrations in Groundwater Sample
 Upgradient Investigation, Tronox Facility - Henderson, Nevada

		Analyte												
Boring No.	Sample ID	Residual chlorine	Ammonia (as N)	Phosphorus-P (Total)	Phosphate (ortho)	Sulfide	Sulfite	MBA's	Asbestos	Flashpoint	Bromide	Fluoride	Total Organic Carbon	TSS
		EPA 330.3 mg/L	EPA 350.2 mg/L	EPA 365.2 mg/L	SW 846 9056 mg/L	EPA 376.2 mg/L	EPA 377.1 mg/L	EPA 425.1 mg/L	EPA600/R-93/116 mfl	SW 846 1010 deg C	SW 846 9056 ug/L	SW 846 9056 mg/L	Walkley-Black mg/L	EPA 160.2 mg/L
M-120 ¹	M120	0.1 U	0.05 U	0.01 U	0.014	0.05 U	2 U	0.05 U	0.2 U	60 >	370	0.67	1.8	10 U
U.S. EPA PRG ²		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	2.2	NE	NE

Notes:

1. No other groundwater samples were analyzed for Other Parameters.
 2. Preliminary Remediation Goal for Industrial Sites established by U.S. EPA Region 9 (October 2004).
- mg/kg milligrams per kilogram
 MBAS Methylene blue active substances; Surfactants
 TSS Total suspended solids
 umhos/cm micromhos per centimeter
 deg C degrees celsius
 U Undetected at concentrations below the listed reporting limit.
 J Estimated value; concentration was less than the quantitation limit.
Bold Bold values are constituents detected above the laboratory quantitation limit.
 Gray Grayed out values are non-detected values with the laboratory quantitative limits shown.

Table - 4-25
Summary Statistics for Metals and Perchlorate in Soil Samples for the Tronox Data Set
Upgradient Investigation, Tronox Facility – Henderson, Nevada

Chemical	Units	Number	Number Not Detected	Minimum LQL ¹	Maximum LQL ¹	Mean	Standard Deviation	95% Upper Confidence Level for Mean	Median	Minimum	Maximum	5th Percentile	25th Percentile	75th Percentile	95th Percentile	Probability Distribution ²
Methyl mercury	mg/kg	3	2	0.02	0.02	0.018	0.014	0.034	0.01	0.01	0.034	0.01	0.01	0.022	0.032	None
Silica	mg/kg	3	0	N/A	N/A	75.43	38.36	118.8	67.9	41.4	117	44.05	54.65	92.45	112.1	Lognormal
Aluminum	mg/kg	50	0	N/A	N/A	10260	2593	10980	9265	6230	17000	6849	8648	11760	14970	Lognormal
Antimony	mg/kg	45	36	0.488	0.821	0.264	0.059	0.282	0.275	0.11	0.411	0.138	0.264	0.298	0.34	None
Arsenic	mg/kg	50	0	N/A	N/A	8.63	6.763	10.5	5.29	2.11	26.6	2.495	3.383	12.86	22.38	None
Barium	mg/kg	50	0	N/A	N/A	141	57.24	156.9	150	46	272	49.84	91.68	183.4	226.2	Normal
Beryllium	mg/kg	50	0	N/A	N/A	0.591	0.162	0.636	0.575	0.317	1.27	0.384	0.503	0.699	0.804	Lognormal
Boron	mg/kg	50	17	10.4	12.9	10.72	6.276	12.46	8.64	5.2	27.4	5.3	5.531	13.58	23.83	None
Cadmium	mg/kg	50	0	N/A	N/A	0.48	0.117	0.513	0.467	0.274	0.729	0.303	0.404	0.57	0.683	Normal
Calcium	mg/kg	50	0	N/A	N/A	27220	30770	35750	21050	2440	170000	4368	7468	30480	69350	Lognormal
Chromium	mg/kg	50	0	N/A	N/A	16.42	13.92	20.28	10.55	6.53	79.6	7.648	9.048	18.83	34.93	None
Cobalt	mg/kg	50	0	N/A	N/A	6.353	1.505	6.77	6.665	2.6	10.4	3.704	5.66	7.14	8.335	None
Copper	mg/kg	50	0	N/A	N/A	41.02	54.66	56.17	24.65	8.54	367	13.76	18.74	37.65	118.3	None
Iron	mg/kg	50	0	N/A	N/A	10700	2223	11320	10830	5960	15900	6758	9485	12200	14260	Normal
Lead	mg/kg	50	0	N/A	N/A	8.482	6.389	10.25	7.5	4.33	50.8	5.42	6.285	8.243	11.99	None
Magnesium	mg/kg	50	0	N/A	N/A	12790	6386	14560	9925	6140	34600	6796	8765	14850	26730	None
Manganese	mg/kg	50	0	N/A	N/A	294.7	143.4	334.5	264.5	100	710.5	126.5	179.9	357.3	599.6	Lognormal
Molybdenum	mg/kg	50	11	0.529	0.821	0.475	0.266	0.549	0.353	0.156	1.22	0.201	0.277	0.67	1.041	Lognormal
Nickel	mg/kg	50	0	N/A	N/A	15.72	4.008	16.83	15	8.85	31.5	9.82	13.75	16.78	22.41	Lognormal
Platinum	mg/kg	50	47	0.021	0.033	0.023	0.062	0.04	0.011	0.01	0.429	0.011	0.011	0.012	0.022	None
Potassium	mg/kg	50	0	N/A	N/A	2458	832.8	2689	2283	1040	4540	1372	1801	3013	4037	Lognormal
Selenium	mg/kg	50	14	0.39	0.821	0.208	0.072	0.228	0.188	0.123	0.411	0.132	0.151	0.26	0.335	None
Silver	mg/kg	50	46	0.386	0.821	0.276	0.052	0.291	0.277	0.106	0.411	0.172	0.267	0.297	0.351	None
Sodium	mg/kg	50	0	N/A	N/A	772.8	254	843.2	784.8	238	1350	417	600.4	912.8	1230	Normal
Strontium	mg/kg	50	0	N/A	N/A	211.6	72.11	231.6	196.5	78.2	393	111.9	163.3	256.9	352.5	Lognormal
Thallium	mg/kg	50	28	0.519	0.821	0.253	0.079	0.275	0.271	0.114	0.454	0.123	0.196	0.284	0.379	None
Titanium	mg/kg	50	0	N/A	N/A	596.9	117.3	629.4	594.5	241	820	414	540.6	681.5	762.2	Normal
Tungsten	mg/kg	50	42	1.608	3.28	1.072	0.23	1.136	1.106	0.526	1.64	0.625	1.061	1.168	1.405	None
Uranium	mg/kg	50	0	N/A	N/A	1.473	0.945	1.735	1.195	0.619	6.07	0.701	0.912	1.76	2.932	None
Vanadium	mg/kg	50	0	N/A	N/A	29.12	7.025	31.07	27.95	16.3	49.8	19.78	24.94	33.55	40.46	Lognormal
Zinc	mg/kg	50	0	N/A	N/A	44.48	20.06	50.04	39.88	19.1	136.9	22.94	34.33	48.08	74.4	Lognormal
Perchlorate	mg/kg	49	28	41.5	152.1	268.4	670.7	456.2	25.4	20.75	3310	21.17	22.4	116	1778	None

Notes:
mg/kg milligrams per kilogram
¹ LQL=Laboratory Quantitation Limit; N/A = no results were below quantitation limit
² Probability distribution of the data. None means distribution is neither normal nor lognormal.

Table 4-26
Summary of Results from Statistical Comparisons for Subsets of Metals and Perchlorate in Soil for the
Tronox Data Set
 Upgradient Investigation, Tronox Facility – Henderson, Nevada

Chemical	Comparison ¹	
	Depth Range (20 ft. or less vs. 30 ft. or more)	Geological Formation (Alluvium vs. Muddy Creek)
Aluminum	X	X
Antimony		
Arsenic	X	X
Barium	X	X
Beryllium		
Boron	X	X
Cadmium		
Calcium	X	X
Chromium	X	X
Cobalt	X	X
Copper		
Iron		
Lead		
Magnesium	X	X
Manganese	X	X
Molybdenum		
Nickel		
Platinum		
Potassium	X	X
Selenium	X	X
Silver		
Sodium		
Strontium		X
Thallium		
Titanium		
Tungsten		
Uranium	X	X
Vanadium	X	
Zinc		
Perchlorate	X	
Notes: ¹ X indicates that differences between mean or median concentrations in the two groups are statistically significant at the 95 percent confidence level.		

Table 4-27

Subsets of Tronox Data for Metals and Perchlorate in Soil Recommended for Future Comparisons with On-Site Data

Upgradient Investigation, Tronox Facility – Henderson, Nevada

Chemical	Subset 1		Subset 1	
	Definition ¹	Data Distribution ²	Definition	Data Distribution ²
Aluminum	Alluvium	Lognormal	Muddy Creek	Lognormal
Antimony	All	None		
Arsenic	Depth 20 ft. or less	Normal	Depth 30 ft. or more	Normal
Barium	Depth 20 ft. or less	Lognormal	Depth 30 ft. or more	Lognormal
Beryllium	All	Lognormal		
Boron	Alluvium	None	Muddy Creek	Normal
Cadmium	All	Normal		
Calcium	Alluvium	None	Muddy Creek	None
Chromium	Depth 20 ft. or less	Lognormal	Depth 30 ft. or more	Lognormal
Cobalt	Depth 20 ft. or less	Lognormal	Depth 30 ft. or more	Lognormal
Copper	All	None		
Iron	All	Normal		
Lead	All	None		
Magnesium	Depth 20 ft. or less	Lognormal	Depth 30 ft. or more	Lognormal
Manganese	Alluvium	Lognormal	Muddy Creek	Lognormal
Molybdenum	All	Lognormal		
Nickel	All	Lognormal		
Platinum	All	None		
Potassium	Depth 20 ft. or less	Normal	Depth 30 ft. or more	Normal
Selenium	Alluvium	Lognormal	Muddy Creek	None
Silver	All	None		
Sodium	All	Normal		
Strontium	Alluvium	Lognormal	Muddy Creek	Lognormal
Thallium	All	None		
Titanium	All	Normal		
Tungsten	All	None		
Uranium	Depth 20 ft. or less	Lognormal	Depth 30 ft. or more	Lognormal
Vanadium	Depth 20 ft. or less	Lognormal	Depth 30 ft. or more	Lognormal
Zinc	All	Lognormal		
Perchlorate	Depth 20 ft. or less	None	Depth 30 ft. or more	None
Notes:				
¹ All indicates that all data for the chemical should be used as single set.				
² None indicates that the data do not follow either a normal or a lognormal distribution.				

Table - 4-28
Summary Statistics for Subsets of Metals and Perchlorate in Soil Samples Recommended for Use in Future Analysis for the Tronox Data Set
 Upgradient Investigation, Tronox Facility – Henderson, Nevada

Chemical	Units	Subset Definition	Number	Number Not Detected	Minimum LQL ¹	Maximum LQL ¹	Mean	Standard Deviation	95% Upper Confidence Level for Mean	Median	Minimum	Maximum	5th Percentile	25th Percentile	75th Percentile	95th Percentile	Probability Distribution ²
Aluminum	mg/kg	Alluvium	34	0	N/A	N/A	9596	1975	10260	8990	6390	14600	6955	8648	10280	13130	Lognormal
Aluminum	mg/kg	Muddy Creek	16	0	N/A	N/A	11680	3199	13250	11700	6230	17000	7475	9340	13830	16850	Lognormal
Antimony	mg/kg	All Samples	45	36	0.488	0.821	0.264	0.059	0.282	0.275	0.11	0.411	0.138	0.264	0.298	0.34	None
Arsenic	mg/kg	Depth 20 ft. or less	24	0	N/A	N/A	3.307	0.679	3.579	3.385	2.11	5.2	2.363	2.926	3.565	4.358	Normal
Arsenic	mg/kg	Depth 30 ft. or more	26	0	N/A	N/A	13.54	6.078	15.88	12.83	3.37	26.6	5.833	9.24	16.7	24.78	Normal
Barium	mg/kg	Depth 20 ft. or less	24	0	N/A	N/A	179	32.57	192	183	120	272	139.2	152.3	190	230.1	Lognormal
Barium	mg/kg	Depth 30 ft. or more	26	0	N/A	N/A	106	52.81	126.3	92.75	46	249	49.08	59.38	145	192.5	Lognormal
Beryllium	mg/kg	All Samples	50	0	N/A	N/A	0.591	0.162	0.636	0.575	0.317	1.27	0.384	0.503	0.699	0.804	Lognormal
Boron	mg/kg	Alluvium	34	17	10.4	12.9	8.42	4.607	9.969	6.11	5.2	27.2	5.283	5.4	10.61	13.99	None
Boron	mg/kg	Muddy Creek	16	0	N/A	N/A	15.61	6.671	18.88	15.25	6.46	27.4	6.595	10.11	21.65	25.23	Normal
Cadmium	mg/kg	All Samples	50	0	N/A	N/A	0.48	0.117	0.513	0.467	0.274	0.729	0.303	0.404	0.57	0.683	Normal
Calcium	mg/kg	Alluvium	34	0	N/A	N/A	26560	17670	32490	24200	2440	70200	4515	14730	31050	61180	None
Calcium	mg/kg	Muddy Creek	16	0	N/A	N/A	28630	49030	52660	7968	4080	170000	4560	5080	15880	139300	None
Chromium	mg/kg	Depth 20 ft. or less	24	0	N/A	N/A	9.157	1.448	9.737	9.133	6.53	13.5	6.79	8.423	9.605	10.95	Lognormal
Chromium	mg/kg	Depth 30 ft. or more	26	0	N/A	N/A	23.12	16.75	29.56	18.65	8	79.6	8.528	13.63	25.58	59.53	Lognormal
Cobalt	mg/kg	Depth 20 ft. or less	24	0	N/A	N/A	7.09	0.706	7.373	7.008	5.88	8.57	6.223	6.648	7.438	8.442	Lognormal
Cobalt	mg/kg	Depth 30 ft. or more	26	0	N/A	N/A	5.673	1.725	6.336	5.69	2.6	10.4	3.343	4.255	6.705	7.385	Lognormal
Copper	mg/kg	All Samples	50	0	N/A	N/A	41.02	54.66	56.17	24.65	8.54	367	13.76	18.74	37.65	118.3	None
Iron	mg/kg	All Samples	50	0	N/A	N/A	10700	2223	11320	10830	5960	15900	6758	9485	12200	14260	Normal
Lead	mg/kg	All Samples	50	0	N/A	N/A	8.482	6.389	10.25	7.5	4.33	50.8	5.42	6.285	8.243	11.99	None
Magnesium	mg/kg	Depth 20 ft. or less	24	0	N/A	N/A	9498	1839	10230	9125	6420	14900	6770	8673	9913	12810	Lognormal
Magnesium	mg/kg	Depth 30 ft. or more	26	0	N/A	N/A	15830	7536	18730	14650	6140	34600	7125	9695	17850	31280	Lognormal
Manganese	mg/kg	Alluvium	34	0	N/A	N/A	323.4	149.3	373.5	310	100	710.5	134.1	252.3	364.9	658.7	Lognormal
Manganese	mg/kg	Muddy Creek	16	0	N/A	N/A	233.8	111	288.2	204.3	126	481	126.8	154.3	271.5	460.8	Lognormal
Molybdenum	mg/kg	All Samples	50	11	0.529	0.821	0.475	0.266	0.549	0.353	0.156	1.22	0.201	0.277	0.67	1.041	Lognormal
Nickel	mg/kg	All Samples	50	0	N/A	N/A	15.72	4.008	16.83	15	8.85	31.5	9.82	13.75	16.78	22.41	Lognormal
Platinum	mg/kg	All Samples	50	47	0.021	0.033	0.023	0.062	0.04	0.011	0.01	0.429	0.011	0.011	0.012	0.022	None
Potassium	mg/kg	Depth 20 ft. or less	24	0	N/A	N/A	1914	405.1	2076	2000	1040	2630	1281	1685	2213	2398	Normal
Potassium	mg/kg	Depth 30 ft. or more	26	0	N/A	N/A	2961	813	3273	2995	1410	4540	1723	2533	3368	4370	Normal
Selenium	mg/kg	Alluvium	34	5	0.39	0.712	0.193	0.053	0.211	0.184	0.123	0.356	0.136	0.157	0.221	0.281	Lognormal
Selenium	mg/kg	Muddy Creek	16	9	0.451	0.821	0.24	0.096	0.287	0.259	0.124	0.411	0.129	0.148	0.305	0.39	None
Silver	mg/kg	All Samples	50	46	0.386	0.821	0.276	0.052	0.291	0.277	0.106	0.411	0.172	0.267	0.297	0.351	None
Sodium	mg/kg	All Samples	50	0	N/A	N/A	772.8	254	843.2	784.8	238	1350	417	600.4	912.8	1230	Normal
Strontium	mg/kg	Alluvium	34	0	N/A	N/A	228.4	64.35	250	200	145	393	151.9	186.3	277	348.7	Lognormal
Strontium	mg/kg	Muddy Creek	16	0	N/A	N/A	175.9	76.66	213.4	157.5	78.2	393	98.3	123.5	208	288.4	Lognormal
Thallium	mg/kg	All Samples	50	28	0.519	0.821	0.253	0.079	0.275	0.271	0.114	0.454	0.123	0.196	0.284	0.379	None
Titanium	mg/kg	All Samples	50	0	N/A	N/A	596.9	117.3	629.4	594.5	241	820	414	540.6	681.5	762.2	Normal
Tungsten	mg/kg	All Samples	50	42	1.608	3.28	1.072	0.23	1.136	1.106	0.526	1.64	0.625	1.061	1.168	1.405	None
Uranium	mg/kg	Depth 20 ft. or less	24	0	N/A	N/A	0.994	0.241	1.091	0.989	0.619	1.48	0.657	0.852	1.173	1.441	Lognormal
Uranium	mg/kg	Depth 30 ft. or more	26	0	N/A	N/A	1.916	1.128	2.349	1.76	0.707	6.07	0.787	1.318	2.15	3.695	Lognormal
Vanadium	mg/kg	Depth 20 ft. or less	24	0	N/A	N/A	26.66	4.228	28.36	25.93	17	36.3	21.72	24.18	28.33	34.29	Normal
Vanadium	mg/kg	Depth 30 ft. or more	26	0	N/A	N/A	31.39	8.313	34.59	30.25	16.3	49.8	19.7	26.15	36.73	45.6	Normal
Zinc	mg/kg	All Samples	50	0	N/A	N/A	44.48	20.06	50.04	39.88	19.1	136.9	22.94	34.33	48.08	74.4	Lognormal
Perchlorate	mg/kg	Depth 20 ft. or less	23	7	41.5	152.1	519.1	924	896.7	42.6	20.75	3310	21.06	22.38	373.5	2583	None
Perchlorate	mg/kg	Depth 30 ft. or more	26	21	42.5	65.7	46.64	58.9	69.28	24.13	21.25	273	21.39	22.49	30.11	164.8	None

Notes:
 mg/kg milligrams per kilogram
¹ LQL=Laboratory Quantitation Limit; N/A = no results were below quantitation limit
² Probability distribution of the data. None means distribution is neither normal nor lognormal.

Table 4-29

Summary of Results from Statistical Comparisons between Data Sets for Metals and Perchlorate in Soil
 Upgradient Investigation, Tronox Facility – Henderson, Nevada

Chemical	Comparison ¹	
	Tronox vs. City of Henderson	Tronox vs. BRC/TIMET
Aluminum	X	
Antimony	Not detected	X
Arsenic		X
Barium	X	
Beryllium	X	
Boron	Not measured	X
Cadmium	X	Not detected
Calcium	Not measured	
Chromium	X	
Cobalt	X	X
Copper	X	X
Iron		X
Lead	X	
Magnesium	X	
Manganese	X	
Molybdenum	X	X
Nickel	X	
Platinum	Not measured	X
Potassium	Not measured	X
Selenium		X
Silver	X	Not detected
Sodium	Not measured	X
Strontium	Not measured	
Thallium		X
Titanium	X	X
Tungsten	Not measured	X
Uranium	Not measured	
Vanadium	X	X
Zinc		X
Perchlorate	X	Not measured

Notes:
¹ X indicates that differences between mean or median concentrations in the two groups are statistically significant at the 95 percent confidence level.

Table - 4-30
Summary Statistics for Radionuclides in Soil Samples for the Tronox Data Set
Upgradient Investigation, Tronox Facility – Henderson, Nevada

Radionuclide	Units	Number	Number Not Detected	Mean	Standard Deviation	95% Upper Confidence Level for Mean	Median	Minimum	Maximum	5th Percentile	25th Percentile	75th Percentile	95th Percentile	Probability Distribution ¹
Uranium - Total	mg/kg	17	0	5.345	7.039	8.691	2.73	1.45	26.2	1.898	2.18	3.605	22.12	None
Lead 212	pCi/g	17	0	1.779	0.224	1.886	1.82	1.445	2.26	1.473	1.6	1.86	2.156	Normal
Radium 226	pCi/g	17	0	1.132	0.321	1.285	1.02	0.891	2.06	0.904	0.94	1.09	1.796	None
Radium 228	pCi/g	17	0	1.741	0.25	1.86	1.84	1.295	2.24	1.339	1.59	1.87	1.984	Normal
Thorium 228	pCi/g	17	0	1.765	0.452	1.98	1.79	1.24	3.04	1.248	1.44	2.01	2.384	Lognormal
Thorium 230	pCi/g	17	0	1.177	0.316	1.328	1.13	0.687	1.85	0.797	0.972	1.29	1.786	Lognormal
Thorium 232	pCi/g	17	0	1.567	0.413	1.763	1.59	0.965	2.42	1.033	1.28	1.88	2.076	Lognormal
Uranium 234	pCi/g	17	0	1.302	0.492	1.536	1.22	0.775	2.36	0.798	0.914	1.63	2.184	Lognormal
Uranium 235	pCi/g	17	14	0.075	0.075	0.11	0.05	0	0.28	0.004	0.027	0.093	0.214	Lognormal
Uranium 238	pCi/g	17	0	1.166	0.359	1.337	0.992	0.812	2.02	0.886	0.938	1.21	1.98	None

Notes:
pCi/g picoCuries per gram
¹ Probability distribution of the data. None means distribution is neither normal nor lognormal.

Table 4-31
Summary of Results from Statistical Comparisons between Surface and Five-Foot Samples for
Radionuclides in Soil from the Tronox Data Set

Upgradient Investigation, Tronox Facility – Henderson, Nevada

Radionuclide	Result¹
Uranium-Total	
Lead 212	
Radium 226	
Radium 228	
Thorium 228	X
Thorium 230	
Thorium 232	
Uranium 234	X
Uranium 235	
Uranium 238	

Notes:

¹ X indicates that differences between mean or median concentrations in the samples from the two depths are statistically significant at the 95 percent confidence level.

Table 4-32
Summary of Results from Statistical Comparisons between Data Sets for Radionuclides in Soil
 Upgradient Investigation, Tronox Facility – Henderson, Nevada

Radionuclide	Comparison ¹	
	Tronox vs. City of Henderson	Tronox vs. BRC/TIMET
Lead 212	X	Not measured
Radium 226	X	
Radium 228	X	
Thorium 228		
Thorium 230		
Thorium 232		
Uranium 234	X	
Uranium 235		
Uranium 238	X	
Notes:		
¹ X indicates that differences between mean or median concentrations in the two groups are statistically significant at the 95 percent confidence level.		