

Summary of Available Data for LOU 54
AP Plant Area Change House/Laboratory Septic Tank
 Tronox Facility – Henderson, Nevada

- Name of Facility:** AP Plant Area Change House/Laboratory Septic Tank
- Goal of Closure:**
- Closure for future commercial/industrial use.
- Site Investigation Area:**
- Size: Approximately 120 feet by 100 feet (0.3 acre).
 - Septic tank volume unknown.
 - Location: West-central portion of the Site, south of the Beta Ditch.
 - Current Status/Features: The Change House/Laboratory Septic Tank (LOU 54) is no longer active.
- Description:**
- The septic tank system operated for the change house from early 1950 to 1992 and the chemistry lab from 1980 to 1992 [Ref. 2 and 4].
 - The system received waste water from showers, restrooms, and lab sinks [Ref. 4].
 - The change house showers, restrooms, and laboratory sinks currently discharge to a pump station, which transfers the water to the City of Henderson sanitary sewer system [Ref. 2].
 - Spent chemicals were reportedly not discharged to the septic tank system [Ref. 4].
 - The septic tank and leach lines are still in place; however, they are currently not used [Ref. 5].

Process Waste Streams Associated with LOU 54	Known or Potential Constituents Associated with LOU 54
Wastewater effluent from the change house showers, restrooms, and laboratory sinks, discharged to septic tank.	<ul style="list-style-type: none"> • Metals • Perchlorate • Ammonia • Chlorate • Wet chemistry analytes
Process Waste Streams Associated with LOU 38	
Wash water associated with laboratory housekeeping activities discharged to septic tank.	<ul style="list-style-type: none"> • Metals • Perchlorate • Chlorate • Ammonia • Acids and caustics • Wet chemistry analytes

Summary of Available Data for LOU 54
AP Plant Area Change House/Laboratory Septic Tank
 Tronox Facility – Henderson, Nevada

Possible discharge of spent chemicals into the sink and subsequently to the septic tank.	<ul style="list-style-type: none"> • Metals • Perchlorate • Chlorate • Ammonia • Acids and caustics • Wet chemistry analytes • Dilute formaldehyde titrant
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Overlapping or Adjacent LOUs: The following LOUs overlap or are adjacent to LOU 54:
Overlapping LOUs

- None

Adjacent LOUs

- LOU 38 (Former Satellite Accumulation Point-AP Laboratory) – Southeast (upgradient) of LOU 54
- LOU 5 (Beta Ditch) – North (downgradient) of LOU 54.

LOU 5 is downgradient and is not considered to affect LOU 54; therefore, no additional chemical classes have been added to the proposed Phase B Analytical Plan for LOU 54.

For detailed information on LOUs listed above, please refer to the specific LOU data package.

LOUs Potentially Affecting Soils in LOU 54:

- LOU 38 – Former Satellite Accumulation Point-AP Laboratory: LOU 38 consists of a concrete pad with three, properly labeled, metal storage cabinets to store flammable wastes from the AP Laboratory. Although the AP Laboratory is not included as part of LOU 38, lab operations included the rinsing of laboratory equipment associated with the preparation of standards, caustic and acid solutions for pH determinations, and dilute titrants including dilute formaldehyde titrant. The rinse water was discharged to the septic tank (LOU 54) [Ref. 2]. As a result, the analytical plan for samples collected from LOU 54 will include analysis for formaldehyde titrant.

Known or Potential Chemical Classes:

- Metals
- Perchlorate
- Wet chemistry analytes
- Formaldehyde titrant (associated with LOU 38)

Known or Potential Release

- No known releases documented for this LOU.

Summary of Available Data for LOU 54
AP Plant Area Change House/Laboratory Septic Tank
 Tronox Facility – Henderson, Nevada

- Mechanisms:**
- Infiltration to subsurface soils and groundwater.
 - Possible impacts to surrounding soils from surface releases.
- Results of Historical Sampling:**
- Two soil borings (SB6-1 and SB6-2) were analyzed in 1997. Samples were tested for EPA metals and pH. Analytical results are summarized: Table 24 (see attached) [Ref. 2].
- Did Historical Samples Address Potential Release?**
- Not completely. Historical borings were limited in depth and constituents tested, and therefore, were not representative of the full extent of LOU 54.
- Summary of Phase A SAI:**
- Soil:
- None specifically conducted for LOU 54. The closest boring (SA14) is approximately 80 feet north (downgradient) and was not specifically sampled to evaluate this LOU.
- Groundwater:
- None specifically conducted for this LOU 54. The closest groundwater sample (GWSA14) was collected from Phase A boring SA14, approximately 80 feet north (crossgradient) and was not specifically sampled to evaluate this LOU.
- The soil and groundwater Phase A samples from SA14, located in the Beta Ditch (LOU 5), are not considered to be representative of conditions at LOU 54.
- Analytical results for soil and groundwater from the Phase A sampling event are summarized: LOU 54 Tables 1 through 5 and 7 through 7 and 22 (see attached) [Ref. 3].
- Are Phase A Sample Locations in “Worst Case” Areas?**
- No
- Is Phase B Investigation Recommended?**
- Yes
- Proposed Phase B Soil Investigation/Rationale:**
- The Phase B investigation of LOU 54 consists of collecting soil samples from one (1) location:
 - one (1) boring will be drilled near the north edge of the LOU.
 - The proposed boring along with the analytical program to evaluate soil samples from LOU 54 are listed on **Table A – Soil Sampling and Analytical Plan for LOU 54.**

Summary of Available Data for LOU 54
AP Plant Area Change House/Laboratory Septic Tank
 Tronox Facility – Henderson, Nevada

- The soil sample for LOU 54 (SA85) is a judgmental sample location:
 - It is designed to evaluate soil for known or potential chemical classes associated with LOU 54, based on the known process waste streams.

Proposed Phase B Constituents List for Soils:

Judgmental sample locations will be analyzed for LOU-specific constituents consisting of the following:

- Metals (Phase A list)
- Perchlorate
- Wet chemistry analytes
- Formaldehyde titrant

Judgmental sample locations will also be analyzed for the following constituents for area-wide coverage purposes:

- Hexavalent chromium
- VOCs
- SVOCs
- Organochlorine pesticides
- Dioxins/furans
- Radionuclides
- Asbestos

Proposed Phase B Groundwater Investigation/Rationale:

- The Phase B groundwater investigation of LOU 54 consists of collecting groundwater samples from two locations to evaluate local groundwater conditions and as part of Site-wide evaluation of constituent trends in groundwater.
 - One (1) well (M-125) will be sampled north (downgradient) from LOU 54.
 - One (1) well (M-123) will be sampled south (upgradient) from LOU 54.
 - The two wells along with the analytical program to evaluate groundwater samples associated with LOU 54 are listed on **Table B – Groundwater Sampling and Analytical Plan for LOU 54**.

Proposed Phase B Constituents List for Groundwater:

Groundwater samples will be analyzed for the following analytes:

- Metals (Phase A list)
- Hexavalent chromium
- Perchlorate
- Wet chemistry analytes
- VOCs

Summary of Available Data for LOU 54
AP Plant Area Change House/Laboratory Septic Tank
 Tronox Facility – Henderson, Nevada

- SVOCs
- Organochlorine pesticides
- Radionuclides
- Formaldehyde titrant

Proposed Phase B Soil Gas Investigation/Rationale:

Two (2) soil gas sample will be collected within the LOU to evaluate area conditions for the presence of vapor-phase VOCs in the vadose zone.

- SG59 will be located adjacent to soil boring SA85 to investigate the Septic/Leach Bed as a source of VOCs in groundwater.
- SG31 will be placed adjacent to well M-125, approximately 150 feet north (downgradient) of LOU 54, to investigate the Beta Ditch as a potential VOC source and to assess VOCs from a groundwater source as indicated by the concentrations reported in Phase A Sample GWSA14.

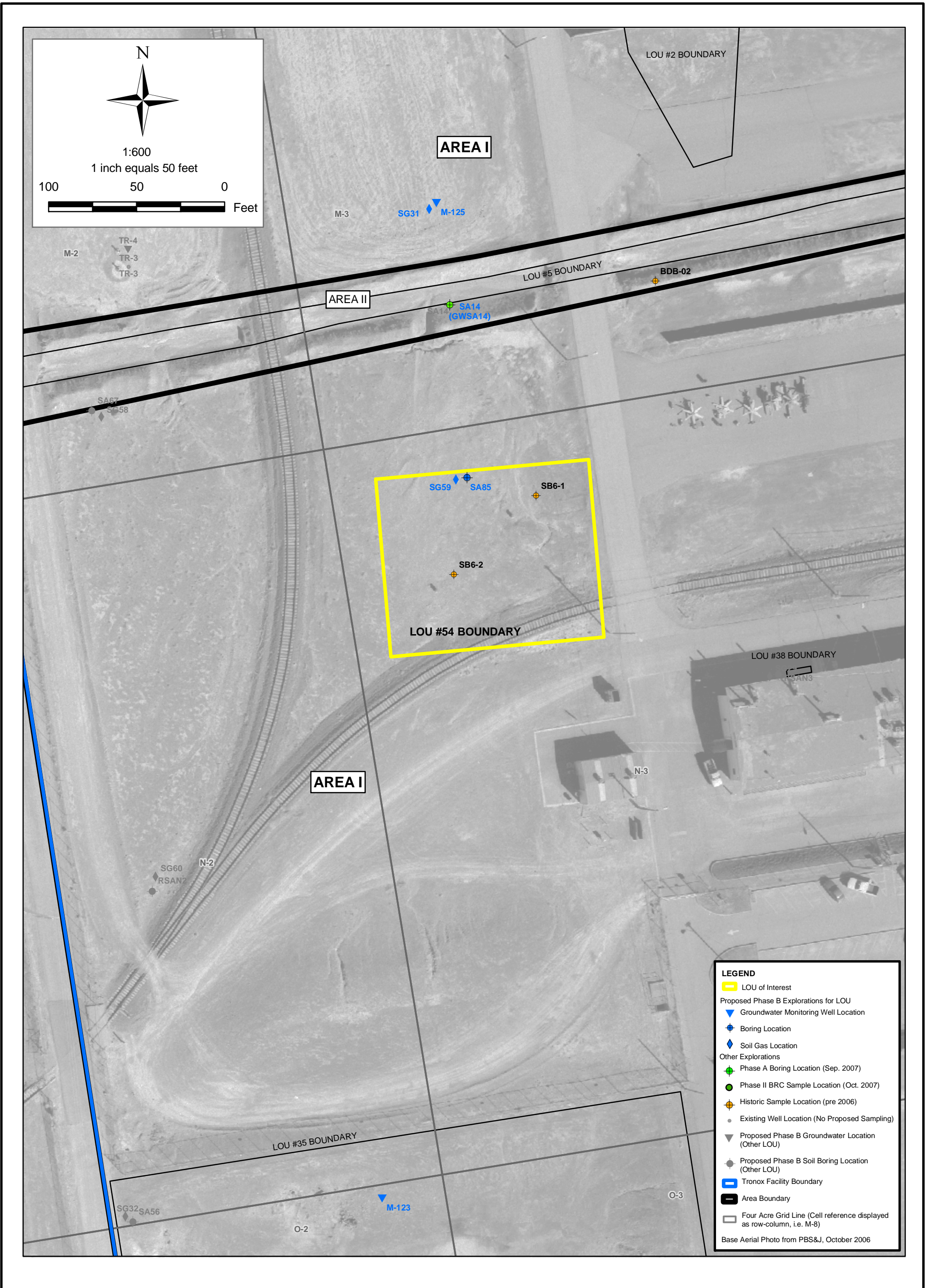
Details of the soil gas sampling program are contained in the NDEP-approved (March 26, 2008) Soil Gas Survey Work Plan, Tronox LLC, Henderson, Nevada, dated March 20, 2008.

Proposed Phase B Soil Gas Constituents:
References:

- VOCs (EPA TO-15)
 1. ENSR Corporation (ENSR), 1997, Phase II Environmental Conditions Assessment located at Kerr-McGee Chemical Corporation, Henderson, Nevada, August 7, 1997.
 2. ENSR, 2005, Conceptual Site Model, Kerr-McGee Facility, Henderson, Nevada, ENSR, Camarillo, California, 04020-023-130, February 2005 and August 2005.
 3. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
 4. Kleinfelder, 1993, Environmental Conditions Assessment, Kerr-McGee Chemical Corporation, Henderson, Nevada Facility, April 15, 1993 (Final).
 5. Tronox, Susan Crowley, verbal communication, February 25, 2008.

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AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility – Henderson, Nevada

LOU Map



LEGEND

- LOU of Interest
- Proposed Phase B Explorations for LOU
- ▼ Groundwater Monitoring Well Location
- ◆ Boring Location
- ◇ Soil Gas Location
- Other Explorations
- Phase A Boring Location (Sep. 2007)
- Phase II BRC Sample Location (Oct. 2007)
- Historic Sample Location (pre 2006)
- Existing Well Location (No Proposed Sampling)
- ▼ Proposed Phase B Groundwater Location (Other LOU)
- ◆ Proposed Phase B Soil Boring Location (Other LOU)
- Tronox Facility Boundary
- Area Boundary
- Four Acre Grid Line (Cell reference displayed as row-column, i.e. M-8)

Base Aerial Photo from PBS&J, October 2006

SHEET NUMBER: X

FIGURE NUMBER: 1

SAMPLE LOCATIONS FOR LOU #54
AP PLANT AREA CHANGE HOUSE/
LABORATORY SEPTIC TANK
 Phase B Source Area Investigation
 Tronox Facility
 Henderson, Nevada

SCALE:	DATE:	PROJECT NUMBER:
AS SHOWN	4/2/2008	04020-023-430

ENSR | AECOM

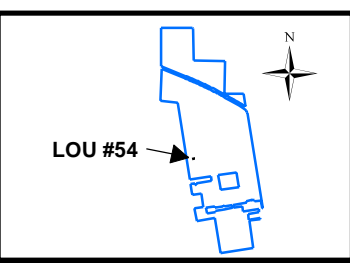
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Summary of Available Data for LOU 54
AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility – Henderson, Nevada

Sampling and Analytical Plans for LOU 54:

Table A – Soil Analytical Plan for LOU 54
Table B – Groundwater Analytical Plan for LOU 54

Table A
Soil Sampling and Analytical Plan for LOU 54
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

Grid Location	LOU Number	Phase B Boring No.	Sample ID Number	Sample Depths (ft, bgs)	Perchlorate (EPA 314.0)	Metals (EPA 6020)	Hex Cr (EPA 7199)	TPH-DRO/ORO (EPA 8015B)	TPH-GRO (EPA 8015B)	VOCs ¹ (EPA 8260B)	Wet Chemistry ²	OCPs ³ (8081A)	SVOCs ⁴ (EPA 8270C)	Radio-nuclides ⁵	Dioxins/Furans ⁶	Formaldehyde Titrant (EPA 8315A)	Asbestos EPA/540/R-97/028	Location Description and Characterized Area Rationale	
Borings are organized by grid location (N-3) as shown on Plate A																			
N-3	54	SA85	SA85-0.0	0.0														Boring located northwest of AP Lab bldg. to evaluate LOU 54 (AP Lab septic tank). Dilute formaldehyde titrant was used in LOU 38 (Former Satellite Accumulation Point, AP-Laboratory) and possibly discharged to LOU 54.	
N-3	54		SA85-0.5	0.5	X	X	X			X	X	X	X	X	X	X	X		
N-3	54		SA85-10	10	X	X	X			X	X	Hold	X	X	X	X	X		X
N-3	54		SA85-20	20	X	X	X			X	X		X	X	X	X	X		X
N-3	54		SA85-30	30	X	X	X			X	X		X	X	X	X	X		X
N-3	54		SA85-35	35	X	X	X			X	X		X	X	X	X	X		X
Number of Borings:		1																	
Number of Samples:					5	5	5	0	0	5	5	1	5	5	1	5	1		

Notes:

- X Sample will be collected and analyzed.
- No sample collected under Phase B sampling program.
- TPH-DRO/ORO Total petroleum hydrocarbons - Diesel-Range Organics/Oil-Range Organics.
- 1. Samples for VOC analysis will be preserved in the field using sodium bisulfate (or DI water) and methanol preservatives per EPA Method 5035.
- 2. Includes wet chemistry parameters listed on Table 1 of the Phase B Source Area Work Plan.
- 3. Organochlorine Pesticides (includes analysis for hexachlorobenzene).
- 4. Semi-volatile Organic Compounds
- 5. Radionuclides consists of alpha spec reporting for Thorium-230/232, Uranium 234/235, Uranium-238, and beta spec for Radium-226/228 (per NDEP).
- 6. Dioxins/furans: 90% will be tested by immunoassay, 10% analyzed by HRGC/HRMS in the laboratory.

Table B
Groundwater Sampling and Analysis Plan for LOU 54
Phase B Source Area Investigation Area I Work Plan
Tronox Facility - Henderson, Nevada

Grid Location	Location Area	Monitoring Well No.	Screen Interval (ft bgs)	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Hex Cr (EPA 7199)	Metals	VOCs1 (EPA 8260)	Wet Chemistry2	OCPs3 (EPA 8081A)	SVOCs4 (EPA 8270C)	Radio-nuclides5	Rationale
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area 1 (M-3) and ending with the southeastern-most grid covering Area I (O-2).													
M-3	1	M-125	TBD	new well	X	X	X	X	X	X	X	X	New monitoring well located to serve as a downgradient stepout for LOUs 5 and 54; to evaluate potential offsite sources from the west; and for general site coverage.
O-2	1	M-123	TBD	new well	X	X	X	X	X	X	X	X	New monitoring well located to evaluate LOU 35; as an upgradient stepout for LOUs 38 and 54; to evaluate potential offsite sources to the west; and for general site coverage.
Number of Field Samples:					2	2	2	2	2	2	2	2	
Notes:													
X	Sample will be collected and analyzed.												
1	Volatile organic compounds- samples for VOC analysis will be preserved in the field using sodium bisulfate(or DI water) and methanol preservatives per EPA method 5035												
2	Includes wet chemistry parameters listed on table 1. of the Phase B Source Area Work Plan.												
3	Organochlorine pesticides(includes analysis for hexachlorobenzene).												
4	Semi-volatile organic compounds												
5	Radionuclides consists of alpha spec reporting for Thorium-230/232, Uranium 234/235, Uranium-238, and beta spec for Radium-226/228 (per NDEP).												
TBD	To Be Determined when well is constructed.												

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AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility – Henderson, Nevada

Soil and Groundwater Characterization Data

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AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility – Henderson, Nevada

LOU-specific analytes identified include:

- Wet chemistry analytes
- Dioxins/furans
- Metals
- Organochlorine pesticides
- Perchlorate
- Radionuclides
- SVOCs
- VOCs
- Asbestos
- Formaldehyde titrant

The tables in **BOLD** below present Phase A data associated with these LOU specific analytes.

LOU 54 Table 1 – Soil Characterization Data – Wet Chemistry

LOU 54 Table 2 – Groundwater Characterization Data – Wet Chemistry

LOU 54 Table 3 – Soil Characterization Data – Dioxins and Dibenzofurans

LOU 54 Table 4 – Soil Characterization Data – Metals

LOU 54 Table 5 – Groundwater Characterization Data – Metals

LOU 54 Table 6 – Groundwater Characterization Data – Routine Monitoring

LOU 54 Table 7 – Soil Characterization Data – Organochlorine Pesticides (OCP)

LOU 54 Table 8 – Groundwater Characterization Data – Organochlorine Pesticides (OCP)

LOU 54 Table 9 – Soil Characterization Data – Organophosphorus Pesticides (OPP)

LOU 54 Table 10 – Groundwater Characterization Data – Organophosphorus Pesticides (OPP)

LOU 54 Table 11 – Soil Characterization Data – PCBs

LOU 54 Table 12 – Groundwater Characterization Data – PCBs

LOU 54 Table 13 – Soil Characterization Data – Perchlorate

LOU 54 Table 14 – Groundwater Characterization Data – Perchlorate

LOU 54 Table 15 – Soil Characterization Data – Radionuclides

LOU 54 Table 16 – Groundwater Characterization Data – Radionuclides

LOU 54 Table 17 – Soil Characterization Data – SVOCs

LOU 54 Table 18 – Groundwater Characterization Data – SVOCs

LOU 54 Table 19 – Soil Characteristic Data - TPH and Fuel Alcohols

LOU 54 Table 20 – Soil Characterization Data – VOCs

LOU 54 Table 21 – Groundwater Characterization Data – VOCs

LOU 54 Table 22 – Soil Characterization Data – Long Asbestos Fibers in Respirable Soil Fraction

LOU 54 Table 23 – Summary of Historical Groundwater Analytical Data

LOU 54 Table 24 – Summary of Historical Soil Analytical Data

Notes for all tables presented at the end of the tables.

LOU 54 Table 1
Soil Characterization Data - Wet Chemistry

AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A ¹	Ph A	Ph A	Ph A	Ph A	
Boring No.		SA14	SA14	SA14	SA14	SA14	
Sample ID		SA14-0.5	SA14-10	SA14-20	SA14-30	SA14-40	
Sample Depth (ft)		0.5	10	20	30	40	
Sample Date		11/08/2006	11/08/2006	11/08/2006	11/08/2006	11/08/2006	
Wet Chemistry Parameter	PRG ² mg/kg						Units
Percent moisture	--	8.7	11.5	19.4	37.5	19.0	percent
Alkalinity (as CaCO ₃)	--	299	685	1440	79.9 U	61.8 U	mg/kg
Bicarbonate	--	846	223	251	170	225	mg/kg
Total Alkalinity	--	1140	908	1690	170	237	mg/kg
Ammonia (as N)	--	R	R	R	R	R	mg/kg
Cyanide	1.20E+04	0.55 UJ	0.57 UJ	0.62 UJ	0.80 UJ	0.62 UJ	mg/kg
MBAS	--	4.2	2.5 J	4.2	4.0 U	4.0 U	mg/kg
pH (solid)	--	9.5	10.1	10.1	8.1	8.2	none
Bromide	--	2.7 U	2.8 U	3.1 U	4.0 U	3.1 U	mg/kg
Chlorate	--	3.3 J-	3.8 J-	2.1 J-	11.3 J-	6.2 UJ	mg/kg
Chloride	--	9.7	2.5 J+	7.6	2830	2040	mg/kg
Nitrate (as N)	--	0.22 U	0.23 U	0.32 J+	1.7 J+	0.30 J+	mg/kg
Nitrite	--	0.059 J	0.23 U	0.056 J	21.3 J-	15.9 J-	mg/kg
ortho-Phosphate	--	5.5 U	5.7 U	6.2 U	8 U	6.2 U	mg/kg
Sulfate	--	11.7	5.5 J	10.0	774	730	mg/kg
Total Organic Carbon	--	15400	11200	13800	3500	25000	mg/kg

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).

LOU 54 Table 2
Groundwater Characterization Data - Wet Chemistry

AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A ¹	
Well ID		SA14	
Sample ID		GWSA14	
Sample Date		11/08/2006	
Wet Chemistry Parameters	MCL² ug/L		Units
Total Dissolved Solids	5.00E+05 j	13500	mg/L
Total Suspended Solids	--	4360	mg/L
Alkalinity (as CaCO3)	--	5.0 U	mg/L
Bicarbonate	--	67.0	mg/L
Total Alkalinity	--	67.0	mg/L
Ammonia (as N)	--	50.0 U	ug/L
MBAS	--	0.27 U	mg/L
Cyanide	2.00E+02	5.0 UJ	ug/L
pH (liquid)	--	7.5 J	none
Specific Conductance	--	15200	umhos/cm
Bromide	--	25.0 U	mg/L
Chlorate	--	5.0 U	mg/L
Chloride	2.50E+05	5180	mg/L
Nitrate (as N)	1.00E+04	1.1 J	mg/L
Nitrite	1.00E+03	2.0 U	mg/L
ortho-Phosphate	--	50.0 U	mg/L
Sulfate	2.50E+05 j	1950	mg/L
Total Organic Carbon	--	5.9 J-	mg/L

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
 2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
- (j) Secondary Drinking Water Regulation value.

**LOU 54 Table 3
Soil Characterization Data - Dioxins and Dibenzofurans**

AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility - Henderson, Nevada

		Sampling Program		Ph A ¹
		Boring No.		SA14
		Sample ID		SA14-0.5
		Sample Depth (ft)		0.5
		Sample Date		11/08/2006
chemical_name:	Method	Unit	PRG ² mg/kg	
Dioxin 8290 SCREEN Total TEQ-ENSR Calculated (a) ng/kg		ng/kg	--	4.27
Dioxin SW 846 8290 Total TEQ-ENSR Calculated (a) ng/kg		ng/kg	--	
Dioxin 8290 SCREEN Total TEQ-ENSR Calculated (b) ng/kg		ng/kg	--	4.27
Dioxin SW 846 8290 Total TEQ-ENSR Calculated (b) ng/kg		ng/kg	--	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	8290 Screen	ng/kg	--	11.526
1,2,3,4,6,7,8-Heptachlorodibenzofuran	SW 846 8290	ng/kg	--	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	2.097
1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	8290 Screen	ng/kg	--	11.338
1,2,3,4,7,8,9-Heptachlorodibenzofuran	SW 846 8290	ng/kg	--	
1,2,3,4,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	6.078
1,2,3,4,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--	
1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	0.132
1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	
1,2,3,6,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	3.817
1,2,3,6,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--	
1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	0.576
1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	
1,2,3,7,8,9-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	0.613
1,2,3,7,8,9-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--	
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	0.506
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	
1,2,3,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--	3.929
1,2,3,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--	
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	0.273
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	
2,3,4,6,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	1.889
2,3,4,6,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--	
2,3,4,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--	1.483
2,3,4,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--	
2,3,7,8-Tetrachlorodibenzofuran	8290 Screen	ng/kg	--	17.368
2,3,7,8-Tetrachlorodibenzofuran	SW 846 8290	ng/kg	--	
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	1.00E+04 h,v	0.081
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	1.00E+04 h,v	
Octachlorodibenzofuran	8290 Screen	ng/kg	--	31.029
Octachlorodibenzofuran	SW 846 8290	ng/kg	--	
Octachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	3.732

**LOU 54 Table 3 (continued)]
Soil Characterization Data - Dioxins and Dibenzofurans**

AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility - Henderson, Nevada

		Sampling Program		Ph A
		Boring No.		SA14
		Sample ID		SA14-0.5
		Sample Depth (ft)		0.5
		Sample Date		11/08/2006
chemical_name:	Method	Unit	PRG² mg/kg	
Octachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	
Tetrachlorinated Dibenzofurans, (Total)	SW 846 8290	ng/kg	--	
Total HpCDD	SW 846 8290	ng/kg	--	
Total HpCDF	SW 846 8290	ng/kg	--	
Total HxCDD	SW 846 8290	ng/kg	--	
Total HxCDF	SW 846 8290	ng/kg	--	
Total PeCDD	SW 846 8290	ng/kg	--	
Total PeCDF	SW 846 8290	ng/kg	--	
Total TCDD	SW 846 8290	ng/kg	--	

Notes:

- (a) Calculated assuming 0 for non-detected congeners and 2006 toxic equivalency factors (TEFs).
- (b) Calculated assuming 1/2 detection limit as proxy for non-detected congeners and 2006 TEFs.
 1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
 2. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
- (h) Dioxins and furans were expressed as 2,3,7,8- TCDD TEQ (toxic equivalents), calculated using the TEFs (Toxic Equivalency Factors) published by Van den Berg et al., 2006.
- (v) USEPA, 1998. Approach for Addressing Dioxin in Soil at CERCLA and RCRA Sites. OSWER Directive 9200.4-26. April, 1998. Midpoint of the range of 0.005 to 0.02 mg/kg for commercial/industrial soils.

**LOU 54 Table 4
Soil Characterization Data - Metals**

AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A ¹	Ph A	Ph A	Ph A	Ph A	
Boring No.		SA14	SA14	SA14	SA14	SA14	
Sample ID		SA14-0.5	SA14-10	SA14-20	SA14-30	SA14-40	
Sample Depth (ft)		0.5	10	20	30	40	
Sample Date		11/08/2006	11/08/2006	11/08/2006	11/08/2006	11/08/2006	
Metals	PRG ² mg/kg						Units
Aluminum	9.21E+05 (oo)	7890 J	8270 J	7540 J	14300 J	9160 J	mg/kg
Antimony	4.09E+02	0.17 J-	0.19 J-	0.13 J-	0.24 J-	0.11 J-	mg/kg
Arsenic	1.59E+00	2.0	2.2	3.7	23.7	14.6	mg/kg
Barium	6.66E+04	162 J	187 J	147 J	118 J	25.2 J	mg/kg
Beryllium	1.94E+03	0.48	0.54	0.49	0.64	0.43	mg/kg
Boron	2.00E+05 (oo)	5.5 J-	3.8 J-	5.0 J-	21.2 J-	10.6 J-	mg/kg
Cadmium	4.50E+02	0.14	0.090	0.070	0.11	0.22	mg/kg
Calcium	--	29700 J	15800 J	22000 J	10400 J	187000 J	mg/kg
Chromium (Total)	4.48E+02	10.9 J-	9.6 J-	7.9 J-	16.8 J-	17.0 J-	mg/kg
Chromium-hexavalent	6.40E+01	0.22 U	0.23 U	0.25 U	0.32 U	0.25 U	mg/kg
Cobalt	1.92E+03	6.7 J-	6.5 J-	5.3 J-	6.0 J-	3.0 J-	mg/kg
Copper	4.09E+04	12.5 J	12.3 J	10.3 J	13.0 J	6.8 J	mg/kg
Iron	3.00E+05 (oo)	13600 J	13900 J	10800 J	17800 J	7500 J	mg/kg
Lead	8.00E+02	11.0	8.8	6.9	9.6	5.3	mg/kg
Magnesium	--	8140 J-	9470 J-	9670 J-	45600 J-	27700 J-	mg/kg
Manganese	1.95E+04	407 J+	407 J+	227 J+	361 J+	143 J+	mg/kg
Molybdenum	5.11E+03	0.58	0.46 J	0.36 J	1.2 J	0.42 J	mg/kg
Nickel	2.04E+04	17.1 J	13.0 J	10.5 J	13.6 J	10.2 J	mg/kg
Platinum	--	0.014 J	0.013 J	0.012 U	0.016 U	0.013 J	mg/kg
Potassium	--	1940 J	1800 J	1530 J	3170 J	1710 J	mg/kg
Selenium	5.11E+03	0.12 UJ	0.12 UJ	0.13 UJ	0.17 UJ	0.13 UJ	mg/kg
Silver	5.11E+03	0.14 J	0.16 J	0.16 J	0.14 J	0.11 J	mg/kg
Sodium	--	2550 J-	3570 J-	3990 J-	4910 J-	1250 J-	mg/kg
Strontium	6.12E+05 (oo)	142 J	109 J	106 J	98.0 J	168 J	mg/kg
Thallium	6.75E+01	0.099 J	0.098 J	0.088 J	0.26 J	0.11 J	mg/kg
Tin	6.12E+05 (oo)	0.60	0.56	0.46 J	0.63	0.42	mg/kg
Titanium	3.80E+06 (oo)	625 J	594 J	412 J	499 J	352 J	mg/kg
Tungsten	--	0.37 J-	0.23 J-	0.21 J-	0.72 J-	0.16 J-	mg/kg
Uranium	2.04E+02	0.93	0.94	1.6	3.3	2.0	mg/kg
Vanadium	1.02E+03	35.9 J-	31.7 J-	25.8 J-	27.8 J-	13.7 J-	mg/kg
Zinc	3.10E+05 (oo)	25.8 J-	25.4 J-	23.9 J-	37.4 J-	19.4 J-	mg/kg
Mercury	3.10E+02 (t)	0.062 U	0.0076 U	0.0083 U	0.011 UJ	0.0083 UJ	mg/kg

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
(oo) PRG is based on maximum (1E+05 mg/kg). Therefore, the risk-based value provided in the electronic backup to the PRG table was used.
(t) Value for mercury and compounds.

**LOU 54 Table 5
Groundwater Characterization Data - Metals**

AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A ¹	
Well ID:		SA14	
Sample ID		GWSA14	
Sample Date		11/08/2006	
Metals	MCL ² ug/L		Unit
Aluminum	5.00E+01 j	157 UJ	ug/L
Antimony	6.00E+00	1.9 J-	ug/L
Arsenic	1.00E+01	40.6	ug/L
Barium	2.00E+03	83.9	ug/L
Beryllium	4.00E+00	1.8 UJ	ug/L
Boron	7.30E+03 c	1670 J-	ug/L
Cadmium	5.00E+00	0.057 U	ug/L
Calcium	--	1050000 J	ug/L
Chromium (Total)	1.00E+02	56.0 UJ	ug/L
Cr-hexavalent	1.09E+02 c	0.20 UJ	ug/L
Cobalt	7.30E+02 c	6.4 J-	ug/L
Copper	1.30E+03 p	7.1 J-	ug/L
Iron	3.00E+02 j	188 UJ	ug/L
Lead	1.50E+01 u	9.8 U	ug/L
Magnesium	1.50E+05 a	557000 J	ug/L
Manganese	5.00E+01 j	35.6 J+	ug/L
Molybdenum	1.82E+02 c	12.7	ug/L
Nickel	7.30E+02 c	31.7 J	ug/L
Platinum	--	0.10 U	ug/L
Potassium	--	31500 J-	ug/L
Selenium	5.00E+01	1.0 U	ug/L
Silver	1.00E+02 j	0.20 U	ug/L
Sodium	--	2350000 J	ug/L
Sodium	--	2350000 J	ug/L
Strontium	2.19E+04 c	27700 J+	ug/L
Strontium	2.19E+04 c	27700 J+	ug/L
Thallium	2.00E+00	6.4 U	ug/L
Tin	2.19E+04 c	0.20 UJ	ug/L
Titanium	1.46E+05 c	7.5 J	ug/L
Tungsten	--	0.68 J-	ug/L
Uranium	3.00E+01	21.3	ug/L
Vanadium	3.65E+01 c	10.6 J-	ug/L
Zinc	5.00E+03 j	20.0 UJ	ug/L
Mercury	2.00E+00	0.093 U	ug/L

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
 - (j) Secondary Drinking Water Regulation value.
 - (c) Equal to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tapwater (October, 2004).
 - (p) The national primary drinking water regulations (b) lists a treatment technology action level of 1.3 mg/l as the MCL for Copper. Therefore, the secondary value is not used.
 - (u) See footnote (b). Treatment technology action level.
 - (a) NAC 445A.455 Secondary standards. Certain provisions of the National Primary Drinking Water Regulations are adopted by reference (NAC 445A.4525). These values are listed in the first column of this table and are therefore not listed again here. Only NAC 445A.455 Secondary standards are listed.

LOU 54 Table 6
Groundwater Characterization Data - Routine Monitoring

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC, Henderson, Nevada

Well ID	Date	Depth to water (ft)	Perchlorate mg/l	Qual	MCL ² ug/L	Total Chromium mg/l	Qual	MCL ² ug/L	TDS mg/l	Qual	MCL ² ug/L	Nitrate (as N) mg/l	Qual	MCL ² ug/L	Chlorate mg/l	Qual	MCL ² ug/L
M-19	2/2/2006	31.67	1	d	1.80E+01 a,m	0.2	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-19	5/3/2006	33.14	0.96	d	1.80E+01 a,m	0.19	d	1.00E+02	2950		5.00E+05 j			1.00E+04			--
M-19	8/2/2006	34.11	0.91	d	1.80E+01 a,m	0.22	d	1.00E+02	2650		5.00E+05 j			1.00E+04			--
M-19	11/1/2006	35.72	1.83	d	1.80E+01 a,m	0.32	d	1.00E+02	3670		5.00E+05 j			1.00E+04			--
M-19	1/31/2007	34.92	1.9		1.80E+01 a,m	0.29		1.00E+02	3740		5.00E+05 j			1.00E+04			--
M-19	5/2/2007	34.51	1.91		1.80E+01 a,m	0.34		1.00E+02	3720		5.00E+05 j			1.00E+04			--
M-19	8/1/2007	34.93	2.49		1.80E+01 a,m	0.38		1.00E+02	4820		5.00E+05 j			1.00E+04			--
M-2A	5/5/2006	---	430	d	1.80E+01 a,m	18	d	1.00E+02	12100		5.00E+05 j			1.00E+04			--
M-2A	5/4/2007	---	362		1.80E+01 a,m	17		1.00E+02	10200		5.00E+05 j			1.00E+04			--
M-31A	2/2/2006	46.07	1800	d	1.80E+01 a,m	13	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-31A	5/3/2006	46.41	1700	d	1.80E+01 a,m	13	d	1.00E+02	8030		5.00E+05 j			1.00E+04			--
M-31A	8/2/2006	46.56	1410	d	1.80E+01 a,m	12	d	1.00E+02	6300		5.00E+05 j			1.00E+04			--
M-31A	11/1/2006	47.03	1750	d	1.80E+01 a,m	13	d	1.00E+02	9780		5.00E+05 j			1.00E+04			--
M-31A	1/31/2007	46.43	1490		1.80E+01 a,m	13		1.00E+02	9710		5.00E+05 j			1.00E+04			--
M-31A	5/2/2007	46.05	1400		1.80E+01 a,m	13		1.00E+02	8750		5.00E+05 j			1.00E+04			--
M-31A	8/1/2007	46.84	1710		1.80E+01 a,m	11		1.00E+02	9330		5.00E+05 j			1.00E+04			--
M-34	2/2/2006	---	1800	d	1.80E+01 a,m	17	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-34	5/3/2006	---	1700	d	1.80E+01 a,m	18	d	1.00E+02	8960		5.00E+05 j			1.00E+04			--
M-34	5/7/2006	40.86	1950	d	1.80E+01 a,m			1.00E+02	14500		5.00E+05 j			1.00E+04			--
M-34	8/2/2006	---	1550	d	1.80E+01 a,m	18	d	1.00E+02	7430		5.00E+05 j			1.00E+04			--
M-34	11/1/2006	---	1910	d	1.80E+01 a,m	18	d	1.00E+02	10900		5.00E+05 j			1.00E+04			--
M-34	1/31/2007	---	1860		1.80E+01 a,m	17		1.00E+02	12000		5.00E+05 j			1.00E+04			--
M-34	5/2/2007	37.52	1670		1.80E+01 a,m	17		1.00E+02	9850		5.00E+05 j			1.00E+04			--
M-34	8/1/2007	---	2130		1.80E+01 a,m	16		1.00E+02	11900		5.00E+05 j			1.00E+04			--
M-35	2/2/2006	34.73	810	d	1.80E+01 a,m	9.4	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-35	5/3/2006	35.02	550	d	1.80E+01 a,m	9.8	d	1.00E+02	6090		5.00E+05 j			1.00E+04			--
M-35	5/7/2006	38.68	945	d	1.80E+01 a,m			1.00E+02	9610		5.00E+05 j			1.00E+04			--
M-35	5/7/2006	38.68	777	d	1.80E+01 a,m			1.00E+02	9670		5.00E+05 j			1.00E+04			--
M-35	8/2/2006	35.54	694	d	1.80E+01 a,m	11	d	1.00E+02	6240		5.00E+05 j			1.00E+04			--
M-35	11/1/2006	35.67	785	d	1.80E+01 a,m	12	d	1.00E+02	9070		5.00E+05 j			1.00E+04			--
M-35	1/31/2007	35.74	650		1.80E+01 a,m	12		1.00E+02	9530		5.00E+05 j			1.00E+04			--
M-35	5/2/2007	35.52	408		1.80E+01 a,m	6.2		1.00E+02	6090		5.00E+05 j			1.00E+04			--
M-35	8/1/2007	35.97	407		1.80E+01 a,m	9.4		1.00E+02	7280		5.00E+05 j			1.00E+04			--
M-39	2/2/2006	30.42	380	d	1.80E+01 a,m	4	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-39	5/3/2006	30.36	320	d	1.80E+01 a,m	3.7	d	1.00E+02	4300		5.00E+05 j	2.6	d	1.00E+04	1100	d	--
M-39	8/2/2006	31.20	320	d	1.80E+01 a,m	4.3	d	1.00E+02	4560		5.00E+05 j	3.5	d	1.00E+04	1220	d	--
M-39	11/1/2006	31.53	400	d	1.80E+01 a,m	4.5	d	1.00E+02	6310		5.00E+05 j	10.8	d	1.00E+04	1370	d	--
M-39	1/31/2007	31.78	390		1.80E+01 a,m	4.5		1.00E+02	6730		5.00E+05 j			1.00E+04			--
M-39	5/2/2007	31.67	403		1.80E+01 a,m	4.7		1.00E+02	6990		5.00E+05 j	10.3		1.00E+04	1380		--

**LOU 54 Table 6 (continued)
Groundwater Characterization Data - Routine Monitoring**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC, Henderson, Nevada

Well ID	Date	Depth to water (ft)	Perchlorate mg/l	Qual	MCL ² ug/L	Total Chromium mg/l	Qual	MCL ² ug/L	TDS mg/l	Qual	MCL ² ug/L	Nitrate (as N) mg/l	Qual	MCL ² ug/L	Chlorate mg/l	Qual	MCL ² ug/L
M-39	8/1/2007	32.10	489		1.80E+01 a,m	4.6		1.00E+02	7280		5.00E+05 j			1.00E+04			--
M-52	2/2/2006	---	1200	d	1.80E+01 a,m	10	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-52	5/4/2006	---	1100	d	1.80E+01 a,m	9.6	d	1.00E+02	6760		5.00E+05 j			1.00E+04			--
M-52	11/2/2006	---	1020	d	1.80E+01 a,m	9.1	d	1.00E+02	7190		5.00E+05 j			1.00E+04			--
M-52	1/31/2007	---	946		1.80E+01 a,m	9		1.00E+02	8600		5.00E+05 j			1.00E+04			--
M-52	5/2/2007	---	720		1.80E+01 a,m	7.9		1.00E+02	7450		5.00E+05 j			1.00E+04			--

Notes:

1. ENSR, 2007, Quarterly Performance Report for Remediation Systems, Tronox LLC, Henderson, Nevada, July-September 2007, November 2007.

2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.

< = less than the reporting limit

Blank cell or --- = no data and or no qualifier

Qual = data qualifiers applied by laboratory or during data validation

TDS = Total Dissolved Solids

mg/l = milligram per liter

(a) NAC 445A.455 Secondary standards. Certain provisions of the National Primary Drinking Water Regulations are adopted by reference (NAC 445A.4525). These values are listed in the first column of this table and are therefore not listed again here. Only NAC 445A.455 Secondary standards are listed.

(m) Equal to the provisional action level derived by NDEP as referenced in "Defining a Perchlorate Drinking Water Standard". NDEP Bureau of Corrective Action. URL [<http://ndep.nv.gov/bca/pa>]

(j) Secondary Drinking Water Regulation value.

Laboratory Qualifiers:

d = the sample was diluted

u = the analyte was not detected above the sample reporting limit

ud = the sample was diluted and was not detected above the sample reporting limit

Validation Qualifiers:

J = the result is an estimated quantity

J- = the result is an estimated quantity and the result may be biased low

U = the analyte was analyzed for, but was not detected above the sample reporting limit

UJ = the sample was not detected above the sample reporting limit and the reporting limit is approximate

LOU 54 Table 7
Soil Characterization Data - Organochlorine Pesticides (OCP)

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A	
Boring No.		SA14	
Sample ID		SA14-0.5	
Sample Depth (ft)		0.5	
Sample Date		11/08/2006	
Organochlorine Pesticides	PRG ² mg/kg		Unit
4,4'-DDD	9.95E+00	0.0069 J	mg/kg
4,4'-DDE	7.02E+00	0.46	mg/kg
4,4'-DDT	7.02E+00	0.66	mg/kg
Aldrin	1.00E-01	0.0019 U	mg/kg
Alpha-BHC	3.59E-01 (bbb)	0.0019 U	mg/kg
Alpha-chlordane	6.47E+00 (y)	0.0019 U	mg/kg
Beta-BHC	1.26E+00 (bbb)	0.083	mg/kg
Delta-BHC	3.59E-01 (z)	0.0019 U	mg/kg
Dieldrin	1.10E-01	0.0019 U	mg/kg
Endosulfan I	3.70E+03 (aa)	0.0019 U	mg/kg
Endosulfan II	3.70E+03 (aa)	0.0019 U	mg/kg
Endosulfan Sulfate	3.70E+03 (aa)	0.0019 U	mg/kg
Endrin	1.85E+02	0.0019 U	mg/kg
Endrin Aldehyde	1.85E+02 (k)	0.038 J	mg/kg
Endrin Ketone	1.85E+02 (k)	0.0019 U	mg/kg
Gamma-BHC (Lindane)	1.74E+00 (bbb)	0.0019 U	mg/kg
Gamma-Chlordane	6.47E+00 (y)	0.0019 U	mg/kg
Heptachlor	3.83E-01	0.0019 U	mg/kg
Heptachlor Epoxide	1.89E-01	0.0019 U	mg/kg
Methoxychlor	3.08E+03	0.0036 U	mg/kg
Tech-Chlordane	6.47E+00	0.011 U	mg/kg
Toxaphene	1.57E+00	0.055 U	mg/kg

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
(bbb) BHC listed as HCH in the PRG table.
(y) Value for chlordane (technical) used as surrogate for alpha-chlordane and gamma-chlordane based on structural similarities.
(z) Value for alpha-BHC used as surrogate for delta-BHC based on structural similarities.
(aa) Value for endosulfan used as surrogate for endosulfan I, endosulfan II and endosulfan sulfate based on structural similarities.
(k) Value for endrin used as surrogate for endrin aldehyde and endrin ketone due to structural similarities.

LOU 54 Table 8
Groundwater Characterization Data - Organochlorine Pesticides (OCP)

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A ¹	
Well ID		SA14	
Sample ID		GWSA14	
Sample Date		11/08/2006	
Organochlorine Pesticides	MCL ² ug/L		Unit
4,4'-DDD	2.80E-01 c	0.050 U	ug/L
4,4'-DDE	1.98E-01 c	0.050 U	ug/L
4,4'-DDT	1.98E-01 c	0.050 U	ug/L
Aldrin	4.00E-03 c	0.050 U	ug/L
Alpha-BHC	1.10E-02 c, (bbb)	0.13	ug/L
Alpha-chlordane	2.00E+00 (l)	0.050 U	ug/L
Beta-BHC	3.74E-02 c, (bbb)	0.14	ug/L
Delta-BHC	1.10E-02 c, (z)	0.11 J	ug/L
Dieldrin	4.20E-03 c, (z)	0.050 U	ug/L
Endosulfan I	2.19E+02 c, (aa)	0.050 U	ug/L
Endosulfan II	2.19E+02 c, (aa)	0.050 U	ug/L
Endosulfan Sulfate	2.19E+02 c, (aa)	0.050 U	ug/L
Endrin	2.00E+00	0.050 U	ug/L
Endrin Aldehyde	1.09E+01 c, (k)	0.050 U	ug/L
Endrin Ketone	1.09E+01 c, (k)	0.050 U	ug/L
Gamma-BHC (Lindane)	2.00E-01	0.097	ug/L
Gamma-Chlordane	2.00E+00 (l)	0.050 U	ug/L
Heptachlor	4.00E-01	0.050 U	ug/L
Heptachlor Epoxide	2.00E-01	0.050 U	ug/L
Methoxychlor	4.00E+01	0.10 UJ	ug/L
Tech-Chlordane	2.00E+00 (l)	0.50 U	ug/L
Toxaphene	3.00E+00	2.0 U	ug/L

Notes:

1. ENSR, 2007, Quarterly Performance Report for Remediation Systems, Tronox LLC, Henderson, Nevada, July-September 2007, November 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
 - (c) Equal to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tapwater (October, 2004).
 - (bbb) BHC listed as HCH in the PRG table.
 - (l) Value for chlordane used as surrogate for alpha-chlordane, chlordane (technical) and gamma-chlordane due to structural similarities.
 - (z) Value for alpha-BHC used as surrogate for delta-BHC based on structural similarities.
 - (aa) Value for endosulfan used as surrogate for endosulfan I, endosulfan II and endosulfan sulfate based on structural similarities.
 - (k) Value for endrin used as surrogate for endrin aldehyde and endrin ketone due to structural similarities.

LOU 54 Table 9
Soil Characterization Data - Organophosphorus Pesticides (OPPs)

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A ¹	Ph A	
Boring No.		SA14	SA14	
Sample ID		SA14-0.5	SA14-10	
Sample Depth (ft)		0.5	10	
Sample Date		11/08/2006	11/08/2006	
OPPs	PRG ² mg/kg			Unit
Azinphos-methyl	--	0.014 U	0.015 UJ	mg/kg
Bolstar	--	0.014 U	0.015 U	mg/kg
Chlorpyrifos	1.85E+03	0.022 U	0.023 U	mg/kg
Coumaphos	--	0.014 U	0.015 U	mg/kg
Demeton-O	2.46E+01 (cc)	0.043 U	0.044 U	mg/kg
Demeton-S	2.46E+01 (cc)	0.016 U	0.017 U	mg/kg
Diazinon	5.54E+02	0.024 U	0.025 U	mg/kg
Dichlorvos	5.94E+00	0.025 U	0.026 U	mg/kg
Dimethoate	1.23E+02	0.024 U	0.025 U	mg/kg
Disulfoton	2.46E+01	0.053 U	0.054 U	mg/kg
EPN	6.16E+00	0.014 UJ	0.015 U	mg/kg
Ethoprop	--	0.016 U	0.017 U	mg/kg
Ethyl Parathion	1.54E+02 (tt)	0.020 UJ	0.020 U	mg/kg
Famphur	--	0.014 U	0.015 U	mg/kg
Fensulfothion	--	0.014 U	0.015 U	mg/kg
Fenthion	1.50E+02 (ff)	0.036 U	0.037 U	mg/kg
Malathion	1.23E+04	0.016 U	0.017 U	mg/kg
Merphos	1.85E+01	0.033 U	0.034 U	mg/kg
Methyl parathion	1.54E+02	0.022 U	0.023 U	mg/kg
Mevinphos	--	0.016 U	0.017 U	mg/kg
Naled	1.23E+03	0.036 UJ	0.037 UJ	mg/kg
Phorate	1.23E+02	0.022 U	0.023 U	mg/kg
Ronnel	3.08E+04	0.020 U	0.020 UJ	mg/kg
Stirphos	--	0.016 U	0.017 U	mg/kg
Sulfotep	3.08E+02	0.022 U	0.023 U	mg/kg
Thionazin	--	0.020 U	0.020 U	mg/kg
Tokuthion	--	0.022 U	0.023 U	mg/kg
Trichloronate	--	0.022 U	0.023 U	mg/kg

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
 2. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
- (cc) Value for demeton used as surrogate for demeton-o and demeton-s based on structural similarities.
(tt) Value for parathion-methyl used as surrogate for parathion-ethyl due to structural similarities.
(ff) Value for methyl parathion used as surrogate for fenthion based on structural similarities.

LOU 54 Table 10
Groundwater Characterization Data - Organophosphorus Pesticides (OPPs)

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A ¹	
Well ID		SA14	
Sample ID		GWSA14	
Sample Date		11/08/2006	
OPPs	MCL ² ug/L		Unit
Azinphos-methyl	--	2.5 U	ug/L
Bolstar	--	1.0 U	ug/L
Chlorpyrifos	1.09E+02 c	1.0 U	ug/L
Coumaphos	--	1.0 U	ug/L
Demeton-O	1.46E+00 c,(cc)	1.0 U	ug/L
Demeton-S	1.46E+00 c,(cc)	1.0 U	ug/L
Diazinon	3.28E+01	1.0 U	ug/L
Dichlorvos	2.32E-01	1.0 U	ug/L
Dimethoate	7.30E+00	1.0 U	ug/L
Disulfoton	1.46E+00	0.50 U	ug/L
EPN	3.65E-01	1.2 UJ	ug/L
Ethoprop	--	0.50 U	ug/L
Ethyl Parathion	9.12E+00 c,(tt)	1.0 UJ	ug/L
Famphur	--	1.0 U	ug/L
Fensulfothion	--	2.5 U	ug/L
Fenthion	9.10E+00 c,(ff)	2.5 U	ug/L
Malathion	7.30E+02	1.2 U	ug/L
Merphos	1.09E+00	5.0 U	ug/L
Methyl parathion	9.12E+00	4.0 UJ	ug/L
Mevinphos	--	6.2 U	ug/L
Naled	7.30E+01	1.0 UJ	ug/L
Phorate	7.30E+00	1.2 U	ug/L
Ronnel	1.82E+03	10 U	ug/L
Stirphos	--	3.5 UJ	ug/L
Sulfotep	1.82E+01	1.5 U	ug/L
Thionazin	--	1.0 U	ug/L
Tokuthion	--	1.6 U	ug/L
Trichloronate	--	0.50 U	ug/L

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
 - (c) Equal to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tapwater (October, 2004).
 - (cc) Value for demeton used as surrogate for demeton-o and demeton-s based on structural similarities.
 - (tt) Value for parathion-methyl used as surrogate for parathion-ethyl due to structural similarities.
 - (ff) Value for methyl parathion used as surrogate for fenthion based on structural similarities.

**LOU 54 Table 11
Soil Characterization Data - PCBs**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A	Ph A	Ph A	Ph A	Ph A	
Boring ID		SA14	SA14	SA14	SA14	SA14	
Sample ID		SA14-0.5	SA14-10	SA14-20	SA14-30	SA14-40	
Sample Depth (ft)		0.5	10	20	30	40	
Sample Date		11/08/2006	11/08/2006	11/08/2006	11/08/2006	11/08/2006	
PCBs	PRG ² mg/kg						Unit
Aroclor-1016	1.00E+01 (i)	0.036 U	0.037 U	0.041 U	0.053 U	0.041 U	mg/kg
Aroclor-1221	1.00E+01 (i)	0.036 U	0.037 U	0.041 U	0.053 U	0.041 U	mg/kg
Aroclor-1232	1.00E+01 (i)	0.036 U	0.037 U	0.041 U	0.053 U	0.041 U	mg/kg
Aroclor-1242	1.00E+01 (i)	0.036 U	0.037 U	0.041 U	0.053 U	0.041 U	mg/kg
Aroclor-1248	1.00E+01 (i)	0.036 U	0.037 U	0.041 U	0.053 U	0.041 U	mg/kg
Aroclor-1254	1.00E+01 (i)	0.036 U	0.037 U	0.041 U	0.053 U	0.041 U	mg/kg
Aroclor-1260	1.00E+01 (i)	0.036 U	0.037 U	0.041 U	0.053 U	0.041 U	mg/kg

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
 - (i) For PCBs, the individual Aroclors were compared to the TSCA action level of 10 mg/kg, for high occupancy, restricted (non-residential) use. (40 CFR Part 761; 63 FR 35383-35474, June 29, 1998).

**LOU 54 Table 12
Groundwater Characterization Data - PCBs**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A ¹	
Well ID		SA14	
Sample ID		GWSA14	
Sample Date		11/08/2006	
PCBs	MCL ² ug/L		Unit
Aroclor-1016	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1221	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1232	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1242	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1248	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1254	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1260	5.00E-01 (bb)	0.10 U	ug/L

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted (bb) Value for total PCBs.

**LOU 54 Table 13
Soil Characterization Data - Perchlorate**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Boring ID	Sample ID	Sample Depth (ft)	Sample Date	Perchlorate ug/kg	PRG¹ mg/kg	Sampling Program
SA14	SA14-0.5	0.5	11/08/2006	1410	1.00E+02	Ph A ²
	SA14-10	10	11/08/2006	220	1.00E+02	Ph A
	SA14-20	20	11/08/2006	450	1.00E+02	Ph A
	SA14-30	30	11/08/2006	6710	1.00E+02	Ph A
	SA14-40	40	11/08/2006	500	1.00E+02	Ph A

Notes:

1. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
2. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.

**LOU 54 Table 14
Groundwater Characterization Data - Perchlorate**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Well ID Number	Sample ID	Sample Date	Perchlorate	Units	MCL¹ ug/L	Sampling Program
SA14	GWSA14	11/08/2006	1120	ug/L	1.80E+01 a,(m)	Ph A ²

Notes:

1. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
 2. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
- (a) NAC 445A.455 Secondary standards. Certain provisions of the National Primary Drinking Water Regulations are adopted by reference (NAC 445A.4525). These values are listed in the first column of this table and are therefore not listed again here.
- (m) Equal to the provisional action level derived by NDEP as referenced in "Defining a Perchlorate Drinking Water Standard". NDEP Bureau of Corrective Action. URL [http://ndep.nv.gov/bca/perchlorate02_05.htm].

**LOU 54 Table 15
Soil Characterization Data - Radionuclides**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

				Ra-226 (gamma) pCi/g	Ra-228 (gamma) pCi/g	Th-228 (TH MOD) pCi/g	Th-230 (TH MOD) pCi/g	Th-232 (TH MOD) pCi/g	U-233/234 (U MOD) pCi/g	U-235/236 (U MOD) pCi/g	U-238 (U MOD) pCi/g	
			PRG ¹ mg/kg	2.60E-02	1.50E-01	2.55E-01	2.02E+01	1.90E+01	3.24E+01	3.98E-01	1.80E+00	
Boring ID Number	Sample ID	Sample Depth (ft)	Date									Sampling Program
SA14	SA14-0.5	0.5	11/08/2006	1.07 J+	1.85 J+							Ph A ²
	SA14-10	10	11/08/2006	1.06 U	1.93 J+							Ph A
	SA14-20	20	11/08/2006	1.35 J+	1.82 J+							Ph A
	SA14-30	30	11/08/2006	1.47 J+	1.38 J+							Ph A
	SA14-40	40	11/08/2006	1.18 J+	0.676 J+							Ph A

Notes:

1. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
2. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.

**LOU 54 Table 16
Groundwater Characterization Data - Radionuclides**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

			Ra-226	Ra-228	Th-228	Th-230	Th-232	U-233/234	U-235/236	U-238	
			pci/L	pci/L	pci/L	pci/L	pci/L	pci/L	pci/L	pci/L	
		PRG ^{1,2}	8.16E-04	4.58E-02	1.59E-01	5.23E-01	4.71E-01	6.74E-01	6.63E-01	5.47E-01	
Well ID Number	Sample ID	Date									Sampling Program
SA14	GWSA14	11/08/2006	6.55 J+	3.75							Ph A ³

Notes:

1. Equal to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tapwater (October, 2004).
2. USEPA, 2004. Radionuclide Toxicity and Preliminary Remediation Goals (PRGs) for Superfund. <http://epa-prgs.ornl.gov/radionuclides/download.shtml>. August 4, 2004. Soil values are the outdoor worker values; water values are the tapwater values. For radionuclides with decay chains, the PRG for the decay chain was used.
3. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.

**LOU 54 Table 17
Soil Characterization Data - SVOCs**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program			Ph A ¹	Ph A	Ph A	Ph A	Ph A
Boring No.			SA14	SA14	SA14	SA14	SA14
Sample ID			SA14-0.5	SA14-10	SA14-20	SA14-30	SA14-40
Sample Depth (ft)			0.5	10	20	30	40
Sample Date			11/08/2006	11/08/2006	11/08/2006	11/08/2006	11/08/2006
SVOC	Analytical Method	PRG ² mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
1,4-Dioxane	non-SIM	1.57E+02	360 U	370 U	410 U	530 U	410 U
2-Methylnaphthalene	non-SIM	1.88E+02 (jj)	360 U	370 U	410 U	530 U	410 U
2-Methylnaphthalene	SIM	1.88E+02 (jj)	7.2 U				
Acenaphthene	non-SIM	2.92E+04	360 U	370 U	410 U	530 U	410 U
Acenaphthene	SIM	2.92E+04	7.2 U				
Acenaphthylene	non-SIM	2.92E+04 (pp)	360 U	370 U	410 U	530 U	410 U
Acenaphthylene	SIM	2.92E+04 (pp)	7.2 U				
Anthracene	non-SIM	2.40E+05 (oo)	360 U	370 U	410 U	530 U	410 U
Anthracene	SIM	2.40E+05 (oo)	7.2 U				
Benz(a)anthracene	non-SIM	2.11E+00	360 U	370 U	410 U	530 U	410 U
Benz(a)anthracene	SIM	2.11E+00	7.2 U				
Benzo(a)pyrene	non-SIM	2.11E-01	360 U	370 U	410 U	530 U	410 U
Benzo(a)pyrene	SIM	2.11E-01	7.2 U				
Benzo(b)fluoranthene	non-SIM	2.11E+00	360 U	370 U	410 U	530 U	410 U
Benzo(b)fluoranthene	SIM	2.11E+00	7.2 U				
Benzo(g,h,i)perylene	non-SIM	2.91E+04 (w)	360 U	370 U	410 U	530 U	410 U
Benzo(g,h,i)perylene	SIM	2.91E+04 (w)	7.2 U				
Benzo(k)fluoranthene	non-SIM	2.11E+01	360 U	370 U	410 U	530 U	410 U
Benzo(k)fluoranthene	SIM	2.11E+01	7.2 U				
bis(2-Ethylhexyl)phthalate	non-SIM	1.23E+02	360 U	370 U	410 U	530 U	410 U
Butyl benzyl phthalate	non-SIM	1.23E+05 (oo)	360 U	370 U	410 U	530 U	410 U
Chrysene	non-SIM	2.11E+02	360 U	370 U	410 U	530 U	410 U
Chrysene	SIM	2.11E+02	7.2 U				
Dibenz(a,h)anthracene	non-SIM	2.11E-01	360 U	370 U	410 U	530 U	410 U
Dibenz(a,h)anthracene	SIM	2.11E-01	7.2 U				
Diethyl phthalate	non-SIM	4.92E+05 (oo)	360 U	370 U	260 J	530 U	410 U
Dimethyl phthalate	non-SIM	6.16E+06 (oo)	360 U	370 U	410 U	530 U	410 U
Di-N-Butyl phthalate	non-SIM	6.16E+04	360 U	370 U	410 U	530 U	410 U
Di-N-Octyl phthalate	non-SIM	2.46E+04	360 U	370 U	410 U	530 U	410 U
Fluoranthene	non-SIM	2.20E+04	360 U	370 U	410 U	530 U	410 U
Fluoranthene	SIM	2.20E+04	7.2 U				
Fluorene	non-SIM	2.63E+04	360 U	370 U	410 U	530 U	410 U
Fluorene	SIM	2.63E+04	7.2 U				
Hexachlorobenzene	non-SIM	1.08E+00	73 J	370 U	410 U	530 U	410 U
Hexachlorobenzene	SIM	1.08E+00	77				
Indeno(1,2,3-cd)pyrene	non-SIM	2.11E+00	360 U	370 U	410 U	530 U	410 U
Indeno(1,2,3-cd)pyrene	SIM	2.11E+00	7.2 U				
Naphthalene	SW 846 8260	1.88E+02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Naphthalene	non-SIM	1.88E+02	360 U	370 U	410 U	530 U	410 U
Naphthalene	SIM	1.88E+02	7.2 U				
Nitrobenzene	non-SIM	1.03E+02	360 U	370 U	410 U	530 U	410 U
Octachlorostyrene	non-SIM	--	360 U	370 U	410 U	530 U	410 U
Phenanthrene	non-SIM	2.40E+05 (n)	360 U	370 U	410 U	530 U	410 U
Phenanthrene	SIM	2.40E+05 (n)	7.2 U				
Pyrene	non-SIM	2.91E+04	360 U	370 U	410 U	530 U	410 U
Pyrene	SIM	2.91E+04	7.2 U				
Pyridine	non-SIM	6.16E+02	1800 U	1800 U	2000 U	2600 U	2000 U

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
 2. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
- (jj) Value for naphthalene used as surrogate for 2-methylnaphthalene based on structural similarities.
(pp) Value for acenaphthene used as surrogate for acenaphthylene based on structural similarities.
(oo) PRG is based on maximum (1E+05 mg/kg). Therefore, the risk-based value provided in the electronic backup to the PRG table was used.
(w) Value for pyrene used as surrogate for benzo(g,h,i)perylene based on structural similarities.
(n) Value for anthracene used as surrogate for phenanthrene due to structural similarities.

**LOU 54 Table 18
Groundwater Characterization Data - SVOCs**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program				Ph A ¹
Well No.				SA14
Sample ID				GWSA14
Sample Date				11/08/2006
SVOCs	Analytical Method	MCL ² ug/L		ug/L
1,4-Dioxane	non-SIM	6.11E+00	c	10 U
2-Methylnaphthalene	non-SIM	6.20E+00	c,(jj)	10 U
2-Methylnaphthalene	SIM	6.20E+00	c,(jj)	
Acenaphthene	non-SIM	3.65E+02	c	10 U
Acenaphthene	SIM	3.65E+02	c	
Acenaphthylene	non-SIM	3.65E+02	c,(pp)	10 U
Acenaphthylene	SIM	3.65E+02	c,(pp)	
Anthracene	non-SIM	1.83E+03	c	10 U
Anthracene	SIM	1.83E+03	c	
Benz(a)anthracene	non-SIM	9.21E-02	c	10 U
Benz(a)anthracene	SIM	9.21E-02	c	
Benzo(a)pyrene	non-SIM	2.00E-01		10 U
Benzo(a)pyrene	SIM	2.00E-01		
Benzo(b)fluoranthene	non-SIM	9.21E-02	c	10 U
Benzo(b)fluoranthene	SIM	9.21E-02	c	
Benzo(g,h,i)perylene	non-SIM	1.83E+02	c,(w)	10 U
Benzo(g,h,i)perylene	SIM	1.83E+02	c,(w)	
Benzo(k)fluoranthene	non-SIM	9.21E-01	c	10 U
Benzo(k)fluoranthene	SIM	9.21E-01	c	
bis(2-Ethylhexyl)phthalate	non-SIM	6.00E+00		10 U
Butyl benzyl phthalate	non-SIM	7.30E+03	c	10 U
Chrysene	non-SIM	9.21E+00	c	10 U
Chrysene	SIM	9.21E+00	c	
Dibenz(a,h)anthracene	non-SIM	9.21E-03	c	10 U
Dibenz(a,h)anthracene	SIM	9.21E-03	c	
Diethyl phthalate	non-SIM	2.92E+04	c	10 U
Dimethyl phthalate	non-SIM	3.65E+05	c	10 U
Di-N-Butyl phthalate	non-SIM	3.65E+03	c	10 U
Di-N-Octyl phthalate	non-SIM	1.46E+03	c	10 U
Fluoranthene	non-SIM	1.46E+03	c	10 U
Fluoranthene	SIM	1.46E+03	c	
Fluorene	non-SIM	2.43E+02	c	10 U
Fluorene	SIM	2.43E+02	c	
Hexachlorobenzene	non-SIM	1.00E+00		10 U
Hexachlorobenzene	SIM	1.00E+00		
Indeno(1,2,3-cd)pyrene	non-SIM	9.21E-02	c	10 U
Indeno(1,2,3-cd)pyrene	SIM	9.21E-02	c	
Naphthalene	non-SIM	6.20E+00	c	500 U
Naphthalene	non-SIM	6.20E+00	c	5.2 J
Naphthalene	SIM	6.20E+00	c	
Nitrobenzene	non-SIM	3.40E+00	c	10 U
Octachlorostyrene	non-SIM	--	c	10 U

**LOU 54 Table 18 (continued)
Groundwater Characterization Data - SVOCs**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program			Ph A ¹
Well No.			SA14
Sample ID			GWSA14
Sample Date			11/08/2006
SVOCs	Analytical Method	MCL ² ug/L	ug/L
Phenanthrene	non-SIM	1.80E+03 (n)	10 U
Phenanthrene	SIM	1.80E+03 (n)	
Pyrene	non-SIM	1.83E+02 c	10 U
Pyrene	SIM	1.83E+02 c	
Pyridine	non-SIM	3.65E+01 c	20 U

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
 - (c) Equal to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tapwater (October, 2004).
 - (jj) Value for naphthalene used as surrogate for 2-methylnaphthalene based on structural similarities.
 - (pp) Value for acenaphthene used as surrogate for acenaphthylene based on structural similarities.
 - (w) Value for pyrene used as surrogate for benzo(g,h,i)perylene based on structural similarities.
 - (n) Value for anthracene used as surrogate for phenanthrene due to structural similarities.

LOU 54 Table 19
Soil Characteristic Data - TPH and Fuel Alcohols

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

				Fuel Alcohols			Total Petroleum Hydrocarbons			
				Ethanol	Ethylene glycol	Methanol	TPH - ORO	TPH - DRO	TPH - GRO	
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
			PRG¹ mg/kg	--	1.23E+06 oo	3.08E+05 oo	1.00E+02 w	1.00E+02 w	1.00E+02 w	
Boring No.	Sample ID.	Sample Depth (ft)	Sample Date							Sampling Program
SA14	SA14-0.5	0.5	11/08/2006				27 U	27 U	0.11 U	Ph A ²
	SA14-10	10	11/08/2006				28 U	28 U	0.11 U	Ph A
	SA14-20	20	11/08/2006				31 U	31 U	0.12 U	Ph A
	SA14-30	30	11/08/2006				40 U	40 U	0.16 U	Ph A
	SA14-40	40	11/08/2006				31 U	31 U	0.89	Ph A

Notes:

1. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October, 2004).
 2. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility - Henderson, Nevada, September 2007.
- (oo) PRG is based on maximum (1E+05 mg/kg). Therefore, the risk-based value provided in the electronic backup to the PRG table was used.
- (w) Value for pyrene used as surrogate for benzo(g,h,i)perylene based on structural similarities.

**LOU 54 Table 20
Soil Characterization Data - VOCs**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A ¹	Ph A	Ph A	Ph A	Ph A
Boring No.		SA14	SA14	SA14	SA14	SA14
Sample ID		SA14-0.5	SA14-10	SA14-20	SA14-30	SA14-40
Sample Depth (ft)		0.5	10	20	30	40
Sample Date		11/08/2006	11/08/2006	11/08/2006	11/08/2006	11/08/2006
VOCs	PRG ² mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Naphthalene	1.88E+02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,1,1,2-Tetrachloroethane	7.28E+00	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,1,1-Trichloroethane	6.90E+03 (mm)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,1,2,2-Tetrachloroethane	9.29E-01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,1,2-Trichloroethane	1.61E+00	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,1-Dichloroethane	1.74E+03	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,1-Dichloroethene	4.13E+02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,1-Dichloropropene	1.76E+00 (gg)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,2,3-Trichlorobenzene	2.16E+02 (hh)	5.5 U	4.8 J	1400	4.2 J	6.2 U
1,2,3-Trichloropropane	7.60E-02 (yy)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,2,4-Trichlorobenzene	2.16E+02	5.5 U	5.7 U	1500	8.5	1.7 J
1,2,4-Trimethylbenzene	1.70E+02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,2-Dibromo-3-chloropropane	2.02E+00	5.5 UJ	5.7 UJ	6.2 UJ	8.0 UJ	6.2 UJ
1,2-Dichlorobenzene	4.00E+03 (mm)	5.5 U	0.29 J	16	1.2 J	5.1 J
1,2-Dichloroethane	6.03E-01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,2-Dichloropropane	7.42E-01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,3,5-Trimethylbenzene	6.97E+01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,3-Dichlorobenzene	2.10E+03 (mm)	5.5 U	5.7 U	14	15	6.2 U
1,3-Dichloropropane	3.61E+02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
1,4-Dichlorobenzene	7.87E+00	0.93 J	0.99 J	6.5	2.6 J	7.1
2,2-Dichloropropane	7.42E-01 (ii)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
2-Butanone	1.13E+05	11 U	11 U	12 U	16 U	12 U
2-Chlorotoluene	5.60E+02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
2-Hexanone	4.70E+04 (nn)	11 UJ	11 UJ	12 UJ	16 UJ	12 UJ
2-Methoxy-2-methyl-butane	--	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
4-Chlorotoluene	5.60E+02 (ww)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
4-Isopropyltoluene	--	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
4-Methyl-2-pentanone	4.70E+04	11 UJ	11 UJ	12 UJ	16 UJ	12 UJ
Acetone	5.43E+04	11 U	11 U	27	16 U	12 U
Benzene	1.41E+00	5.5 U	5.7 U	6.2 U	8.0 U	1700
Bromobenzene	9.22E+01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Bromochloromethane	1.83E+00 (qq)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Bromodichloromethane	1.83E+00	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Bromoform	2.18E+02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Bromomethane	1.31E+01	11 U	11 U	12 U	16 U	12 U
Carbon tetrachloride	5.49E-01	5.5 U	5.7 U	6.2 U	2.3 J	6.0 J
Chlorobenzene	5.30E+02	5.5 U	5.7 U	6.2 U	8.0 U	7000
Chloroethane	6.49E+00	5.5 UJ	5.7 UJ	6.2 UJ	8.0 UJ	6.2 UJ
Chloroform	4.70E-01	0.28 J	0.78 J	12	2300	6800
Chloromethane	1.56E+02	5.5 UJ	5.7 UJ	6.2 UJ	8.0 UJ	6.2 UJ
cis-1,2-Dichloroethene	1.46E+02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
cis-1,3-Dichloropropene	1.76E+00 (gg)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Dibromochloromethane	2.55E+00	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Dibromomethane	2.34E+02 (xx)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Dichlorodifluoromethane	3.08E+02	5.5 UJ	5.7 UJ	6.2 UJ	8.0 UJ	6.2 UJ
Ethyl t-butyl ether	3.64E+01 (kk)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Ethylbenzene	7.40E+03 (mm)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Ethylene dibromide	7.30E-02	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Hexachlorobutadiene	2.21E+01	5.5 U	0.38 J	11	1.1 J	6.2 U
isopropyl ether	--	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Isopropylbenzene	2.00E+03 (zz)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Methyl tert butyl ether	3.64E+01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Methylene chloride	2.05E+01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
N-Butylbenzene	2.19E+03 (mm)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
N-Propylbenzene	2.19E+03 (mm)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
sec-Butylbenzene	1.63E+03 (mm)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U

LOU 54 Table 20 (continued)
Soil Characterization Data - VOCs

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A	Ph A	Ph A	Ph A	Ph A
Boring No.		SA14	SA14	SA14	SA14	SA14
Sample ID		SA14-0.5	SA14-10	SA14-20	SA14-30	SA14-40
Sample Depth (ft)		0.5	10	20	30	40
Sample Date		11/08/2006	11/08/2006	11/08/2006	11/08/2006	11/08/2006
VOCs	PRG ² mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Styrene	1.80E+04 (mm)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
t-Butyl alcohol	--	11 UJ	11 UJ	12 UJ	16 UJ	12 UJ
tert-Butylbenzene	1.97E+03 (mm)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Tetrachloroethene	1.31E+00	5.5 U	5.7 U	0.66 J	2.0 J	6.2 U
Toluene	2.20E+03 (mm)	5.5 U	5.7 U	6.2 U	8 U	6.2 U
trans-1,2-Dichloroethylene	--	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
trans-1,3-Dichloropropene	1.76E+00 (gg)	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Trichloroethene	1.15E-01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Trichlorofluoromethane	1.28E+03 (mm)	5.5 UJ	5.7 UJ	6.2 UJ	8.0 UJ	1.6 J
Vinylchloride	7.46E-01	5.5 U	5.7 U	6.2 U	8.0 U	6.2 U
Xylene (Total)	9.00E+02 (mm)	11 U	11 U	12 U	16 U	12 U

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.

2. U.S. EPA, Region 9, Preliminary Remediation Goals (PRGs) for industrial soil (October 2004).

(mm) PRG is based on the soil saturation limit. Therefore, the risk-based value provided in the electronic backup to the PRG table was used.

(gg) Value for 1,3-dichloropropene used as surrogate for 1,1-dichloropropene, cis-1,3-dichloropropene and trans-1,3-dichloropropene based on structural similarities.

(hh) Value for 1,2,4-trichlorobenzene used as surrogate for 1,2,3-trichlorobenzene based on structural similarities.

(yy) PRG table (c) lists both cancer and non-cancer endpoint-based values. The cancer endpoint-based values were selected, as the cancer endpoint-based values are lower than the noncancer endpoint-based values.

(ii) Value for 1,2-dichloropropane used as surrogate for 2,2-dichloropropane based on structural similarities.

(nn) Value for methyl isobutyl ketone used as surrogate for 2-hexanone based on structural similarities.

(ww) Value for 2-chlorotoluene used as surrogate for 4-chlorotoluene based on structural similarities.

(qq) Value for bromodichloromethane used as surrogate for bromochloromethane due to structural similarities.

(xx) Value for methylene bromide used as surrogate for dibromomethane based on structural similarities.

(kk) Value for methyl tertbutyl ether (MTBE) used as surrogate for ethyl-tert-butyl ether (ETBE) based on structural similarities.

(zz) Isopropyl benzene is listed as cumene (isopropylbenzene) in the PRG table.

LOU 54 Table 21
Groundwater Characterization Data - VOCs

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A ¹
Well ID		SA14
Sample ID		GWSA14
Sample Date		11/08/2006
VOCs	MCL ² ug/L	ug/L
Naphthalene	6.20E+00 c	500 U
1,1,1,2-Tetrachloroethane	4.32E-01 c	500 U
1,1,1-Trichloroethane	2.00E+02	500 U
1,1,2,2-Tetrachloroethane	5.00E+00	500 U
1,1,2-Trichloroethane	5.00E+00	500 U
1,1-Dichloroethane	8.11E+02 c	500 U
1,1-Dichloroethene	7.00E+00	500 U
1,1-Dichloropropene	3.95E-01 c,gg	500 U
1,2,3-Trichlorobenzene	7.16E+00 c,hh	500 U
1,2,3-Trichloropropane	5.60E-03 c,yy	500 U
1,2,4-Trichlorobenzene	7.00E+01	500 U
1,2,4-Trimethylbenzene	1.23E+01	500 U
1,2-Dibromo-3-chloropropane	2.00E-01	500 U
1,2-Dichlorobenzene	6.00E+02	500 U
1,2-Dichloroethane	5.00E+00	500 U
1,2-Dichloropropane	5.00E+00	500 U
1,3,5-Trimethylbenzene	1.23E+01 c	500 U
1,3-Dichlorobenzene	1.83E+02 c	500 U
1,3-Dichloropropane	1.22E+02 c	500 U
1,4-Dichlorobenzene	7.50E+01	500 U
2,2-Dichloropropane	1.65E-01 c,ii	500 U
2-Butanone	6.97E+03 c	1000 U
2-Chlorotoluene	1.22E+02 c	500 U
2-Hexanone	2.00E+03 c,nn	1000 UJ
2-Methoxy-2-methyl-butane	--	500 U
4-Chlorotoluene	1.22E+02 c,ww	500 U
4-Isopropyltoluene	--	500 U
4-Methyl-2-pentanone	1.99E+03 c	1000 U
Acetone	5.48E+03 c	1000 U
Benzene	5.00E+00	4800
Bromobenzene	2.03E+01 c	500 U
Bromochloromethane	1.81E-01 c,qq	500 U
Bromodichloromethane	8.00E+01 r	500 U
Bromoform	8.00E+01 r	500 U
Bromomethane	8.66E+00 c	1000 U
Carbon tetrachloride	5.00E+00	500 U
Chlorobenzene	1.00E+02 c,o	13000
Chloroethane	4.64E+00	500 UJ
Chloroform	8.00E+01 r	19000
Chloromethane	1.58E+02 c	500 UJ
cis-1,2-Dichloroethene	7.00E+01	500 U
cis-1,3-Dichloropropene	3.95E-01 c,gg	500 U

**LOU 54 Table 21 (continued)
Groundwater Characterization Data - VOCs**

AP Plant Area Change House/Laboratory Septic Tank
Tronox LLC Facility - Henderson, Nevada

Sampling Program		Ph A ¹
Well ID		SA14
Sample ID		GWSA14
Sample Date		11/08/2006
VOCs	MCL ² ug/L	ug/L
Dibromochloromethane	8.00E+01 r	500 U
Dibromomethane	6.08E+01 c,xx	500 U
Dichlorodifluoromethane	3.95E+02 c	500 UJ
Ethyl t-butyl ether	1.10E+01 c,kk	500 U
Ethylbenzene	7.00E+02	500 U
Ethylene dibromide	--	500 U
Hexachlorobutadiene	8.62E-01 c	500 U
isopropyl ether	--	500 U
Isopropylbenzene	6.58E+02 c,zz	500 U
Methyl tert butyl ether	2.00E+01 a,uu	500 U
Methylene chloride	5.00E+00	500 U
N-Butylbenzene	2.43E+02 c	500 U
N-Propylbenzene	2.43E+02 c	500 U
sec-Butylbenzene	2.43E+02 c	500 U
Styrene	1.00E+02	500 U
t-Butyl alcohol	--	1000 UJ
tert-Butylbenzene	2.43E+02 c	500 U
Tetrachloroethene	5.00E+00	500 U
Toluene	1.00E+03	500 U
trans-1,2-Dichloroethylene	1.00E+02	500 U
trans-1,3-Dichloropropene	--	500 U
Trichloroethene	5.00E+00	500 U
Trichlorofluoromethane	--	500 UJ
Vinylchloride	2.00E+00	500 U
Xylene (Total)	1.00E+04	1000 U

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.

LOU 54 Table 22
Soil Characterization Data - Long Asbestos Fibers in Respirable Soil Fraction

AP Plant Area Change House/Laboratory Septic Tank
 Tronox LLC Facility - Henderson, Nevada

			Long Amphibole Protocol Structures	Long Amphibole Protocol Structures (structures/samples)	Long Chrysotile Protocol Structures	Long Chrysotile Protocol Structures (structures/samples)	Sampling Program
No.	Sample ID	Sample Date	s/gPM10		s/gPM10		Ph A ¹
SA14	SA14	12/08/2006	2996000 U	0	12000000	4	

Notes:

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.

LOU 54 Table 23
Summary of Historical Groundwater Analytical Data

AP Plant Area Change House/Laboratory Septic Tank
Tronox Facility - Henderson, Nevada

Well ID	Sample Date	Total Depth (ft bgs)	Depth to Water (ft TOC)	pH (Lab)	EC (Lab, μ mho/cm)	Cr-total (ppm)	Mn (ppm)	ClO ₄ (ppm)
M-19	5/6/99	39.54	33.03	7.14	12000	0.62	0.70	13.0
M-19	5/5/00	39.54	34.50	7.62	11300	0.71	0.34	7.360
M-19	5/4/01	39.54	35.06	7.38	10700	0.88	0.08	0.056
M-19	4/29/02	39.54	34.02	7.3	8360	0.45	0.17	6.8
M-35	5/6/99	42.80	34.27	7.13	9720	4.30	0.85	1000
M-35	5/5/00	42.80	35.22	7.31	8970	3.40	1.20	820
M-35	5/4/01	42.80	25.40	7.28	9970	4.60	2.40	1000
M-35	3/11/02	42.80	--	--	--	--	0.07	--
M-35	4/29/02	42.80	34.27	7.2	9370	6.8	0.14	990
M-35	9/9/02	42.80	--	--	--	--	0.22	--
M-35	12/9/02	42.80	35.40	7.2	9280	6.8	0.061	590
M-35	4/29/03	42.80	--	--	--	--	ND<0.15	--
M-39	5/6/99	42.12	30.59	7.45	8080	2.40	0.44	140
M-39	5/5/00	42.12	31.70	7.54	7680	2.80	1.60	190
M-39	5/2/01	42.12	32.10	7.34	7620	3.30	1.80	280
M-39	3/11/02	42.12	--	--	--	--	0.06	--
M-39	4/29/02	42.12	20.60	7.3	7700	13	ND <0.15	450
M-39	9/9/02	42.12	--	--	--	--	ND <0.15	--
M-39	12/10/02	42.12	--	--	--	--	ND <0.15	--
M-39	5/7/03	42.12	--	--	--	--	ND<0.15	--

Notes:

ft bgs = feet below ground surface

ppm = parts per million

μ mho/cm = micromhos per centimeter

ft TOC = feet from Top of Casing

ND<0.15 = Not determined, not detected above the designated detection limit.

EC = Electrical Conductivity

Cr-total: Total Chromium

Mn = Manganese

ClO₄: Perchlorate

Source: ENSR, 1997, Phase II ECA

Notes for Phase A Data Tables

AP Plant Area Change House/Laboratory Septic Tank Tronox Facility - Henderson, Nevada

Blank	Not analyzed.
Bold	Bold values are constituents detected above the laboratory sample quantitation limit.
Gray	Grayed out values are non-detected values with the laboratory sample quantitation limits shown.
B	The result may be a false positive totally attributable to blank contamination.
D	Dissolved Metals.
DO	Dissolved Oxygen.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The result is an estimated quantity and the result may be biased low.
J+	The result is an estimated quantity and the result may be biased high.
J+	The result is an estimated quantity and the result may be biased high.
JB	The result may be biased high partially attributable to blank contamination.
JK	The result is an estimated maximum possible concentration.
R	The result was rejected and unusable due to serious data deficiencies. The presence or absence of the analyte cannot be verified.
S	Soluble metals
T	Total Metals.
U	The analyte was analyzed for, but was not detected above the laboratory sample quantitation limit.
UJ	The analyte was not detected above the laboratory sample quantitation limit and the limit is approximate.
mg/kg	Milligrams per kilogram.
mg/L	Milligrams per liter.
ml/min	Milliliters per minute.
ng/kg	Nanogram per kilogram.
nm	Not measured.
NTUs	Nephelometric Turbidity Units.
ORP	Oxidation-reduction potential.
pCi/g	PicoCuries per gram.
pci/L	PicoCuries per liter.
s/gPM10	Revised protocol structures per gram PM10 fraction dust.
TEF	Toxic Equivalency Factor.
TEQ	Toxic Equivalent Concentration
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
umhos/cm	MicroSiemens per centimeter.
L	Sample ID suffix indicating the sample was collected using low low-flow pumping rates (100-150 ml/min).
F	Sample ID suffix indicating the sample was collected using low-flow pumping rates (150-480 ml/min) and field filtered.
Z	Sample ID suffix indicating the sample was collected using low-flow pumping rates (150-480 ml/min).
*	No analytical data is available for this sample due to a laboratory error.
(a)	Calculated assuming 0 for non-detected congeners and 2006 toxic equivalency factors (TEFs).
(b)	Calculated assuming 1/2 detection limit as proxy for non-detected congeners and 2006 TEFs.
--	PRG not established