Summary of Available Data for LOU 59 in Area IV
Storm Sewer System
Tronox Facility – Henderson, Nevada

Name of LOU:

Storm Sewer System in Area IV

Goal of Closure:

- Continuation of current use – regulatory closure not presently requested.

Site Investigation Area:

- Size: Approximately 25,000 linear feet in total.
  - Approximately 3,800 linear feet of the Storm Sewer System is located in Area IV.
- Location: In Area IV, segments of the Storm Sewer System run north-south along 5th, 6th, and 7th Streets and run east-west in the southern portion of the Site. Additionally, in the southern portion of the Site, a north-south line connects the east-west lines near the eastern boundary.
- Current Status/Features: The Storm Sewer System is currently active.

Description:

<u>Storm Sewer System in Area IV</u>

- The Storm Sewer System is a subsurface feature that carried storm water run-off and process effluent from the southern portion of the BMI site.
- The Storm Sewer System in Area IV consists of mostly of north-south trending lines in the area of Units 1 and 2, and east-west trending lines in the southern portion of the Site near LOU 62 (State Industries Inc.).
- The system provided a means to manage both storm water and industrial effluent [Ref. 7].
- Branches of the Storm Sewer System in Area IV passed through and carried effluents from the State Industries Inc. Site (LOU 62), the Unit Buildings 1 and 2, and surface run-off from LOUs 41 (Unit 1 Tenant Stains), 65a through 65d (various lessees), 26 (Trash Storage Area), 25 (Process Hardware Storage Area), 27 (PCB Storage Area, 28 (Hazardous Waste Storage Area), and 4 (Hardesty Chemical Company), and some off-site facilities.
- Discharges to the sanitary sewer via the acid drain system occurred on at least three occasions in 1974 to facilitate repairs to the leaking liner in one of the surface impoundments in LOU 62 [Ref. 7].

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- Waste from LOU 4 (Hardesty Chemical Company) was discharged to the "sewer" [Ref. 1 and 6].
  - Hardesty's manufactured products included: synthetic hydrochloric acid (muriatic acid), monochlorobenzene, paradichloro-benzene, orthodichlorobenzene, synthetic detergents, pesticides (i.e., DDT), and soda arsenite solution [Ref. 1 and 6].
- Constituents associated with on-site processes may have entered the storm sewer system through surface run-off.
- The Storm Sewer System in Area IV discharged to an off-site location and/or to the Beta Ditch (LOU 5) through a line that runs north between the Unit 1 and Unit 2 buildings. This line discharged into the western diversion ditch of LOU 5.

A description of the Site-wide extent of the Storm Sewer System is detailed below to provide the current understanding (based the documents reviewed) of the historical and current use of the system and the process waste streams that are known to have entered or may have potentially entered the system. Phase B investigations for the segments of the Storm Sewer System in Area IV are discussed in the "Proposed Phase B Soil Investigation/Rationale" section of this LOU summary document.

- The Storm Sewer System comprises a network of concrete and clay tile storm drains (subsurface pipes), manholes (drop inlets), and outfalls (discharge points), which were installed during construction of the original BMI complex in 1941 to 1942 [Ref. 2].
- The system provided a means to manage both storm water and industrial effluent [Ref. 7].
- The Storm Sewer System was constructed of several smaller networks, each of which drained a discrete portion of the BMI complex and discharged to different outfalls [Ref. 7].
- Outfalls occurred along the Beta Ditch, tributaries to the Beta Ditch, and other drainage ditches. The storm water/effluent ultimately all merged in the Beta Ditch and was conveyed off-site to the upper and lower BMI Ponds [Ref. 7].
- From 1941 through January 1976, the Storm Sewer System conveyed storm water and process effluent from the southern portions of the Site to the Beta Ditch [Ref. 7].
- Onsite run-off from storm events historically would follow local topography, enter nearby drop inlets, and follow the storm drain to an outfall [Ref. 7].

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- Storm Sewer System also historically conveyed effluent from the following off-site sources: U.S. Lime facility (Chemstar), Stauffer Chemical, Jones Chemical, and Timet, Inc. [Ref. 7].
- Between 1945 and 1976, process effluent, or waste water, contained classes of chemicals associated with chlorate, perchlorate, elemental boron, and leach plant processes as well as slurried sodium chlorate filter cake containing 0.05 percent by weight hexavalent chromium [Ref. 7].

1976 - Present:

- By January 1976, the Storm Sewer System was no longer used to convey process effluent or wastewater. The Kerr-McGee Chemical Company (Tronox) attained "zero discharge" status [Ref. 7].
- The Storm Sewer System only conveyed storm water and once-through non-contact cooling water to the Beta Ditch [Ref. 7].
- Currently, process wastewater and fluids are conveyed throughout the Tronox Site by a system of surface and subsurface pipelines to onsite lined surface impoundments [Ref. 7].
- Many storm drains located in, or near, process areas have been sealed or retrofitted with a protective berm to reduce the possibility that wastes, process fluids, or process area contaminated storm water runoff would accidentally enter the Storm Sewer System [Ref. 7].

Process Waste Streams Associated with LOU 59 in Area IV	Known or Potential Chemicals Associated with LOU 59 in Area IV
Storm water runoff from LOUs 41, 65a and 65b, 25, 26, and 28	• Pre 1976 – TPH (from vehicle operations) and chemicals from process effluent listed in this table. • Post 1976 – TPH (from vehicle operation), wet chemistry analytes, and perchlorate.
Process effluent consisting of slurried filter cake, mother liquor and storm water contaminated by spills or releases of process fluids from chlorate production [Ref. 7].	• Chlorate • Metals (hexavalent chromium) • Wet chemistry analytes

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Process Waste Streams Associated with LOU 59 in Area IV	Known or Potential Chemicals Associated with LOU 59 in Area IV
Process effluents from perchlorate production process including slurried filter cakes and cell bottoms, spent caustic scrubbing solution from chlorine gas scrubbing operations, and AP Cooling Tower overflow [Ref. 7].	• Perchlorate • Chlorate • Metals (Hexavalent chromium, magnesium, platinum) • Ammonia • Wet chemistry analytes • Sodium chloride and sodium hypochlorite
Process Waste Streams Associated with LOU 62 (State Industries Inc. Site)	**Known or Potential Chemicals Associated with LOU 62 (State Industries Inc. Site)**
Pickling process wastes from State Industries process line and surface impoundment that was periodically drained for pond maintenance [Ref. 7].	• Metals (iron, total chromium, barium, arsenic, cadmium, lead, selenium) • Sulfuric acid • Borax • Soda ash • Phosphates • pickle liquor (FeSO4) • TURCO II HTC Soap • Wet chemistry analytes
Neutralized and un-neutralized waste cyanide solution [Ref. 7].	• Cyanide
Process Waste Streams Associated with LOU 4 (Hardesty Chemical Site)	**Known or Potential Chemicals Associated with LOU 4 (Hardesty Chemical Site)**
Effluents from Hardesty Chemical Site [Ref. 7].	• Metals • Wet chemistry analytes • VOC • SVOC • TPH • Organochlorine pesticides
Process Waste Streams Associated with LOU 59 Site-Wide	**Known or Potential Chemicals Associated with LOU 59 Site-Wide**
Once-through non-contact cooling water	• None
Boron process neutralization tank waste solution from elemental boron process [Ref. 7].	• Metals • Wet chemistry analytes • Sodium Borate
Effluent from Manganese Leach Plant Process Area consisting of manganese dioxide cathode wash solution.	• Hexametaphosphates • Metals (manganese, magnesium) • Wet chemistry analytes

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Process Waste Streams Associated with LOU 59 Site-Wide	Known or Potential Chemicals Associated with LOU 59 Site-Wide
Storm water run-on/run-off from manganese tailings area where leach acid thickener underflow sludge (filtered or unfiltered) is disposed.	• Metals (barium, zinc, nickel, lead, and manganese) • Sulfide • Sulfuric acid
Effluent from Manganese Leach Plant Process Area [Ref. 7].	• Sulfuric acid liquid wastes. • Manganese sulfate liquid wastes

Overlapping or Adjacent LOUs in Area IV:

The following LOUs overlap or are adjacent to LOU 59:

Overlapping LOUs

- LOU 25 (Process Hardware Storage Area) – LOU 59 overlaps the western boundary of LOU 25.
- LOU 65b (Buckles Construction Company) – LOU 59 overlaps the western boundary of LOU 65b.

Adjacent LOUs

- LOU 4 (Hardesty Chemical Company) – Located between two north-south trending lines on the west and east sides of Unit 2.
- LOU 26 (Trash Storage Area) – Located to the east and west of the portion of LOU 59 that runs along 6th Street.
- LOU 28 (Hazardous Waste Storage Area) – Located west of the portion of LOU 59 that runs along 7th Street.
- LOU 36 (Former Satellite Accumulation Point, Unit 3 – Maintenance Shop) – Located east of the portion of LOU 59 that runs along 7th Street.
- LOU 41 (Unit 1 Tenant Stains) – Located east of the portion of LOU 59 that runs along 5th Street.
- LOU 62 (State Industries Inc.) – Located south of the onsite, southwestern-most portion of LOU 59.

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

LOUs Potentially Affecting Soils in LOU 59:

- LOUs 65b and 41: Branches of the Storm Sewer System run along the west side of Unit 1. The system potentially carried storm runoff or effluents from these LOUs. As a result, the analytical plan for samples collected from LOU 59 will include analyses for VOCs, SVOCs, and TPH.
- LOUs 4, 25, 26, 28, 36: Branches of the Storm Sewer System run along the west and east sides of Unit 2. The system potentially carried storm runoff or effluents from these LOUs. As a result, the analytical plan for samples

collected from LOU 59 will include analyses for VOCs, SVOCs, OCPs, and TPH.

- LOU 62 – State Industries Inc. Site: LOU 59 received discharges from surface impoundments at the State Industries Inc. Site (LOU 62) during repairs to leaking liners. The system also received storm water runoff from the area near the State Industries warehouse. As a result, the analytical plan for samples collected from LOU 59 will include analyses for VOCs, SVOCs, TPH, and cyanide.
- For further information please refer to the specific LOU data packages.

Known or Potential Chemical Classes:

- Metals
- Hexavalent chromium
- Wet chemistry analytes
- Perchlorate
- Cyanide (associated with LOU 62)
- VOCs (associated with LOUs 4, 28, 36, 62, 65a & b)
- SVOCs (associated with LOUs, 4, 28, 62, 65a & b)
- TPH (associated with LOUs 4, 27, 28, 36, 41, 62, 65a & b)
- Organochlorine pesticides (associated with LOU 4)

Known or Potential Release Mechanisms:

- Releases to soil could have occurred due to breaks or leaks of liner pipes or at pipe joints/connections; however, no releases have been reported in the documents reviewed.
- If releases occurred on an on-going basis, migration to the groundwater would be possible; however, no releases have been reported in the documents reviewed.
- Discharges to the sanitary sewer via the acid drain system occurred on at least three occasions in 1974 to facilitate repairs to the leaking liner in one of the surface impoundments in LOU 62 [Ref. 7].
- Waste from LOU 4 (Hardesty Chemical Company) was discharged to the “sewer” [Ref. 1 and 6].
- Prior to 1976, waste waters conveyed by the Storm Sewer System were discharged to surface water of the Beta Ditch (LOU 5) [Ref. 7].

Summary of Available Data for LOU 59 in Area IV
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Results of Historical Sampling:

- No known historical soil sampling was identified in the documents reviewed for LOU 59 in Area IV.
- Downgradient monitoring wells (M-92, M-93, and M-97) are tested for total chromium, perchlorate, and total dissolved solids as part of periodic or routine groundwater monitoring programs [Ref. 3]. Analytical results are summarized in LOU 59 Area IV Table 6 [Ref. 3].

Did Historical Samples Address Potential Release?

- No

Summary of Phase A SAI:

Soil

- Upgradient boring M116 (upgradient) [Ref. 3] and Phase A SA03 (upgradient) and SA04 (upgradient and adjacent) are located near LOU 59 and were specifically sampled to evaluate this LOU [Ref. 4].

Groundwater

- Wells M-92 and M-97 are located downgradient of LOU 59 and were sampled specifically to evaluate this LOU [Ref. 4].

Chemical classes detected in Phase A soil borings SA03 and SA04:

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

As a result of the Phase A data, the Phase B analytical plan for samples collected from LOU 59 in Area IV will be expanded to include analyses for dioxins/furans, radionuclides, and asbestos.

Analytical results for soil and groundwater from the Phase A sampling event are summarized in LOU 59 Area IV Tables 1 through 5 and LOU 59 Area IV Tables 7 through 22 (see attached) [Ref. 4].

Are Phase A Sample Locations in "Worst Case" Areas?

- No

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Is Phase B Investigation Recommended?

- Yes

Proposed Phase B Soil Investigation/Rationale:

The Phase B Source Area Investigation of LOU 59 in Area IV consists of collecting soil samples from 15 locations.

- Ten (10) soil borings will be drilled along the boundaries of LOU 59.
- Three (3) soil borings will be drilled south (upgradient) of LOU 59.
- Two (2) soil borings will be drilled north (downgradient) of LOU 59.
- All 15 borings along with the analytical program to evaluate soil samples from LOU 59 are listed on **Table A – Soil Sampling and Analytical Plan for LOU 59**.

- Soil sample locations consist of both judgmental and randomly-placed locations.
- Judgmental sample locations:
  - Designed to evaluate soil for known or potential chemical classes associated with LOU 59, based on the known process waste streams.
  - Seven (7) of the 15 sample locations are judgmental locations and consist of soil borings SA205, SA192, SA111, SA115, SA116, SA118, and SA119.
- Random sample locations:
  - Designed to assess whether unknown constituents associated with LOU 59 are present.
  - Eight (8) of the 15 sample locations are randomly-placed locations and include soil borings RSAQ5, RSAR4, RSAR5, RSAS4, RSAT3, RSAT4, RSAT7, and RSAT8.

Proposed Chemical Classes for Phase B Investigation for soils:

Judgmental sample locations will be analyzed for the following LOU-specific analytes:

- Metals (Phase A list)
- Hexavalent chromium
- Wet chemistry analytes
- Perchlorate
- Cyanide
- SVOCs
- VOCs
- Organochlorine pesticides
- TPH-DRO/ORO

Summary of Available Data for LOU 59 in Area IV
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Judgmental sample locations will also be analyzed for the following constituents for area-wide coverage purposes:

- Dioxins/furans
- Radionuclides
- Asbestos

Random sample grid locations will be analyzed for the following list of Phase A Site-related chemicals for LOU-specific and area-wide coverage purposes:

- Metals (Phase A list)
- Hexavalent chromium
- Perchlorate
- Wet chemistry analytes
- VOCs
- SVOCs
- TPH-DRO/ORO
- Organochlorine pesticides
- Dioxins/furans
- Radionuclides
- Asbestos

Proposed Phase B Groundwater Investigation/Rationale:

The Phase B groundwater investigation of LOU 59 in Area IV consists of collecting groundwater samples from six locations to evaluate local groundwater conditions and as part of a Site-wide evaluation of constituent trends in groundwater.

- One (1) well south (upgradient) of LOU 59 in Area IV will be sampled. This well M-138.
- Five (5) wells north (downgradient or cross-gradient) of LOU 59 in Area IV will be sampled. These wells are: M-97, M-92, M-13, M-12A, and M-10.
- The analytical program to evaluate the groundwater sample associated with LOU 59 is listed on **Table B – Groundwater Sampling and Analytical Plan for LOU 59 in Area IV.**

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
- SVOCs
- Organochlorine pesticides
- Radionuclides

Summary of Available Data for LOU 59 in Area IV
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Proposed Phase B Soil Gas Investigation/Rationale:

Five soil gas samples will be collected to evaluate area conditions for the presence of vapor-phase VOCs in the vadose zone.

- Soil gas points SG88, SG73, SG44, SG46, and SG64 are located within 50 feet of the Storm Sewer System to investigate the system as a potential VOC source.

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 Constituents List for Soil Gas:

- VOCs (by EPA TO-15)

References:

1. ENSR, 1997, Phase II Environmental Conditions Assessment, Kerr-McGee Chemical LLC, Henderson, Nevada.
2. ENSR, 2005, Conceptual Site Model, Kerr-McGee Facility, Henderson, Nevada, ENSR, Camarillo, California, 04020-023-130, February 2005 and August 2005.
3. ENSR, 2006, Upgradient Investigation Results, Tronox Facility, Henderson, Nevada, October 30, 2006.
4. ENSR, 2007a, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
5. ENSR, 2007b, Quarterly Performance Report for Remediation Systems, Tronox LLC, Henderson, Nevada, July-September 2007, November 2007.
6. Kerr-McGee, 1996, Response to Letter of Understanding, Henderson, Nevada Facility, May (revised October 1996).
7. Kleinfelder, 1993, Environmental Conditions Assessment, Kerr-McGee Chemical Corporation, Henderson, Nevada Facility, April 15, 1993 (Final).

Summary of Available Data for LOU 59 in Area IV Storm Sewer System

Tronox Facility – Henderson, Nevada

LOU Figure

J:\TronoxGIS\mxd\Phase_B_WorkPlan\LOUs\lou-59_Storm_Drains_Area-4.mxd

N

1:3,600
1 inch equals 300 feet
300 150 0 300
Feet

AREA I
AREA II
AREA III
AREA IV
9th STREET
6th STREET
7th STREET
8th STREET
10th STREET
11th STREET
AVENUE G
AVENUE H
Parcel F
Parcel G
Parcel H

LEGEND
- LOU #59 Storm Drain System with manholes and sumps with flow direction in Area IV
- LOU #59 Storm Drain System with manholes and sumps in other areas with flow direction
- LOU #60 Acid Drain System with manholes and sumps with flow direction
- Other LOU Boundary

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)
- Proposed Phase B Soil Gas Location (Other LOU)
- Tronox Facility Boundary
- Area Boundary
- Parcel Boundary
- Four Acre Grid Line (Cell reference displayed as row-column, i.e. M-8)

Base Aerial Photo from PBS&J, October 2006

Storm Drain Reference:
Basic Water Company, 2003, Storm Drain System, Drawing R 27, January 2, 2003.

Kleinfelder, 1993 Environmental Conditions Assessment, Kerr-McGee Chemical Corporation, Henderson Nevada Facility, Map 30, April 15 1993 (Final).

FIGURE NUMBER: 1
SHEET NUMBER: X

SAMPLE LOCATIONS FOR LOU #59 IN AREA IV STORM DRAIN SYSTEM SEGMENT

Phase B Area IV Source Area Investigation
Tronox Facility
Henderson, Nevada

SCALE:	DATE:	PROJECT NUMBER:
AS SHOWN	5/14/2008	04020-023-430

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LOU #59

Summary of Available Data for LOU 59 in Area IV
Storm Sewer System
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Sampling and Analytical Plans for LOU 59:

Table A – Soil Sampling and Analytical Plan for LOU 59
Table B – Groundwater Sampling and Analytical Plan for LOU 59

Table A
Soil Sampling and Analytical Plan for LOU 59
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

Grid Location	LOU Number	Phase B Boring No.	Sample ID Number	Sample Depths[1.] (ft, bgs)	Perchlorate (EPA 314.0)	Metals (EPA 6020)	Hex Cr (EPA 7199)	TPH-DRO/ORO (EPA 8015B)	VOCs [2.] (EPA 8260B)	Wet Chemistry [3.]	Total Cyanide (EPA 9012A)	OCPs [4.] (8081A)	SVOCs [5.] (EPA 8270C)	Radio-nuclides [6.]	Dioxins/ Furans [7.]	PCBs[8.] (EPA 1668)	Asbestos [9.] EPA/540/R-97/028	Geo-technical Tests [10.]	Location Description and Characterized Area Rationale
Borings are organized by grid location as shown on Plate A - Starting point is on grid Q-5 and ending on grid T-8.																			
Q-5	4, 28, 59	RSAQ5	RSAQ5-0.0	0													X		Boring located to evaluate LOU 4 (Former Hardesty Chemical Company Site), LOU 28 (Hazardous Waste Storage Area), LOU 59 (Storm Sewer Drain), and for area-wide coverage.
Q-5	4, 28, 59		RSAQ5-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
Q-5	4, 28, 59		RSAQ5-10	10	X	X	X	X	X	X		Hold	X	X					
Q-5	4, 28, 59		RSAQ5-20	20	X	X	X	X	X	X		Hold	X	X					
Q-5	4, 28, 59		RSAQ5-30	30	X	X	X	X	X	X		Hold	X	X					
Q-5	4, 28, 59		RSAQ5-40	40	X	X	X	X	X	X		X	X	X					
Q-5	28, 59	SA205	RSA205-0.0	0													X		Boring located as northward stepout boring from Phase A boring SA04 (for Hex Cr) to evaluate LOU 59 as requested by NDEP in comments on Phase A Investigation report and LOU 28.
Q-5	28, 59		RSA205-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
Q-5	28, 59		RSA205-10	10	X	X	X	X	X	X		Hold	X	X					
R-3	59, 65b, Unit1	SA192	SA192-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer Drain), LOU 65b (former Buckles Construction Company Site) and Unit 1.
R-3	59, 65b, Unit1		SA192-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
R-3	59, 65b, Unit1		SA192-10	10	X	X	X	X	X	X		Hold	X	X					
R-3	59, 65b, Unit1		SA192-20	20	X	X	X	X	X	X		Hold	X	X					
R-3	59, 65b, Unit1		SA192-30	30	X	X	X	X	X	X		Hold	X	X					
R-3	59, 65b, Unit1		SA192-40	40	X	X	X	X	X	X		X	X	X					
R-4	25, 59	RSAR4	RSAR4-0.0	0.0													X		Boring located to evaluate LOU 25 (Process Hardware Storage Area), LOU 59 (Storm Sewer System), and for Unit 2 area coverage.
R-4	25, 59		RSAR4-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
R-4	25, 59		RSAR4-10	10	X	X	X	X	X	X		Hold	X	X					
R-4	25, 59		RSAR4-20	20	X	X	X	X	X	X		Hold	X	X					
R-4	25, 59		RSAR4-30	30	X	X	X	X	X	X		Hold	X	X					
R-4	25, 59		RSAR4-40	40	X	X	X	X	X	X		X	X	X					
R-4	25, 59, 60, Unit 2	SA111	SA111-0.0	0.0													X		Boring located to evaluate LOU 25 (Process Hardware Storage Area), LOU 59 (Storm Sewer Drain), LOU 60 (Acid Drain System) and for Unit 2 area coverage.
R-4	25, 59, 60, Unit 2		SA111-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
R-4	25, 59, 60, Unit 2		SA111-10	10	X	X	X	X	X	X		Hold	X	X					
R-4	25, 59, 60, Unit 2		SA111-20	20	X	X	X	X	X	X		Hold	X	X					
R-4	25, 59, 60, Unit 2		SA111-30	30	X	X	X	X	X	X		Hold	X	X					
R-4	25, 59, 60, Unit 2		SA111-40	40	X	X	X	X	X	X		X	X	X					
R-5	4, 59, 60	RSAR5	RSAR5-0.0	0.0													X		Boring located to evaluate LOU 4 (Former Hardesty Chemical Company Site), LOU 59 (Storm Sewer System), and LOU 60 (Acid Drain System) and for Unit 3 area-wide coverage.
R-5	4, 59, 60		RSAR5-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
R-5	4, 59, 60		RSAR5-10	10	X	X	X	X	X	X		Hold	X	X					
R-5	4, 59, 60		RSAR5-20	20	X	X	X	X	X	X		Hold	X	X					
R-5	4, 59, 60		RSAR5-30	30	X	X	X	X	X	X		Hold	X	X					
R-5	4, 59, 60		RSAR5-40	40	X	X	X	X	X	X		X	X	X					
S-4	59	RSAS4	RSAS4-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) 350 feet south of Unit 2 for area-wide coverage.
S-4	59		RSAS4-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
S-4	59		RSAS4-10	10	X	X	X	X	X	X		Hold	X	X					
S-4	59		RSAS4-20	20	X	X	X	X	X	X		Hold	X	X					
S-4	59		RSAS4-30	30	X	X	X	X	X	X		Hold	X	X					
S-4	59		RSAS4-40	40	X	X	X	X	X	X		X	X	X					
T-3	59	RSAT3	RSAT3-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) and for general area-wide coverage.
T-3	59		RSAT3-0.5	0.5	X	X	X	X	X	X	X	X	X	X	X				
T-3	59		RSAT3-10	10	X	X	X	X	X	X	X	Hold	X	X					
T-3	59		RSAT3-20	20	X	X	X	X	X	X	X	Hold	X	X					
T-3	59		RSAT3-30	30	X	X	X	X	X	X	X	Hold	X	X					
T-3	59		RSAT3-40	40	X	X	X	X	X	X	X	X	X	X					
T-4	59	RSAT4	RSAT4-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) and for general area-wide coverage.
T-4	59		RSAT4-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
T-4	59		RSAT4-10	10	X	X	X	X	X	X		Hold	X	X					
T-4	59		RSAT4-20	20	X	X	X	X	X	X		Hold	X	X					
T-4	59		RSAT4-30	30	X	X	X	X	X	X		Hold	X	X					
T-4	59		RSAT4-40	40	X	X	X	X	X	X		X	X	X					
T-5	59	SA115	SA115-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) and for general area-wide coverage.
T-5	59		SA115-0.5	0.5	X	X	X	X	X	X	X	X	X	X	X				
T-5	59		SA115-10	10	X	X	X	X	X	X	X	Hold	X	X					
T-5	59		SA115-20	20	X	X	X	X	X	X	X	Hold	X	X					
T-5	59		SA115-30	30	X	X	X	X	X	X	X	Hold	X	X					
T-5	59		SA115-40	40	X	X	X	X	X	X	X	X	X	X					
T-5	59	SA116	SA116-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) and for general area-wide coverage.
T-5	59		SA116-0.5	0.5	X	X	X	X	X	X	X	X	X	X	X				
T-5	59		SA116-10	10	X	X	X	X	X	X	X	Hold	X	X					
T-5	59		SA116-20	20	X	X	X	X	X	X	X	Hold	X	X					
T-5	59		SA116-30	30	X	X	X	X	X	X	X	Hold	X	X					
T-5	59		SA116-40	40	X	X	X	X	X	X	X	X	X	X					
T-6	59, 62	SA119	SA119-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) adjacent to former State Industries building (Building T-5) and LOU 62 (State Industries, Inc. Site).
T-6	59, 62		SA119-0.5	0.5	X	X	X	X	X	X	X	X	X	X	X				
T-6	59, 62		SA119-10	10	X	X	X	X	X	X	X	Hold	X	X					
T-6	59, 62		SA119-20	20	X	X	X	X	X	X	X	Hold	X	X					
T-6	59, 62		SA119-30	30	X	X	X	X	X	X	X	Hold	X	X					
T-6	59, 62		SA119-40	40	X	X	X	X	X	X	X	X	X	X					

Table A
Soil Sampling and Analytical Plan for LOU 59
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

Grid Location	LOU Number	Phase B Boring No.	Sample ID Number	Sample Depths[1.] (ft, bgs)	Perchlorate (EPA 314.0)	Metals (EPA 6020)	Hex Cr (EPA 7199)	TPH-DRO/ORO (EPA 8015B)	VOCs [2.] (EPA 8260B)	Wet Chemistry [3.]	Total Cyanide (EPA 9012A)	OCPs [4.] (8081A)	SVOCs [5.] (EPA 8270C)	Radio-nuclides [6.]	Dioxins/ Furans [7.]	PCBs[8.] (EPA 1668)	Asbestos [9.] EPA/540/R-97/028	Geo-technical Tests [10.]	Location Description and Characterized Area Rationale
Borings are organized by grid location as shown on Plate A - Starting point is on grid Q-5 and ending on grid T-8.																			
T-6	59	SA118	SA118-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System).
T-6	59		SA118-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
T-6	59		SA118-10	10	X	X	X	X	X	X		Hold	X	X					
T-6	59		SA118-20	20	X	X	X	X	X	X		Hold	X	X					
T-6	59		SA118-30	30	X	X	X	X	X	X		Hold	X	X					
T-6	59		SA118-40	40	X	X	X	X	X	X		X	X	X					
T-7	59	RSAT7	RSAT7-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) and for general area-wide coverage.
T-7	59		RSAT7-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
T-7	59		RSAT7-10	10	X	X	X	X	X	X		Hold	X	X					
T-7	59		RSAT7-20	20	X	X	X	X	X	X		Hold	X	X					
T-7	59		RSAT7-30	30	X	X	X	X	X	X		Hold	X	X					
T-7	59		RSAT7-40	40	X	X	X	X	X	X		X	X	X					
T-8	59	RSAT8	RSAT8-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) and for general area-wide coverage.
T-8	59		RSAT8-0.5	0.5	X	X	X	X	X	X		X	X	X	X				
T-8	59		RSAT8-10	10	X	X	X	X	X	X		Hold	X	X					
T-8	59		RSAT8-20	20	X	X	X	X	X	X		Hold	X	X					
T-8	59		RSAT8-30	30	X	X	X	X	X	X		Hold	X	X					
T-8	59		RSAT8-40	40	X	X	X	X	X	X		X	X	X					
Number of Borings:		**15**																	
Number of Samples:					**72**	**72**	**72**	**72**	**72**	**72**	**20**	**29**	**72**	**72**	**15**	**0**	**15**	**0**	

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. If area is paved, samples will be collected at 0.5 feet below, or if an unpaved area is within a reasonable distance, the sample will be moved to the unpaved area.
2. Samples for VOC analysis will be preserved in the field using sodium bisulfate (or DI water) and methanol preservatives per EPA Method 5035.
3. Consists of wet chemistry parameters (including pH) listed on Table 1 of the Phase B Source Area Work Plan.
4. Organochlorine Pesticides (includes analysis for hexachlorobenzene).
5. Semi-volatile Organic Compounds
6. Radionuclides consists of alpha spec reporting for Thorium-230/232, Uranium 234/235, Uranium-238, and beta spec for Radium-226/228 (per NDEP).
7. Dioxins/furans: 90% will be tested by immunoassay, 10% analyzed by HRGC/HRMS in the laboratory.
8. Polychlorinated biphenyls
9. Soil samples for asbestos analyses will be collected from a depth of 0 to 2-inches bgs.
10. Geotechnical Tests consist of: moisture content (ASTM D-2216), grain size analysis (ASTM D-422 and C117-04), Soil Dry Bulk Density (ASTM D-2937), Grain Density (ASTM D-854, Soil-Water Filled Porosity (ASTM D-2216); Vertical Hydraulic Conductivity (ASTM D-5084/USEPA 9100).

Table B
Groundwater Sampling and Analysis Plan for LOU 59
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

Grid Location	Location Area	Monitoring Well No.	Sample ID Number	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1]	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Hex Cr (EPA 7199)	Metals	VOCs[2] (EPA 8260)	Wet Chemistry (a)	Total Cyanide (EPA 9012A)	OCPs[3] (EPA 8081A)	SVOCs[4] (EPA 8270C)	Radio-nuclides[5]	Rationale
Wells are organized by grid location as shown on Plate A - Staring point is on grid P-5 ending point on grid U-5.																
P-5	IV	M-97	M-97	35 - 45	MCcg1	yes	X	X	X	X	X		X	X	X	Located to serve as a downgradient stepout for LOUs 4, 26, 27, 28, 42, and 59; and for general Site coverage.
Q-4	Parcel F	M-92	M-92	34.9 - 44.9	MCfg1	yes	X	X	X	X	X		X	X	X	Located to serve as a downgradient stepout for LOUs 25, 41, 59, and 65; as an upgradient stepout for LOU 63; and for general Site coverage.
Q-5	II	M-13	M-13	40-50	MCfg1	yes	X	X	X	X	X	X	X	X	X	Located to serve as a downgradient stepout for LOUs 42, 59, and 60 and for general site coverage.
Q-6	II	M-12A	M-12A	28-48	MCcg1	yes	X	X	X	X	X	X	X	X	X	Located to serve as a downgradient stepout for LOUs 42, 59, and 60 and for general site coverage.
T-7	IV	M-10	M-10	43 - 63	MCcg1	no	X	X	X	X	X		X	X	X	Located as downgradient stepout for LOU 59; and for general Site coverage.
U-5	IV	M-138	M-138	TBD	TBD	new well	X	X	X	X	X	X	X	X	X	New well to be installed; Located to serve as a downgradient stepout for LOU 62 (former State Industries eastern pond) and for general Site coverage.
						Number of Field Samples:	6	6	6	6	6	3	6	6	6	

Notes:

X	Sample will be collected and analyzed.
1	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2	VOCs = Volatile organic compounds (to include analysis for naphthalene).
3	OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).
4	SVOCs = 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).
(a)	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
TBD	To be determined when well is constructed
MCfg1	Muddy Creek Formation - first fine-grained facies
MCcg1	Muddy Creek Formation - first coarse-grained facies
MCfg2	Muddy Creek Formation - second fine-grained facies

Summary of Available Data for LOU 59 in Area IV
Storm Sewer System
Tronox Facility – Henderson, Nevada

Soil and Groundwater Characterization Data

Summary of Available Data for LOU 59 in Area IV Storm Sewer System

Tronox Facility – Henderson, Nevada

LOU-specific analytes identified include:

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

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

LOU 59 Area IV Table 1 – Soil Characterization Data – Wet Chemistry

LOU 59 Area IV Table 2 – Groundwater Characterization Data – Wet Chemistry

LOU 59 Area IV Table 3 – Soil Characterization Data – Dioxins and Dibenzofurans

LOU 59 Area IV Table 4 – Soil Characterization Data – Metals

LOU 59 Area IV Table 5 – Groundwater Characterization Data – Metals

LOU 59 Area IV Table 6 – Groundwater Characterization Data – Routine Monitoring

LOU 59 Area IV Table 7 – Soil Characterization Data – Organochlorine Pesticides (OCPs)

LOU 59 Area IV Table 8 – Groundwater Characterization Data – Organochlorine Pesticides (OCPs)

LOU 59 Area IV Table 9 – Soil Characterization Data – Organophosphorus Pesticides (OPPs)

LOU 59 Area IV Table 10 – Groundwater Characterization Data – Organophosphorus Pesticides (OPPs)

LOU 59 Area IV Table 11 – Soil Characterization Data – PCBs

LOU 59 Area IV Table 12 – Groundwater Characterization Data – PCBs

LOU 59 Area IV Table 13 – Soil Characterization Data – Perchlorate

LOU 59 Area IV Table 14 – Groundwater Characterization Data – Perchlorate

LOU 59 Area IV Table 15 – Soil Characterization Data – Radionuclides

LOU 59 Area IV Table 16 – Groundwater Characterization Data – Radionuclides

LOU 59 Area IV Table 17 – Soil Characterization Data – SVOCs

LOU 59 Area IV Table 18 – Groundwater Characterization Data – SVOCs

LOU 59 Area IV Table 19 – Soil Characteristic Data - TPH and Fuel Alcohols

LOU 59 Area IV Table 20 – Soil Characterization Data – VOCs

LOU 59 Area IV Table 21 – Groundwater Characterization Data – VOCs

LOU 59 Area IV Table 22 – Soil Characterization Data – Long Asbestos Fibers in Respirable Soil Fraction

Notes for all Phase A data tables are listed at the end of the tables.

LOU 59 Area IV Table 1
Soil Characterization Data - Wet Chemistry

Storm Sewer System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	
Boring No.		SA3	SA3	SA3	SA3	SA3	SA3	SA4	SA4	SA4	SA4	SA4	
Sample ID		SA3-0.5	SA3-0.5D	SA3-10	SA3-20	SA3-30	SA3-40	SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40	
Sample Depth (ft)		0.5	0.5	10	20	30	40	0.5	10	20	30	40	
Sample Date		11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	
Wet Chemistry Parameter	**MSSL[2] mg/kg**												**Units**
Percent moisture	--	**6.4**	**6.3**	**6.3**	**8.9**	**22.4**	**32.1**	**9.0**	**6.0**	**8.5**	**12.3**	**5.9**	percent
Alkalinity (as CaCO3)	--	**324**	**269**	**162**	**134**	64.4 U	**451**	**476**	**437**	**595**	**278**	**77.5**	mg/kg
Bicarbonate	--	**675**	**296**	**916**	**476**	**139**	**1670**	**1480**	**1630**	**1740**	**723**	**149**	mg/kg
Total Alkalinity	--	**999**	**566**	**1080**	**611**	**139**	**2120**	**1950**	**2070**	**2330**	**1000**	**227**	mg/kg
Ammonia (as N)	--	5.3 UJ	5.3 UJ	5.3 UJ	5.5 UJ	6.4 UJ	7.4 UJ	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ	mg/kg
Cyanide	1.37E+04	R	R	R	R	R	R	R	R	R	R	R	mg/kg
MBAS	--	2.2 U	2.2 U	2.1 U	2.2 U	2.8 U	3.1 U	2.2 U	2.1 U	2.2 U	**2.7 J**	**2.8 J**	mg/kg
pH (solid)	--	**8.8**	**8.8**	**8.6**	**8.8**	**7.7**	**8.5**	**10**	**7.8**	**9.8**	**9.4**	**8.4**	none
Bromide	--	2.7 U	2.7 U	2.7 U	2.7 U	**3.4**	3.7 U	2.7 U	2.7 U	**92.0**	**1.4 J**	**2.0 J**	mg/kg
Chlorate	--	5.3 U	5.3 U	5.3 U	**17.6 J-**	6.4 UJ	7.4 UJ	5.5 UJ	5.3 U	5.5 U	**91.3 J-**	**119 J-**	mg/kg
Chloride	--	**0.90 J**	**1.0 J**	**13.2**	**130**	**1240**	**120**	**2.8**	**4.4**	**172**	**46.5**	**71.2**	mg/kg
Nitrate (as N)	--	0.21 U	0.21 U	**2.6**	**8.2**	**12.7**	**1.6**	**0.53 J+**	**0.35 J+**	**1.0 J+**	**1.4 J+**	**1.5 J+**	mg/kg
Nitrite	--	0.21 U	0.21 U	0.21 U	**1.7 J**	**11.9**	29.5 U	**0.047 J**	**0.34**	0.22 U	**0.059 J**	**0.14 J**	mg/kg
ortho-Phosphate	--	5.3 U	5.3 U	**1.4 J**	5.5 U	6.4 U	7.4 U	**2.7 J**	**3.1 J**	5.5 U	5.7 U	5.3 U	mg/kg
Sulfate	--	**7.2**	**8.6**	**156**	**267**	**573**	**325**	**19.5**	**24.9**	**87.4**	**733**	**177**	mg/kg
Total Organic Carbon	--	**2780**	**2680**	**3720**	**8300**	**15900**	**6600**	**9550**	**7100**	**7500**	**1600**	**7800**	mg/kg

Notes:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)

LOU 59 Area IV Table 2
Groundwater Characterization Data - Wet Chemistry

Storm Sewer System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A	
	Well ID	M-92	M-97	
	Sample ID	M-92	M-97	
	Sample Date	11/29/2006	11/29/2006	
Wet Chemistry Parameters	**MCL[2] ug/L**			**Units**
Total Dissolved Solids	5.00E+05 j	**1850**	**3750**	mg/L
Total Suspended Solids	--	**22.0 J**	**16.0 J**	mg/L
Alkalinity (as CaCO3)	--	5.0 U	5.0 U	mg/L
Bicarbonate	--	**80.0**	**90.0**	mg/L
Total Alkalinity	--	**80.0**	**90.0**	mg/L
Ammonia (as N)	--	50.0 U	50.0 U	ug/L
MBAS	--	0.20 U	**0.24**	mg/L
Cyanide	2.00E+02	R	R	ug/L
pH (liquid)	--	**7.4 J**	**7.3 J**	none
Specific Conductance	--	**1930**	**2410**	umhos/cm
Bromide	--	**0.21 J**	25.0 U	mg/L
Chlorate	--	**3.2 J**	**277**	mg/L
Chloride	2.50E+05	**192**	**1190**	mg/L
Nitrate (as N)	1.00E+04	**4.0**	**8.4**	mg/L
Nitrite	1.00E+03	0.020 U	2.0 U	mg/L
ortho-Phosphate	--	5.0 U	5.0 U	mg/L
Sulfate	2.50E+05 j	**992**	**1150**	mg/L
Total Organic Carbon	--	50.0 U	50.0 U	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 59 Area IV Table 3
Soil Characterization Data - Dioxins and Dibenzofurans

Storm Sewer System
Tronox Facility - Henderson, Nevada

			Sampling Program	Ph A[1]	Ph A	Ph A
			Boring No.	SA3	SA4	SA4
			Sample ID	SA3-0.5	SA3-0.5D	SA4-0.5
			Sample Depth (ft)	0.5	0.5	0.5
			Sample Date	11/13/2006	11/13/2006	11/14/2006
chemical_name:	**Method**	**Unit**	**MSSL[2] mg/kg**			
Dioxin 8290 SCREEN Total TEQ-ENSR Calculated (a) ng/kg		ng/kg	--	**149.01**		**42.5**
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	--	**149.01**		**42.5**
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	--	**669.842**	**849.298**	**18.965**
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	--	**53.366**	**71.721**	**2.141**
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	--	**269.014**	**344.266**	**8.238**
1,2,3,4,7,8,9-Heptachlorodibenzofuran	SW 846 8290	ng/kg	--			
1,2,3,4,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	**281.567**	**356.494**	**23.006**
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	--	**6.265**	**8.512**	**0.656**
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	--	**157.518**	**196.405**	**9.753**
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	--	**13.496**	**17.014**	**1.595**
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	--	**45.354**	**27.487**	**4.476**
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	--	**15.276**	**19.467**	**1.534**
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--			
1,2,3,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--	**117.401**	**143.365**	**37.501**
1,2,3,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--			
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	**11.897**	**13.508**	**3.343**
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--			
2,3,4,6,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	**50.697**	**60.179**	**4.497**
2,3,4,6,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--			
2,3,4,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--	**57.175**	**65.924**	**28.443**
2,3,4,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--			
2,3,7,8-Tetrachlorodibenzofuran	8290 Screen	ng/kg	--	**298.648**	**320.832**	**201.573**
2,3,7,8-Tetrachlorodibenzofuran	SW 846 8290	ng/kg	--			
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	1.80E-05 h,v	**8.039**	**8.466**	**4.487**
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	1.80E-05 h,v			
Octachlorodibenzofuran	8290 Screen	ng/kg	--	**1674.507**	**2372.145**	**38.680**
Octachlorodibenzofuran	SW 846 8290	ng/kg	--			

LOU 59 Area IV Table 3 (continued)
Soil Characterization Data - Dioxins and Dibenzofurans

Storm Sewer System
Tronox Facility - Henderson, Nevada

			Sampling Program	Ph A[1]	Ph A	Ph A
			Boring No.	SA3	SA4	SA4
			Sample ID	SA3-0.5	SA3-0.5D	SA4-0.5
			Sample Depth (ft)	0.5	0.5	0.5
			Sample Date	11/13/2006	11/13/2006	11/14/2006
chemical_name:	**Method**	**Unit**	**PRG[2] mg/kg**			
Octachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	**57.568**	**90.351**	**2.582**
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:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility - Henderson, Nevada, September 2007.
2. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)
(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.
(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 59 Area IV Table 4
Soil Characterization Data - Metals

Storm Sewer System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	UG[2]	UG	UG	UG	UG	UG	UG	UG
Boring No.		SA3	SA3	SA3	SA3	SA3	SA3	SA4	SA4	SA4	SA4	SA4	M116	M116	M116	M116	M116	M116	M116	M116
Sample ID		SA3-0.5	SA3-0.5D	SA3-10	SA3-20	SA3-30	SA3-40	SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40	M116-0.5	M116-0.5D	M116-5	M116-10	M116-20	M116-30	M116-40	M116-50
Sample Depth (ft)		0.5	0.5	10	20	30	40	0.5	10	20	30	40	0.5	0.5	5	10	20	30	40	50
Sample Date		11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006
Metals	MSSL[3] mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Aluminum	1.00E+05	7000	6820	6130	6960	7760	13500	7490	6040	6640	4260	5630	9020 J+	10800 J+	9380 J+	7700 J+	10200 J+	14800 J+	10900 J+	10600 J+
Antimony	4.50E+02	0.17 J-	0.16 J-	0.17 J-	0.094 J-	0.13 J-	0.23 J-	0.17 J-	0.14 J-	0.17 J-	0.12 J-	0.15 J-	0.157 J-	0.54 UJ	0.557 UJ	0.205 J-	0.528 UJ	0.608 UJ	0.584 UJ	0.62 UJ
Arsenic	2.80E+02	3.5	2.9	3.0	3.5	61.6	27.7	13.4	11.3	5.3	6.1	8.6	2.77	3.06	3.07	2.49	3.52	19.2	12.9	21
Barium	1.00E+05	181 J+	144 J+	161 J+	188 J+	667 J	43.6 J	155 J+	151 J+	176 J+	79.7 J+	152 J+	178 J	201 J	150 J	173 J	272 J	107 J	58.8 J	46 J
Beryllium	2.20E+03	0.52	0.47	0.46	0.46	0.40 J	0.81	0.51	0.36	0.49	0.31	0.39	0.567	0.623	0.532 J	0.442 J	0.758	0.752	0.438 J	0.519 J
Boron	1.00E+05	5.7 UJ	5.0 UJ	3.7 UJ	5.8 UJ	25.6 UJ	24.2 UJ	4.5 UJ	4.7 UJ	5.0 UJ	4.8 UJ	6.9 UJ	7.46 J	10.9	7.1 J	5.67 J	6.42 J	27.4	15.6	23
Cadmium	5.60E+02	0.15	0.13	0.084	0.077	0.077	0.099	0.087	0.088	0.080	0.053 J	0.082	0.628	0.688	0.525 J	0.375 J	0.729	0.68	0.598	0.616 J
Calcium	--	40900 J	19800 J	19300 J	30200 J	120000 J	30000 J	21100	25300	38800	9480	26600	20100	23700	46000	31100	27500	47700	24800	170000
Chromium (Total)	7.10E+01	10.7	9.6	9.4	7.0	18.5 J-	34.6 J-	11.2	7.2	10.7	7.3	19.1	7.3	10.6	9.02	6.53	13.5	20.8	16.7	18.3
Chromium-hexavalent	5.00E+02	0.11 J	0.21 U	0.21 U	0.22 U	0.26 U	0.29 U	0.12 J	0.21 U	1.7	0.23 U	0.54	0.528 U	0.54 U	0.557 U	0.54 U	0.528 U	0.608 U	0.584 U	0.62 U
Cobalt	2.10E+03	6.5	6.3 J-	5.9 J-	6.9 J-	4.0 J-	5.1 J-	6.3 J-	3.8 J-	5.9 J-	3.7 J-	4.1 J-	7.12	9.87	6.58	6.67	8.14	4.84	3.77	4.94
Copper	4.20E+04	12.3 J-	13.3 J-	12.0 J-	10.3 J-	9.9 J	11.7 J	12.9 J-	8.4 J-	11.8 J-	9.1 J-	10.4 J-	21.5	22.4	46.7 J	140 J	26.9 J	23.6 J	16.3 J	105 J
Iron	1.00E+05	12000 J-	11300	12000	8290	6880	11900	13300	8350	11500	6470	11200	9120 J+	12600 J+	9690 J+	7390 J+	13700 J+	11400 J+	8210 J+	8330 J+
Lead	8.00E+02	12.4	12.1	8.0	7.7	4.6	8.3	14.5	6.3	7.0	6.3	6.3	9.55	11.5	6.85 J	6.02 J	5.81 J	8.13 J	6.18 J	4.87 J
Magnesium	--	7260 J-	6640 J-	5890 J-	10100 J-	45900 J-	40800 J-	7570 J-	5530 J-	10500 J-	5110 J-	6050 J-	8900	10500	9650	9900	11500	17900	14600	17000
Manganese	3.50E+04	329 J	369 J	264 J	289 J	119	160	254 J	176 J	295 J	157 J	186 J	644	777	261	252	305	208	158	170
Molybdenum	5.70E+03	0.49 J	0.57	0.52 J	0.31 J	0.44 J	0.80	0.45 J	0.42 J	0.51 J	0.46 J	1.7	0.716	0.845	0.317 J	0.206 J	1.22	0.468 J	0.427 J	0.27 J
Nickel	2.30E+04	13.5 J-	12.0 J-	11.5 J-	11.0 J-	10.2 J-	12.5 J-	13.2 J-	9.3 J-	12.2 J-	8.5 J-	11.1 J-	13.8	18.5	12.8	13.7	18.5	19.9	12.3	15.9
Platinum	--	0.019 J	0.016 J	0.016 J	0.015 J	0.019 J	0.023 J	0.033 J	0.012 J	0.017 J	0.011 U	0.014 J	0.0391	0.0129 J	0.0223 U	0.0216 U	0.0211 U	0.429	0.156	0.0248 U
Potassium	--	1890 J-	1830 J-	1600 J-	1480 J-	1570	3260	2080 J-	2480 J-	1300 J-	1100 J-	1590 J-	2190	2440	1700	1340	1730	4190	2830	3410
Selenium	5.70E+03	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.14 UJ	0.16 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.212 J	0.17 J	0.123 J	0.143 J	0.157 J	0.608 U	0.584 U	0.62 U
Silver	5.70E+03	0.14 J	0.13 J	0.12 J	0.11 J	0.15 J	0.18 J	0.13 J	0.11 J	0.13 J	0.061 J	0.11 J	0.118 J	0.54 U	0.557 U	0.54 U	0.106 J	0.608 U	0.584 U	0.62 U
Sodium	--	383 J-	344 J-	317 J-	756 J-	1620 J-	669 J-	1520 J-	823 J-	556 J-	360 J-	609 J-	725	1010	710	900	1230	1010	871	809
Strontium	1.00E+05	226 J+	152 J+	154 J+	228 J+	299 J	119 J	131 J+	187 J+	260 J+	175 J+	304 J+	180	200	203	301	264	393	182	240
Thallium	--	0.10 U	0.15 U	0.082 U	0.12 U	0.09 U	0.18 U	0.077 U	0.074 U	0.076 U	0.08 U	0.074 U	0.373 J	0.238 J	0.557 U	0.54 U	0.528 U	0.166 J	0.584 U	0.128 J
Tin	--	0.54	0.52	0.48	0.36	0.36	0.66	0.52	0.42	0.47	0.39	0.63	10.6 U	10.8 U	11.1 U	10.8 U	10.6 U	12.2 U	11.7 U	12.4 U
Titanium	--	527	498	504	353	363	581	586	429	507	330	517	572	808	544	241	820	625	529	493
Tungsten	--	0.38 UJ	0.32 UJ	0.30 UJ	0.19 UJ	0.49 UJ	0.33 UJ	0.34 UJ	0.23 UJ	0.37 UJ	0.32 UJ	0.46 UJ	0.708 J-	0.582 J-	2.23 UJ	2.16 UJ	2.11 UJ	2.43 UJ	2.34 UJ	2.48 UJ
Uranium	--	1.3	0.89	0.91	1.4	10.6	3.7	0.89	0.85	2.0	0.94	1.6	0.835	1	0.911	0.994	1.28	3.9	1.37	2.03
Vanadium	5.70E+03	32.6 J-	29.9 J-	33.9 J-	23.9 J-	36.2 J-	33.7 J-	35.4 J-	22.2 J-	34.2 J-	22.8 J-	30.6 J-	21.9	29.6	24.1	17	36.3	37.5	25.4	20
Zinc	1.00E+05	27.6 J-	29.0 J-	24.8 J-	22.9 J-	29.5 UJ	49.2 UJ	29.4 J-	20.1 J-	23.9 J-	17.3 J-	22.7 J-	40.5	49.6	43.8 J	72.1 J	33.2 J	48.8 J	31.8 J	75.7 J
Mercury	3.41E+02 (t)	0.013 J-	0.019 J-	0.013 J-	0.0073 UJ	0.0086 UJ	0.0098 UJ	0.014 J-	0.014 J-	0.0073 UJ	0.0076 UJ	0.0071 UJ	0.106 U	0.108 U	0.111 U	0.108 U	0.106 U	0.122 U	0.117 U	0.124 U

Notes:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. ENSR, 2006, Upgradient Investigation Results, Tronox Facility, Henderson, Nevada, October 30, 2006.
3. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)
(t) Value for mercury and compounds.

LOU 59 Area IV Table 5
Groundwater Characterization Data - Metals

Storm Sewer System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	
Well ID:		M-92	M-97	
Sample ID		M-92-Z	M-97-Z	
Sample Date		05/08/2007	05/11/2007	
Metals	**MCL[2] ug/L**			**Unit**
Aluminum	5.00E+01 j	32.6 U	197 U	ug/L
Antimony	6.00E+00	0.50 U	12.5 U	ug/L
Arsenic	1.00E+01	**95.7**	**181**	ug/L
Barium	2.00E+03	18.2 U	**33.8 J**	ug/L
Beryllium	4.00E+00	1.8 U	2.2 U	ug/L
Boron	7.30E+03 c	**1820**	**4710**	ug/L
Cadmium	5.00E+00	0.057 U	1.4 U	ug/L
Calcium	--	**155000**	**277000**	ug/L
Chromium (Total)	1.00E+02	**15.1 J-**	70.0 U	ug/L
Chromium-hexavalent	1.09E+02 c	**15.9 J**	**60.5 J**	ug/L
Cobalt	7.30E+02 c	**0.32 J-**	7.8 U	ug/L
Copper	1.30E+03 p	2.4 U	6.3 U	ug/L
Iron	3.00E+02 j	188 UJ	235 UJ	ug/L
Lead	1.50E+01 u	0.49 U	12.3 U	ug/L
Magnesium	1.50E+05 a	**83500**	**182000**	ug/L
Manganese	5.00E+01 j	6.8 U	8.5 U	ug/L
Molybdenum	1.82E+02 c	**18.7**	**17.2 J**	ug/L
Nickel	7.30E+02 c	10.3 UJ	12.9 U	ug/L
Platinum	--	0.10 U	2.5 U	ug/L
Potassium	--	**9650**	**15900**	ug/L
Selenium	5.00E+01	**2.3 J**	25.0 U	ug/L
Silver	1.00E+02 j	0.20 U	5.1 U	ug/L
Sodium	--	**373000**	**598000**	ug/L
Strontium	2.19E+04 c	**2760**	**7070**	ug/L
Thallium	2.00E+00	1.0 U	8.0 U	ug/L
Tin	2.19E+04 c	**0.23 J**	5.0 U	ug/L
Titanium	1.46E+05 c	4.9 U	9.8 U	ug/L
Tungsten	--	1.8 UJ	12.5 U	ug/L
Uranium	3.00E+01	**8.3 J+**	**36.1**	ug/L
Vanadium	3.65E+01 c	32.0 U	40.0 UJ	ug/L
Zinc	5.00E+03 j	2.0 UJ	25.0 U	ug/L
Mercury	2.00E+00	0.093 U	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 59 Area IV Table 6
Groundwater Characterization Data - Routine Monitoring[1]

Storm Sewer System
Tronox Facility - 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-92	2/3/2006	36.67	0.89	d	1.80E+01 a,m	<0.01	ud	1.00E+02			5.00E+05 j			1.00E+04			--
M-92	5/4/2006	36.65	0.62	d	1.80E+01 a,m	<0.01	ud	1.00E+02	1980		5.00E+05 j			1.00E+04			--
M-92	8/2/2006	36.95	0.567	d	1.80E+01 a,m	<0.01	ud	1.00E+02	1670		5.00E+05 j			1.00E+04			--
M-92	11/1/2006	36.96	0.676	d	1.80E+01 a,m	<0.01	ud	1.00E+02	1920		5.00E+05 j			1.00E+04			--
M-92	1/31/2007	37.21	0.674		1.80E+01 a,m	<0.02	U	1.00E+02	1990		5.00E+05 j			1.00E+04			--
M-92	5/3/2007	37.24	0.695	J	1.80E+01 a,m	<0.02	U	1.00E+02	1920	J	5.00E+05 j			1.00E+04			--
M-92	8/1/2007	37.77	0.752		1.80E+01 a,m	<0.02	U	1.00E+02	1990		5.00E+05 j			1.00E+04			--
M-93	2/3/2006	35.65	13	d	1.80E+01 a,m	0.16	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-93	5/4/2006	35.65	11	d	1.80E+01 a,m	0.15	d	1.00E+02	3410		5.00E+05 j			1.00E+04			--
M-93	8/2/2006	35.88	7.32	d	1.80E+01 a,m	0.12	d	1.00E+02	2450		5.00E+05 j			1.00E+04			--
M-93	11/1/2006	35.88	7.63	d	1.80E+01 a,m	0.11	d	1.00E+02	2980		5.00E+05 j			1.00E+04			--
M-93	1/31/2007	36.18	6.78		1.80E+01 a,m	0.096		1.00E+02	2820		5.00E+05 j			1.00E+04			--
M-97	2/3/2006	39.83	60	d	1.80E+01 a,m	0.055	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-97	5/4/2006	39.89	61	d	1.80E+01 a,m	0.06	d	1.00E+02	3640		5.00E+05 j			1.00E+04			--
M-97	8/2/2006	40.10	62	d	1.80E+01 a,m	0.067	d	1.00E+02	3140		5.00E+05 j			1.00E+04			--
M-97	11/1/2006	40.07	80	d	1.80E+01 a,m	0.072	d	1.00E+02	3600		5.00E+05 j			1.00E+04			--
M-97	1/31/2007	40.37	77.7		1.80E+01 a,m	0.066		1.00E+02	3660		5.00E+05 j			1.00E+04			--
M-97	5/3/2007	40.43	76.8	J	1.80E+01 a,m	0.063		1.00E+02	3770	J	5.00E+05 j			1.00E+04			--
M-97	8/1/2007	40.97	89.2		1.80E+01 a,m	0.61		1.00E+02	3730		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.
(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/perchlorate02_05.htm].
(j) Secondary Drinking Water Regulation value.
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

Laboratory Qualifiers:
d = the sample was diluted
ud = the sample was dilluted and was not detected above the sample reporting limit

Validation Qualifiers:
J = the result is an estimated quantity
U = the analyte was analyzed for, but was not detected above the sample reporting limit

LOU 59 Area IV Table 7
Soil Characterization Data - Organochlorine Pesticides (OCPs)

Storm Sewer System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A	Ph A
	Boring No.	SA3	SA3	SA4
	Sample ID	SA3-0.5	SA3-0.5D	SA4-0.5
	Sample Depth (ft)	0.5	0.5	0.5
	Sample Date	11/13/2006	11/13/2006	11/14/2006
Organochlorine Pesticides	**MSSL[2] mg/kg**	mg/kg	mg/kg	mg/kg
4,4'-DDD	1.10E+01	0.0018 U	0.0018 U	0.0019 U
4,4'-DDE	7.80E+00	0.0018 U	**0.0020**	0.0019 U
4,4'-DDT	7.80E+00	0.0018 U	0.0018 U	0.0019 U
Aldrin	1.10E-01	0.0018 U	0.0018 U	0.0019 U
Alpha-BHC	4.00E-01 (bbb)	0.0018 U	0.0018 U	0.0019 U
Alpha-chlordane	1.40E+00 (y)	0.0018 U	0.0018 U	0.0019 U
Beta-BHC	1.40E+00 (bbb)	0.0018 U	0.0018 U	**0.0036**
Delta-BHC	4.00E-01 (z)	0.0018 U	0.0018 U	0.0019 U
Dieldrin	1.20E-01	0.0018 U	0.0018 U	0.0019 U
Endosulfan I	4.10E+03 (aa)	0.0018 U	0.0018 U	0.0019 U
Endosulfan II	4.10E+03 (aa)	0.0018 U	0.0018 U	0.0019 U
Endosulfan Sulfate	4.10E+03 (aa)	0.0018 U	0.0018 U	0.0019 U
Endrin	2.10E+02	0.0018 U	0.0018 U	0.0019 U
Endrin Aldehyde	2.10E+02 (k)	0.0018 U	0.0018 U	0.0019 U
Endrin Ketone	2.10E+02 (k)	0.0018 U	0.0018 U	0.0019 U
Gamma-BHC (Lindane)	1.90E+00 (bbb)	0.0018 U	0.0018 U	0.0019 U
Gamma-Chlordane	1.40E+00 (y)	0.0018 U	0.0018 U	0.0019 U
Heptachlor	4.30E-01	0.0018 U	0.0018 U	0.0019 U
Heptachlor Epoxide	2.10E-01	0.0018 U	0.0018 U	0.0019 U
Methoxychlor	3.40E+03	0.0035 UJ	0.0035 UJ	**0.0048**
Tech-Chlordane	1.40E+00	0.011 U	0.011 U	0.011 U
Toxaphene	1.70E+00	0.053 U	0.053 U	0.055 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).
(bbb) BHC listed as HCH in the MSSL 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 59 Area IV Table 8
Groundwater Characterization Data - Organochlorine Pesticides (OCPs)

Storm Sewer System
Tronox Facility - Henderson, Nevada

	Sampling Program		Ph A[1]	Ph A
	Well ID		M-92	M-97
	Sample ID		M-92	M-97
	Sample Date		11/29/2006	11/29/2006
Organochlorine Pesticides	**MCL[2] ug/L**		ug/L	ug/L
4,4'-DDD	2.80E-01	c	0.050 U	0.050 U
4,4'-DDE	1.98E-01	c	0.050 U	0.050 U
4,4'-DDT	1.98E-01	c	0.050 U	0.050 U
Aldrin	4.00E-03	c	0.050 U	0.050 U
Alpha-BHC	1.10E-02	c, (bbb)	0.050 U	0.050 U
Alpha-chlordane	2.00E+00	(l)	0.050 U	0.050 U
Beta-BHC	3.74E-02	c, (bbb)	0.050 U	0.050 U
Delta-BHC	1.10E-02	c, (z)	0.050 U	0.050 U
Dieldrin	4.20E-03	c, (z)	0.050 U	0.050 U
Endosulfan I	2.19E+02	c, (aa)	0.050 U	0.050 U
Endosulfan II	2.19E+02	c, (aa)	0.050 U	0.050 U
Endosulfan Sulfate	2.19E+02	c, (aa)	0.050 U	0.050 U
Endrin	2.00E+00		0.050 U	0.050 U
Endrin Aldehyde	1.09E+01	c, (k)	0.050 U	0.050 U
Endrin Ketone	1.09E+01	c, (k)	0.050 U	0.050 U
Gamma-BHC (Lindane)	2.00E-01		0.050 U	0.050 U
Gamma-Chlordane	2.00E+00	(l)	0.050 U	0.050 U
Heptachlor	4.00E-01		0.050 U	0.050 U
Heptachlor Epoxide	2.00E-01		0.050 U	0.050 U
Methoxychlor	4.00E+01		0.10 U	0.10 U
Tech-Chlordane	2.00E+00	(l)	0.50 U	0.50 U
Toxaphene	3.00E+00		2.0 U	2.0 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).
(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 59 Area IV Table 9
Soil Characterization Data - Organophosphorus Pesticides (OPPs)

Storm Sewer System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A	Ph A
	Boring No.	SA3	SA3	SA4
	Sample ID	SA3-0.5	SA3-0.5D	SA4-0.5
	Sample Depth (ft)	0.5	0.5	0.5
	Sample Date	11/13/2006	11/13/2006	11/14/2006
OPPs	**MSSL[2] mg/kg**	mg/kg	mg/kg	mg/kg
Azinphos-methyl	--	0.014 U	0.014 U	0.014 UJ
Bolstar	--	0.014 U	0.014 U	0.014 U
Chlorpyrifos	2.10E+03	0.021 U	0.021 U	0.022 U
Coumaphos	--	0.014 U	0.014 U	0.014 UJ
Demeton-O	--	0.042 U	0.042 U	0.043 U
Demeton-S	--	0.016 U	0.016 U	0.016 U
Diazinon	6.20E+02	0.024 U	0.023 U	0.024 U
Dichlorvos	6.60E+00	0.025 U	0.025 U	0.025 U
Dimethoate	--	0.024 U	0.023 U	0.024 U
Disulfoton	2.70E+01	0.051 U	0.051 U	0.053 U
EPN	--	0.014 UJ	0.014 UJ	0.014 U
Ethoprop	--	0.016 U	0.016 U	0.016 U
Ethyl Parathion	4.10E+03	0.019 UJ	0.019 UJ	0.020 U
Famphur	--	0.014 U	0.014 U	0.014 UJ
Fensulfothion	--	0.014 U	0.014 U	0.014 U
Fenthion	1.70E+02 (ff)	0.035 U	0.035 U	0.036 U
Malathion	1.40E+04	0.016 U	0.016 U	0.016 U
Merphos	--	0.032 U	0.032 U	0.033 U
Methyl parathion	1.70E+02	0.021 U	0.021 U	0.022 U
Mevinphos	--	0.016 U	0.016 U	0.016 U
Naled	1.40E+03	0.035 UJ	0.035 UJ	0.036 UJ
Phorate	--	0.021 U	0.021 U	0.022 U
Ronnel	3.40E+04	0.019 U	0.019 U	0.020 U
Stirphos	--	0.016 U	0.016 U	0.016 UJ
Sulfotep	--	0.021 U	0.021 U	0.022 U
Thionazin	--	0.019 U	0.019 U	0.020 U
Tokuthion	--	0.021 U	0.021 U	0.022 U
Trichloronate	--	0.021 U	0.021 U	0.022 U

Notes:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)
(ff) Value for methyl parathion used as surrogate for fenthion based on structural similarities.

LOU 59 Area IV Table 10
Groundwater Characterization Data - Organophosphorus Pesticides (OPPs)

Storm Sewer System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A
	Well ID	M-92	M-97
	Sample ID	M-92	M-97
	Sample Date	11/29/2006	11/29/2006
OPPs	**MCL[2] ug/L**	ug/L	
Azinphos-methyl	--	2.5 UJ	2.5 UJ
Bolstar	--	1.0 U	1.0 U
Chlorpyrifos	1.09E+02 c	1.0 U	1.0 U
Coumaphos	--	1.0 U	1.0 U
Demeton-O	1.46E+00 c,(cc)	1.0 U	1.0 U
Demeton-S	1.46E+00 c,(cc)	1.0 U	1.0 U
Diazinon	3.28E+01	1.0 U	1.0 U
Dichlorvos	2.32E-01	1.0 U	1.0 U
Dimethoate	7.30E+00	1.0 U	1.0 U
Disulfoton	1.46E+00	0.50 U	0.50 U
EPN	3.65E-01	1.2 U	1.2 U
Ethoprop	--	0.50 U	0.50 U
Ethyl Parathion	9.12E+00 c,(tt)	1.0 U	1.0 U
Famphur	--	1.0 U	1.0 U
Fensulfothion	--	2.5 U	2.5 U
Fenthion	9.10E+00 c,(ff)	2.5 U	2.5 U
Malathion	7.30E+02	1.2 U	1.2 U
Merphos	1.09E+00	5.0 U	5.0 U
Methyl parathion	9.12E+00	4.0 U	4.0 U
Mevinphos	--	6.2 U	6.2 U
Naled	7.30E+01	1.0 UJ	1.0 UJ
Phorate	7.30E+00	1.2 U	1.2 U
Ronnel	1.82E+03	10 U	10 U
Stirphos	--	3.5 U	3.5 U
Sulfotep	1.82E+01	1.5 U	1.5 U
Thionazin	--	1.0 U	1.0 U
Tokuthion	--	1.6 U	1.6 U
Trichloronate	--	0.50 U	0.50 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).
(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 59 Area IV Table 11
Soil Characterization Data - PCBs

Storm Sewer System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	
Boring ID		SA3	SA3	SA3	SA3	SA3	SA3	SA4	SA4	SA4	SA4	SA4	
Sample ID		SA3-0.5	SA3-0.5D	SA3-10	SA3-20	SA3-30	SA3-40	SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40	
Sample Depth (ft)		0.5	0.5	10	20	30	40	0.5	10	20	30	40	
Sample Date		11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	
PCBs	**MSSL[2] mg/kg**												**Unit**
Aroclor-1016	2.40E+01 (i)	0.035 U	0.035 U	0.035 U	0.036 U	0.043 U	0.049 U	0.036 U	0.035 U	0.036 U	0.038 U	0.035 U	mg/kg
Aroclor-1221	8.30E-01 (i)	0.035 U	0.035 U	0.035 U	0.036 U	0.043 U	0.049 U	0.036 U	0.035 U	0.036 U	0.038 U	0.035 U	mg/kg
Aroclor-1232	8.30E-01 (i)	0.035 U	0.035 U	0.035 U	0.036 U	0.043 U	0.049 U	0.036 U	0.035 U	0.036 U	0.038 U	0.035 U	mg/kg
Aroclor-1242	8.30E-01 (i)	0.035 U	0.035 U	0.035 U	0.036 U	0.043 U	0.049 U	0.036 U	0.035 U	0.036 U	0.038 U	0.035 U	mg/kg
Aroclor-1248	8.30E-01 (i)	0.035 U	0.035 U	0.035 U	0.036 U	0.043 U	0.049 U	0.036 U	0.035 U	0.036 U	0.038 U	0.035 U	mg/kg
Aroclor-1254	8.30E-01 (i)	0.035 U	0.035 U	0.035 U	0.036 U	0.043 U	0.049 U	0.036 U	0.035 U	0.036 U	0.038 U	0.035 U	mg/kg
Aroclor-1260	8.30E-01 (i)	0.035 U	0.035 U	0.035 U	0.036 U	0.043 U	0.049 U	0.036 U	0.035 U	0.036 U	0.038 U	0.035 U	mg/kg

Notes:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker
(March, 2008)
(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 59 Area IV Table 12
Groundwater Characterization Data - PCBs

Storm Sewer System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	
Well ID		M-92	M-97	
Sample ID		M-92	M-97	
Sample Date		11/29/2006	11/29/2006	
PCBs	**MCL[2] ug/L**			**Unit**
Aroclor-1016	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1221	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1232	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1242	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1248	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1254	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1260	5.00E-01 (bb)	0.10 U	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 59 Area IV Table 13
Soil Characterization Data - Perchlorate

Storm Sewer System
Tronox Facility - Henderson, Nevada

Boring ID	Sample ID	Sample Depth (ft)	Sample Date	Perchlorate ug/kg	MSSL[1] mg/kg	Sampling Program
SA3	SA3-0.5	0.5	11/13/2006	**1880**	7.95E+02	Ph A[2]
SA3	SA3-0.5D	0.5	11/13/2006	**1540**	7.95E+02	Ph A
SA3	SA3-10	10	11/13/2006	**10200**	7.95E+02	Ph A
SA3	SA3-20	20	11/13/2006	**6100**	7.95E+02	Ph A
SA3	SA3-30	30	11/13/2006	**974**	7.95E+02	Ph A
SA3	SA3-40	40	11/13/2006	**86.7**	7.95E+02	Ph A
SA4	SA4-0.5	0.5	11/14/2006	**3140**	7.95E+02	Ph A
SA4	SA4-10	10	11/14/2006	**496**	7.95E+02	Ph A
SA4	SA4-20	20	11/14/2006	**3800**	7.95E+02	Ph A
SA4	SA4-30	30	11/14/2006	**42800**	7.95E+02	Ph A
SA4	SA4-40	40	11/14/2006	**73900**	7.95E+02	Ph A
M116	M116-0.5	0.5	03/12/2006	**600 J**	7.95E+02	UG[3]
M116	M116-0.5D	0.5	03/12/2006	**803 J**	7.95E+02	UG
M116	M116-05	5	03/12/2006	**1340 J**	7.95E+02	UG
M116	M116-10	10	03/12/2006	**202 J**	7.95E+02	UG
M116	M116-20	20	03/12/2006	**22.4 J**	7.95E+02	UG
M116	M116-30	30	03/12/2006	48.7 UJ	7.95E+02	UG
M116	M116-40	40	03/12/2006	46.7 UJ	7.95E+02	UG
M116	M116-50	50	03/12/2006	**273 J**	7.95E+02	UG

Notes:
1. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)
2. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
3. ENSR, 2006, Upgradient Investigation Results, Tronox Facility, Henderson, Nevada, October 30, 2006.

LOU 59 Area IV Table 14
Groundwater Characterization Data - Perchlorate

Storm Sewer System
Tronox Facility - Henderson, Nevada

Well ID Number	Sample ID	Sample Date	Perchlorate	Units	MCL[1] ug/L	Sampling Program
M-92	M-92	11/29/2006	**610**	ug/L	1.80E+01 a,(m)	Ph A[2]
M-97	M-97	11/29/2006	**74500**	ug/L	1.80E+01 a,(m)	Ph A

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. 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/perchlorate02_05.htm].

LOU 59 Area IV Table 15
Soil Characterization Data - Radionuclides

Storm Sewer System
Tronox Facility - Henderson, Nevada

				Ra-226	Ra-228	Th-228	Th-230	Th-232	U-233/234	U-235/236	U-238	
				(gamma)	(gamma)	(TH MOD)	(TH MOD)	(TH MOD)	(U MOD)	(U MOD)	(U MOD)	
				pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	
			PRG[1]	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**
SA3	SA3-0.5	0.5	11/13/2006	**0.997 J**	**1.81**							Ph A[2]
SA3	SA3-0.5D	0.5	11/13/2006	**1.13 J**	2.21 U							Ph A
SA3	SA3-10	10	11/13/2006	**1.01 J**	**1.65**	**0.691 J**	**0.554 J**	**0.601 J**	**0.427 J-**	**0.0123 UJ**	**0.292 J-**	Ph A
SA3	SA3-20	20	11/13/2006	**1.19 J**	**1.66**							Ph A
SA3	SA3-30	30	11/13/2006	**1.59 J**	0.357 U							Ph A
SA3	SA3-40	40	11/13/2006	**2.34**	0.913 U							Ph A
SA4	SA4-0.5	0.5	11/14/2006	**1.1 J**	**1.83**							Ph A
SA4	SA4-10	10	11/14/2006	**1.13 J**	**1.81**							Ph A
SA4	SA4-20	20	11/14/2006	**1.19 J**	**1.53**	**0.511 JB**	**0.875 J**	**0.706 J**	**1.35**	**0.0181 J**	**0.833**	Ph A
SA4	SA4-30	30	11/14/2006	**1.45 J**	**1.91**							Ph A
SA4	SA4-40	40	11/14/2006	**1.6 J**	**1.9**							Ph A

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

LOU 59 Area IV Table 16
Groundwater Characterization Data - Radionuclides

Storm Sewer System
Tronox 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	
		TW 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**
M-92	M-92-Z	05/08/2007	**0.241 J**	**0.736 J-**	0.00575 U	**0.0354 B**	0.0198 U	**3.01**	**0.0466 J**	**1.94**	Ph A[3]
M-97	M-97-Z	05/11/2007	**0.380 J**	**0.788 B**							Ph A

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 59 Area IV Table 17
Soil Characterization Data - SVOC

Storm Sewer System
Tronox Facility - Henderson, Nevada

		Sampling Program	Ph A[1]	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A
		Boring No.	SA3	SA3	SA3	SA3	SA3	SA3	SA4	SA4	SA4	SA4	SA4
		Sample ID	SA3-0.5	SA3-0.5D	SA3-10	SA3-20	SA3-30	SA3-40	SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40
		Sample Depth (ft)	0.5	0.5	10	20	30	40	0.5	10	20	30	40
		Sample Date	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006
SVOC	**Analytical Method**	**MSSL[2] mg/kg**	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
1,4-Dioxane	non-SIM	1.70E+02	71 U	70 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
2-Methylnaphthalene	non-SIM	2.10E+02 (jj)	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
2-Methylnaphthalene	SIM	2.10E+02 (jj)	7.1 U	7.0 U					7.3 U				
Acenaphthene	non-SIM	3.30E+04	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Acenaphthene	SIM	3.30E+04	7.1 U	7.0 U					7.3 U				
Acenaphthylene	non-SIM	3.30E+04 (pp)	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Acenaphthylene	SIM	3.30E+04 (pp)	7.1 U	7.0 U					7.3 U				
Anthracene	non-SIM	1.00E+05	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Anthracene	SIM	1.00E+05	7.1 U	7.0 U					7.3 U				
Benz(a)anthracene	non-SIM	2.30E+00	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Benz(a)anthracene	SIM	2.30E+00	7.1 U	7.0 U					7.3 U				
Benzo(a)pyrene	non-SIM	2.30E-01	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Benzo(a)pyrene	SIM	2.30E-01	7.1 U	7.0 U					7.3 U				
Benzo(b)fluoranthene	non-SIM	2.30E+00	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Benzo(b)fluoranthene	SIM	2.30E+00	7.1 U	7.0 U					7.3 U				
Benzo(g,h,i)perylene	non-SIM	3.20E+04 (w)	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Benzo(g,h,i)perylene	SIM	3.20E+04 (w)	7.1 U	7.0 U					7.3 U				
Benzo(k)fluoranthene	non-SIM	2.30E+01	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Benzo(k)fluoranthene	SIM	2.30E+01	7.1 U	7.0 U					7.3 U				
bis(2-Ethylhexyl)phthalate	non-SIM	1.40E+02	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Butyl benzyl phthalate	non-SIM	2.40E+02	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Chrysene	non-SIM	2.30E+02	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Chrysene	SIM	2.30E+02	7.1 U	7.0 U					7.3 U				
Dibenz(a,h)anthracene	non-SIM	2.30E-01	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Dibenz(a,h)anthracene	SIM	2.30E-01	7.1 U	7.0 U					7.3 U				
Diethyl phthalate	non-SIM	1.00E+05	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Dimethyl phthalate	non-SIM	1.00E+05	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Di-N-Butyl phthalate	non-SIM	6.80E+04	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Di-N-Octyl phthalate	non-SIM	--	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Fluoranthene	non-SIM	2.40E+04	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Fluoranthene	SIM	2.40E+04	7.1 U	7.0 U					7.3 U				
Fluorene	non-SIM	2.60E+04	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U

LOU 59 Area IV Table 17 (continued)
Soil Characterization Data - SVOC

Storm Sewer System
Tronox Facility - Henderson, Nevada

		Sampling Program	Ph A[1]	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A
		Boring No.	SA3	SA3	SA3	SA3	SA3	SA3	SA4	SA4	SA4	SA4	SA4
		Sample ID	SA3-0.5	SA3-0.5D	SA3-10	SA3-20	SA3-30	SA3-40	SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40
		Sample Depth (ft)	0.5	0.5	10	20	30	40	0.5	10	20	30	40
		Sample Date	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006
SVOC	**Analytical Method**	**MSSL[2] mg/kg**	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Fluorene	SIM	2.60E+04	7.1 U	7.0 U					7.3 U				
Hexachlorobenzene	non-SIM	1.20E+00	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Hexachlorobenzene	SIM	1.20E+00	7.1 U	**10**					**8.8**				
Indeno(1,2,3-cd)pyrene	non-SIM	2.30E+00	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Indeno(1,2,3-cd)pyrene	SIM	2.30E+00	7.1 U	7.0 U					7.3 U				
Naphthalene	non-SIM	2.10E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Naphthalene	non-SIM	2.10E+02	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Naphthalene	SIM	2.10E+02	7.1 U	7.0 U					7.3 U				
Nitrobenzene	non-SIM	1.10E+02	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Octachlorostyrene	non-SIM	--	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Phenanthrene	non-SIM	1.00E+05 (n)	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Phenanthrene	SIM	1.00E+05 (n)	7.1 U	7.0 U					7.3 U				
Pyrene	non-SIM	3.20E+04	350 U	350 U	350 U	360 U	430 U	490 U	360 U	350 U	360 U	380 U	350 U
Pyrene	SIM	3.20E+04	**7.0 J**	7.0 U					7.3 U				
Pyridine	non-SIM	6.80E+02	1700 U	1700 U	1700 U	1800 U	2100 U	2400 U	1800 U	1700 U	1700 U	1800 U	1700 U

Notes:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)
(jj) Value for naphthalene used as surrogate for 2-methylnaphthalene based on structural similarities.
(pp) Value for acenaphthene used as surrogate for acenapthylene 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 59 Area IV Table 18
Groundwater Characterization Data - SVOCs

Storm Sewer System
Tronox Facility - Henderson, Nevada

			Sampling Program	Ph A[1]	Ph A
			Well No.	M-92	M-97
			Sample ID	M-92	M-97
			Sample Date	11/29/2006	11/29/2006
SVOCs	**Analytic Method**	**MCL[2] ug/L**		ug/L	ug/L
1,4-Dioxane	non-SIM	6.11E+00	c	10 U	10 U
2-Methylnaphthalene	non-SIM	6.20E+00	c,(jj)	10 U	10 U
2-Methylnaphthalene	SIM	6.20E+00	c,(jj)		
Acenaphthene	non-SIM	3.65E+02	c	10 U	10 U
Acenaphthene	SIM	3.65E+02	c		
Acenaphthylene	non-SIM	3.65E+02	c,(pp)	10 U	10 U
Acenaphthylene	SIM	3.65E+02	c,(pp)		
Anthracene	non-SIM	1.83E+03	c	10 U	10 U
Anthracene	SIM	1.83E+03	c		
Benz(a)anthracene	non-SIM	9.21E-02	c	10 U	10 U
Benz(a)anthracene	SIM	9.21E-02	c		
Benzo(a)pyrene	non-SIM	2.00E-01		10 U	10 U
Benzo(a)pyrene	SIM	2.00E-01			
Benzo(b)fluoranthene	non-SIM	9.21E-02	c	10 U	10 U
Benzo(b)fluoranthene	SIM	9.21E-02	c		
Benzo(g,h,i)perylene	non-SIM	1.83E+02	c,(w)	10 U	10 U
Benzo(g,h,i)perylene	SIM	1.83E+02	c,(w)		
Benzo(k)fluoranthene	non-SIM	9.21E-01	c	10 U	10 U
Benzo(k)fluoranthene	SIM	9.21E-01	c		
bis(2-Ethylhexyl)phthalate	non-SIM	6.00E+00		**3.2 J**	**1.5 J**
Butyl benzyl phthalate	non-SIM	7.30E+03	c	10 U	10 U
Chrysene	non-SIM	9.21E+00	c	10 U	10 U
Chrysene	SIM	9.21E+00	c		
Dibenz(a,h)anthracene	non-SIM	9.21E-03	c	10 U	10 U
Dibenz(a,h)anthracene	SIM	9.21E-03	c		
Diethyl phthalate	non-SIM	2.92E+04	c	10 U	10 U
Dimethyl phthalate	non-SIM	3.65E+05	c	10 U	10 U
Di-N-Butyl phthalate	non-SIM	3.65E+03	c	10 U	10 U
Di-N-Octyl phthalate	non-SIM	1.46E+03	c	10 U	10 U
Fluoranthene	non-SIM	1.46E+03	c	10 U	10 U
Fluoranthene	SIM	1.46E+03	c		
Fluorene	non-SIM	2.43E+02	c	10 U	10 U
Fluorene	SIM	2.43E+02	c		
Hexachlorobenzene	non-SIM	1.00E+00		10 U	10 U
Hexachlorobenzene	SIM	1.00E+00			
Indeno(1,2,3-cd)pyrene	non-SIM	9.21E-02	c	10 U	10 U
Indeno(1,2,3-cd)pyrene	SIM	9.21E-02	c		
Naphthalene	non-SIM	6.20E+00	c	5.0 U	5.0 U
Naphthalene	non-SIM	6.20E+00	c	10 U	10 U

LOU 59 Area IV Table 18 (continued)
Groundwater Characterization Data - SVOC

Storm Sewer System
Tronox Facility - Henderson, Nevada

		Sampling Program		Ph A[1]	Ph A
		Well No.		M-92	M-97
		Sample ID		M-92	M-97
		Sample Date		11/29/2006	11/29/2006
SVOCs	**Analytic Method**	**MCL[2] ug/L**		ug/L	ug/L
Naphthalene	SIM	6.20E+00	c		
Nitrobenzene	non-SIM	3.40E+00	c	10 U	10 U
Octachlorostyrene	non-SIM	--	c	10 U	10 U
Phenanthrene	non-SIM	1.80E+03	(n)	10 U	10 U
Phenanthrene	SIM	1.80E+03	(n)		
Pyrene	non-SIM	1.83E+02	c	10 U	10 U
Pyrene	SIM	1.83E+02	c		
Pyridine	non-SIM	3.65E+01	c	20 U	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 acenapthylene 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 59 Area IV Table 19
Soil Characteristic Data - TPH and Fuel Alcohols

Storm Sewer System
Tronox 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	
			MSSL[1] mg/kg	--	1.00E+05	1.00E+05	1.00E+02 vv	1.00E+02 vv	1.00E+02 vv	
Boring No.	Sample ID.	Sample Depth (ft)	Sample Date							Sampling Program
SA3	SA3-0.5	0.5	11/13/2006	53 UJ	92 UJ	53 UJ	27 U	27 U	0.11 U	Ph A[2]
SA3	SA3-0.5D	0.5	11/13/2006	53 UJ	87 UJ	53 UJ	27 U	27 U	0.11 U	Ph A
SA3	SA3-10	10	11/13/2006	53 UJ	79 UJ	53 UJ	27 U	27 U	0.11 U	Ph A
SA3	SA3-20	20	11/13/2006	55 UJ	89 UJ	55 UJ	27 U	27 U	0.11 U	Ph A
SA3	SA3-30	30	11/13/2006	64 UJ	118 UJ	64 UJ	32 U	32 U	0.13 U	Ph A
SA3	SA3-40	40	11/13/2006	74 UJ	115 UJ	74 UJ	37 U	37 U	0.15 U	Ph A
SA4	SA4-0.5	0.5	11/14/2006				43	27 U	0.11 U	Ph A
SA4	SA4-10	10	11/14/2006				27 U	27 U	0.11 U	Ph A
SA4	SA4-20	20	11/14/2006				27 U	27 U	0.11 U	Ph A
SA4	SA4-30	30	11/14/2006				29 U	29 U	0.11 U	Ph A
SA4	SA4-40	40	11/14/2006				27 U	27 U	0.11 UJ	Ph A
M116	M116-0.5	0.5	03/12/2006	1.1 U	42 U	R	11 U	11 U	1.1 U	UG[3]
M116	M116-0.5D	0.5	03/12/2006	1.1 U	43 U	R	11 U	11 U	1.1 U	UG
M116	M116-0.5R	0.5	03/12/2006	1.1 U		1.1 U				UG
M116	M116-05	5	03/12/2006	1.1 U	45 U	2.4 Z	11 U	11 U	1.1 U	UG
M116	M116-10	10	03/12/2006	1.1 U	43 U	1.2 Z	11 U	11 U	1.3 U	UG
M116	M116-30	30	03/12/2006	1.2 U	49 U	11 Z	12 U	12 U	1.2 U	UG
M116	M116-50	50	03/12/2006	1.2 U	50 U	2.1 Z	12 U	12 U	1.2 U	UG

Notes:
1. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)
2. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility - Henderson, Nevada, September 2007.
3. ENSR, 2006, Upgradient Investigation Results, Tronox Facility, Henderson, Nevada, October 30, 2006.
(vv) Nevada Administrative Code 445A.2272. Contamination of soil: Establishment of action levels. NAC 445A.2272.1.b.

LOU 59 Area IV Table 20
Soil Characterization Data - VOCs

Storm Sewer System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	UG[2]	UG	UG	UG	UG	UG
Boring No.		SA3	SA3	SA3	SA3	SA3	SA3	SA4	SA4	SA4	SA4	SA4	M116	M116	M116	M116	M116	M116
Sample ID		SA3-0.5	SA3-0.5D	SA3-10	SA3-20	SA3-30	SA3-40	SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40	M116-0.5	M116-0.5D	M116-5	M116-10	M116-30	M116-50
Sample Depth (ft)		0.5	0.5	10	20	30	40	0.5	10	20	30	40	0.5	0.5	5	10	30	50
Sample Date		11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006
VOCs	MSSL[3] mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Naphthalene	2.10E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,1,1,2-Tetrachloroethane	7.60E+00	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,1,1-Trichloroethane	1.40E+03	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,1,2,2-Tetrachloroethane	9.70E-01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,1,2-Trichloroethane	2.10E+00	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,1-Dichloroethane	2.30E+03	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,1-Dichloroethene	4.70E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,1-Dichloropropene	1.75E+00 (gg)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,2,3-Trichlorobenzene	2.60E+02 (hh)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	2.2 J	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,2,3-Trichloropropane	1.60E+00	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,2,4-Trichlorobenzene	2.60E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,2,4-Trimethylbenzene	2.20E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,2-Dibromo-3-chloropropane	2.00E-02	5.3 UJ	5.3 UJ	5.3 UJ	5.5 UJ	6.4 UJ	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,2-Dichlorobenzene	3.70E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,2-Dichloroethane	8.40E-01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,2-Dichloropropane	8.50E-01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,3,5-Trimethylbenzene	7.80E+01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,3-Dichlorobenzene	1.40E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,3-Dichloropropane	4.10E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
1,4-Dichlorobenzene	8.10E+00	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
2,2-Dichloropropane	8.50E-01 (ii)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 UJ	5.9 UJ	7.8 UJ	7 UJ	7.9 UJ	5.9 UJ
2-Butanone	3.40E+04	11 U	11 U	11 U	11 U	13 U	15 UJ	11 U	11 U	11 U	11 U	11 U	9.8 U	12 U	16 U	14 U	16 U	12 U
2-Chlorotoluene	5.10E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
2-Hexanone	1.72E+04 (nn)	11 UJ	11 UJ	11 UJ	11 UJ	13 UJ	15 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ	9.8 U	12 U	16 U	14 U	16 U	12 U
2-Methoxy-2-methyl-butane	--	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
4-Chlorotoluene	5.10E+02 (ww)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
4-Isopropyltoluene	--	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
4-Methyl-2-pentanone	1.70E+04	11 UJ	11 UJ	11 UJ	11 UJ	13 UJ	15 UJ	11 U	11 U	11 U	11 U	11 U	9.8 U	12 U	16 U	14 U	16 U	12 U
Acetone	6.00E+04	11 U	11 U	11 U	11 U	13 U	15 UJ	11 U	11 U	11 U	11 U	11 U	12 U	22 U	8.7 J	14 U	16 U	12 U
Benzene	1.60E+00	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Bromobenzene	1.20E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Bromochloromethane	1.75E+00 (qq)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Bromodichloromethane	2.60E+00	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Bromoform	2.40E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Bromomethane	1.50E+01	11 U	11 U	11 U	11 U	13 U	15 UJ	11 U	11 U	11 U	11 U	11 U	9.8 U	12 U	16 U	14 U	16 U	12 U
Carbon tetrachloride	5.80E-01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Chlorobenzene	5.00E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Chloroethane	7.20E+00	5.3 UJ	5.3 UJ	5.3 UJ	5.5 UJ	6.4 UJ	7.4 UJ	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Chloroform	5.80E-01	5.3 U	5.3 U	5.3 U	5.5 U	1.0 J	3.9 J	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Chloromethane	1.70E+02	5.3 UJ	5.3 UJ	5.3 UJ	5.5 UJ	6.4 UJ	7.4 UJ	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
cis-1,2-Dichloroethene	1.60E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
cis-1,3-Dichloropropene	1.75E+00 (gg)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Dibromochloromethane	2.60E+00	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Dibromomethane	5.90E+02 (xx)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U

LOU 59 Area IV Table 20 (continued)
Soil Characterization Data - VOCs

Storm Sewer System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	Ph A	UG[2]	UG	UG	UG	UG	UG
	Boring No.	SA3	SA3	SA3	SA3	SA3	SA3	SA4	SA4	SA4	SA4	SA4	M116	M116	M116	M116	M116	M116
	Sample ID	SA3-0.5	SA3-0.5D	SA3-10	SA3-20	SA3-30	SA3-40	SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40	M116-0.5	M116-0.5D	M116-5	M116-10	M116-30	M116-50
	Sample Depth (ft)	0.5	0.5	10	20	30	40	0.5	10	20	30	40	0.5	0.5	5	10	30	50
	Sample Date	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/13/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006	03/12/2006
VOCs	MSSL[3] mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Dichlorodifluoromethane	3.40E+02	5.3 UJ	5.3 UJ	5.3 UJ	5.5 UJ	6.4 UJ	7.4 UJ	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Ethyl t-butyl ether (kk)	7.90E+01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Ethylbenzene	2.30E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Ethylene dibromide	7.00E-02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Hexachlorobutadiene	2.50E+01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
isopropyl ether	--	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Isopropylbenzene	5.80E+02 (zz)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Methyl tert butyl ether	7.90E+01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Methylene chloride	2.20E+01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ	9.8 U	12 U	16 U	14 U	16 U	12 U
N-Butylbenzene	2.40E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
N-Propylbenzene	2.40E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
sec-Butylbenzene	2.20E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Styrene	1.70E+03	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
t-Butyl alcohol	--	11 UJ	11 UJ	11 UJ	11 UJ	13 UJ	15 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ	R	R	R	R	R	R
tert-Butylbenzene	3.90E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Tetrachloroethene	1.70E+00	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Toluene	5.20E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
trans-1,2-Dichloroethylene	2.00E+02	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
trans-1,3-Dichloropropene	1.75E+00 (gg)	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Trichloroethene	1.00E-01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Trichlorofluoromethane	1.40E+03	5.3 UJ	5.3 UJ	5.3 UJ	5.5 UJ	6.4 UJ	7.4 UJ	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Vinylchloride	8.60E-01	5.3 U	5.3 U	5.3 U	5.5 U	6.4 U	7.4 UJ	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U	4.9 U	5.9 U	7.8 U	7 U	7.9 U	5.9 U
Xylene (Total)	2.10E+02	11 U	11 U	11 U	11 U	13 U	15 UJ	11 U	11 U	11 U	11 U	11 U	9.8 U	12 U	16 U	14 U	16 U	12 U

Notes:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility - Henderson, Nevada, September 2007.
2. ENSR, 2006, Upgradient Investigation Results, Tronox Facility, Henderson, Nevada, October 30, 2006.
(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.
(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 MSSL table.

LOU 59 Area IV Table 21
Groundwater Characteristic Data - VOCs

Storm Sewer System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A
	Well ID	M-92	M-97
	Sample ID	M-92	M-97
	Sample Date	11/29/2006	11/29/2006
VOCs	MCL[2] ug/L	ug/L	ug/L
Naphthalene	6.20E+00 c	5.0 U	5.0 U
1,1,1,2-Tetrachloroethane	4.32E-01 c	5.0 U	5.0 U
1,1,1-Trichloroethane	2.00E+02	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5.00E+00	5.0 U	5.0 U
1,1,2-Trichloroethane	5.00E+00	5.0 U	5.0 U
1,1-Dichloroethane	8.11E+02 c	5.0 U	5.0 U
1,1-Dichloroethene	7.00E+00	**14**	**5.4**
1,1-Dichloropropene	3.95E-01 c,gg	5.0 U	5.0 U
1,2,3-Trichlorobenzene	7.16E+00 c,hh	5.0 U	5.0 U
1,2,3-Trichloropropane	5.60E-03 c,yy	5.0 U	5.0 U
1,2,4-Trichlorobenzene	7.00E+01	5.0 U	5.0 U
1,2,4-Trimethylbenzene	1.23E+01	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane	2.00E-01	5.0 U	5.0 U
1,2-Dichlorobenzene	6.00E+02	5.0 U	5.0 U
1,2-Dichloroethane	5.00E+00	5.0 U	5.0 U
1,2-Dichloropropane	5.00E+00	5.0 U	5.0 U
1,3,5-Trimethylbenzene	1.23E+01 c	5.0 U	5.0 U
1,3-Dichlorobenzene	1.83E+02 c	5.0 U	5.0 U
1,3-Dichloropropane	1.22E+02 c	5.0 U	5.0 U
1,4-Dichlorobenzene	7.50E+01	**0.76 J**	5.0 U
2,2-Dichloropropane	1.65E-01 c,ii	5.0 U	5.0 U
2-Butanone	6.97E+03 c	10 U	10 U
2-Chlorotoluene	1.22E+02 c	5.0 U	5.0 U
2-Hexanone	2.00E+03 c,nn	10 UJ	10 UJ
2-Methoxy-2-methyl-butane	--	5.0 U	5.0 U
4-Chlorotoluene	1.22E+02 c,ww	5.0 U	5.0 U
4-Isopropyltoluene	--	5.0 U	5.0 U
4-Methyl-2-pentanone	1.99E+03 c	10 U	10 U
Acetone	5.48E+03 c	10 U	10 U
Benzene	5.00E+00	5.0 U	5.0 U
Bromobenzene	2.03E+01 c	5.0 U	5.0 U
Bromochloromethane	1.81E-01 c,qq	5.0 U	5.0 U
Bromodichloromethane	8.00E+01 r	5.0 U	5.0 U
Bromoform	8.00E+01 r	5.0 U	5.0 U
Bromomethane	8.66E+00 c	10 UJ	10 UJ
Carbon tetrachloride	5.00E+00	5.0 U	5.0 U
Chlorobenzene	1.00E+02 c,o	5.0 U	5.0 U
Chloroethane	4.64E+00	5.0 UJ	5.0 UJ
Chloroform	8.00E+01 r	30	12
Chloromethane	1.58E+02 c	5.0 UJ	5.0 UJ
cis-1,2-Dichloroethene	7.00E+01	5.0 U	5.0 U
cis-1,3-Dichloropropene	3.95E-01 c,gg	5.0 U	5.0 U
Dibromochloromethane	8.00E+01 r	5.0 U	5.0 U
Dibromomethane	6.08E+01 c,xx	5.0 U	5.0 U
Dichlorodifluoromethane	3.95E+02 c	5.0 UJ	5.0 UJ
Ethyl t-butyl ether	1.10E+01 c,kk	5.0 U	5.0 U
Ethylbenzene	7.00E+02	5.0 U	5.0 U
Ethylene dibromide	--	5.0 U	5.0 U

LOU 59 Area IV Table 21 (continued)
Groundwater Characteristic Data - VOCs

Storm Sewer System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A
	Well ID	M-92	M-97
	Sample ID	M-92	M-97
	Sample Date	11/29/2006	11/29/2006
VOCs	**MCL[2] ug/L**	ug/L	ug/L
Hexachlorobutadiene	8.62E-01 c	5.0 U	5.0 U
isopropyl ether	--	5.0 U	5.0 U
Isopropylbenzene	6.58E+02 c,zz	5.0 U	5.0 U
Methyl tert butyl ether	2.00E+01 a,uu	5.0 U	5.0 U
Methylene chloride	5.00E+00	5.0 U	5.0 U
N-Butylbenzene	2.43E+02 c	5.0 U	5.0 U
N-Propylbenzene	2.43E+02 c	5.0 U	5.0 U
sec-Butylbenzene	2.43E+02 c	5.0 U	5.0 U
Styrene	1.00E+02	5.0 U	5.0 U
t-Butyl alcohol	--	10 UJ	10 UJ
tert-Butylbenzene	2.43E+02 c	5.0 U	5.0 U
Tetrachloroethene	5.00E+00	5.0 U	5.0 U
Toluene	1.00E+03	5.0 U	5.0 U
trans-1,2-Dichloroethylene	1.00E+02	5.0 U	5.0 U
trans-1,3-Dichloropropene	--	5.0 U	5.0 U
Trichloroethene	5.00E+00	**3.8 J**	5.0 U
Trichlorofluoromethane	--	5.0 UJ	5.0 UJ
Vinylchloride	2.00E+00	5.0 UJ	5.0 UJ
Xylene (Total)	1.00E+04	10 U	10 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.

(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.
(o) See footnote (b). Listed under synonym monochlorobenzene.
(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.
(uu) NDEP, 1998. Oxygenated Fuel Corrective Action Guidance. Draft. October, 12 1998. URL [http://ndep.nv.gov/bca/mtbe_doc.htm].

LOU 59 Area IV Table 22
Soil Characterization Data - Long Asbestos Fibers in Respirable Soil Fraction

Storm Sewer System
Tronox Facility - Henderson, Nevada

			Long Amphibole Protocol Structures	Long Amphibole Protocol Structures	Long Chrysotile Protocol Structures	Long Chrysotile Protocol Structures	Sampling Program
Boring No.	**Sample ID**	**Sample Date**	s/gPM10	(structures/samples)	s/gPM10	(structures/samples)	
SA3	SA3	12/02/2006	**7970000**	**1**	**7970000**	0	Ph A[1]
SA4	SA4	12/07/2006	2946000 U	0	**38300000**	**13**	Ph A

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

LOU 59 Area IV
Notes for Phase A Data Tables

Storm Sewer System
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.
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	Soluable 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