Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Name of LOU: **Acid Drain System in Area II**

Goal of Closure:

- Closure for commercial/industrial future use.

Site Investigation Area:

- Size: Approximately 21,100 linear feet throughout the Site.
  - Approximately 5,620 linear feet in Area II.
- Location: Central portion of the Site, in the vicinity of Units 3 and 4 and north of the Chemstar facility.
- Current Status/Features: The Acid Drain System is currently inactive and inlet drains have been plugged. The system is a subsurface feature in the vicinity of the Units 3 and 4 and north of the Chemstar facility. In the northern portion of Area II the system consisted of an above ground flume.

Description:

<u>Acid Drain System in Area II</u>

- Between 1945 and 1976, the segments of the Acid Drain System in the southern portion of Area II may have carried effluent from the basements of Units 3 and 4 [Ref. 3].
- Effluent from LOU 45 (Diesel Storage Tanks), located north of the Chemstar facility, may potentially have entered a segment of the Acid Drain System that originated in the Chemstar facility. The tank farm at LOU 45 reportedly consisted of one 500,000-gallon aboveground tank (AST) and one 18,000-gallon AST. [Ref. 3].
- One segment of the Acid Drain System located north of LOUs 8, 7, and 14 carried effluent from on-site and off-site sources to the west.
- Potentially effluent from LOU 7 (Old P-2 Pond and Associated Conveyance Facilities), LOU 8 (Old P-3 Pond and Associated Conveyance Facilities) and LOU 14 (Pond P-1 and Associated Piping) may have impacted a segment of the Acid Drain System that originated to the west of the Site.
- The above-ground flume in Area II, traversed LOU 57 (AP Plant Transfer Lines to Sodium Chlorate Process, AP Plant SIs and Transfer Lines) and two of the ponds in LOUs 16 and 17 (Ponds AP-1, AP-2 and AP-3 and Associated Piping).

A description of the Site-wide extent of the Acid Drain 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.

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Phase B Source Area Investigations for the segments of the Acid Drain System in Area II are discussed in the "Proposed Phase B Soil Investigation/Rationale" section of this LOU Summary document.

- The Acid Drain System consisted of a network of pipes, sumps and treatment areas used to collect waste acid effluent from throughout the BMI Complex in the 1940s [Ref. 3].
- Acid-resistant materials were used to construct components of the Acid Drain System [Ref. 3].

Circa 1941 or 1942 to November 1945:

- The Acid Drain System was utilized until 1945, during production of magnesium metal at the BMI Complex [Ref. 3].
- The Acid Drain System received acid effluent from various sources in the BMI Complex including the following [Ref. 3]:
  - the chlorine plant (located west of the Site on Olin Chemical LLC property);
  - the preparation building (present day location is within the Chemstar area);
  - the flux plant (present-day location unknown) and neutralization area (presently occupied by the Mn Leach Plant); and
  - all 10 chlorination buildings and associated electrolysis buildings (Units 1 through 10).
- The Acid Drain System had a single outfall point located west of the Acid Effluent Neutralization Plant (present-day location is north of the Tronox Steam Plant) [Ref. 3].
- Acid effluent was originally neutralized (using waste caustic liquor from the chlorine plant) prior to disposal in the Trade Effluent Settling Ponds (LOU 1) [Ref. 3].
- From the Acid Effluent Neutralization Plant (part of the LOU 60 system), effluent was transported along a surface conveyance (e.g., a flume) for disposal in the Trade Effluent Settling Ponds (LOU 1) [Ref. 3].
- Acid neutralization was discontinued when the pipeline carrying caustic liquor to the Acid Effluent Neutralization Plant disintegrated [Ref. 3].
- Since then, un-treated acid waste was apparently discharged directly to the Trade Effluent Settling Ponds (LOU 1) [Ref. 3].

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

1945 – 1976:

- Use of the Acid Drain System after 1945 is not well documented [Refs. 1 and 3].
- The Acid Drain System was used by several companies to discharge various wastes from 1945 to 1976 [Ref. 3].
- Segments of the Acid Drain System may have carried effluent from the basements of Units 1 through 5. As a result, this segment of the system could have carried effluents from State Industries, a Timet shop (location unknown), Jones Chemical, a Stauffer office building, and U.S. Lime (Chemstar) [Ref. 3].
- Another segment of the Acid Drain System provided drainage from the Unit 6 manganese dioxide process and various portions of Timet [Ref. 3].
- Between 1945 and 1990, Unit 5 was used to produce sodium perchlorate. Process waste streams may have been discharged from Unit 5 into the Acid Drain System [Ref. 3].
- Magnesium perchlorate was produced in Unit 5 between 1969 and 1976. Process waste streams were discharged from this process through the Acid Drain System [Ref. 3].
- Review of a July 11, 1950 aerial photograph indicates that the flume that conveyed waste from the Acid Effluent Neutralization Plant to the Trade Effluent Settling Ponds (LOU 1) had been removed. Discharges from the Acid Drain System after this conveyance was disconnected, would have followed surface drainage patterns and entered the Beta Ditch (LOU 5) [Ref. 3].

Post 1976:

- A March 16, 1984 letter from Kerr-McGee Chemical Corporation to NDEP indicates that the Acid Drain System was plugged many years ago, and that the basement drains in Units 4 and 5 were being sealed with concrete in March 1984 [Ref. 3].

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Process Waste Streams Associated with LOU 60	Known or Potential Constituents Associated with LOU 60
Process Waste Streams from magnesium production during U.S. Government activities [Ref. 3]: - Caustic liquor - Acid process liquors - Magnesium chloride solutions	• Metals (Magnesium) • Sodium hydroxide • Hydrochloric acid solutions • Chlorides
Acid spills from within an acid storage tank [Ref. 3].	• Inorganic acids (hydrochloric or sulfuric acid) • Wet chemistry analytes
Effluent from drains in basements of Units 1 and 2 prior to 1984 [Ref. 3].	• Metals (hexavalent chromium, magnesium, and boron) • Phosphates • Chlorides • Perchlorate • Ammonia • Chlorate • Wet chemistry analytes
Unknown effluents from off-site facilities (Timet, Jones Chemical, Chemstar and Stauffer) were discharged into the Acid Drain System from 1945 through 1976.	• Metals • Hexavalent chromium • Sulfates • Wet chemistry analytes • VOCs • SVOCs • TPH • Organochlorine pesticides
Process Waste Stream Associated with LOU 45	**Known or Potential Constituents Associated with LOU 45**
Diesel fuel releases	• Metals • VOCs • SVOCs • TPH-DRO

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Process Waste Streams Associated with LOU 43 (Unit 4 Basement and Old Sodium Chlorate Plant Decommissioning)	Known or Potential Constituents Associated with LOU 43 (Unit 4 Basement and Old Sodium Chlorate Plant Decommissioning)
Process liquor, spillage and washwater collected in basements of Units 4 and 5 [Ref. 3].	• Metals (magnesium, boron) • Hexavalent chromium • Chlorate • Perchlorate • Ammonia • Wet chemistry analytes
Effluent solutions from chlorates, perchlorates and magnesium metal processes in Unit 4 between 1945 and 1983 [Ref. 3].	• Metals • Hexavalent chromium • Perchlorate • Ammonia • Chlorate • Wet chemistry analytes
Prior to 1976 – Brine rinse and wash-water from water softeners from sodium perchlorate process in Unit 5 [Ref. 3].	• Metals • Wet chemistry analytes
Unit 5 cooling tower blowdown and reboiler wastes discharged between 1972 to prior to January 1976 [Ref. 3].	• Metals (manganese) • Hexavalent chromium • Hexametaphosphates • Neutralized sulfuric acid • Sodium • Sulfite and borate ions
Condensate from various steam traps, and wash-water from trenches along the north wall of cell floor in Unit 5 [Ref. 3].	• Metals (magnesium) • Hexavalent chromium • Chlorides • Phosphates • Perchlorate • Chlorate • Ammonia • Wet chemistry analytes
Boron process neutralization tank waste solution from Unit 5 [Ref. 3].	• Metals (boron) • Magnesium sulfate • Neutralized sulfuric acid • Neutralized boric acid
Halide wall solid and screen filter wastes from Unit 5 were sluiced and discharged to the BMI ponds via the Acid Drain System prior to January 1976 [Ref. 3].	• Solid silicate scale

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Process Waste Streams Associated with LOU 62 (State Industries, Inc. Site) that May Have Been Conveyed by LOU 60 to the Flume	Known or Potential Constituents Associated with LOU 62 (State Industries, Inc. Site)
Pickling process wastes from the State Industries process line and the surface impoundment that was periodically drained for pond maintenance [Ref. 3].	• Metals (iron, total chromium, barium, arsenic, cadmium, lead, and selenium) • Sulfuric acid • Borax • Soda ash • Phosphates • pickle liquor ($FeSO_4$) • TURCO II HTC Soap • Wet chemistry analytes
Neutralized and un-neutralized waste cyanide solution [Ref. 3].	• Cyanide
Process Waste Streams Associated with LOU 44 (Unit 6) that May Have Been Conveyed by LOU 60	**Known or Potential Constituents Associated with LOU 44 (Unit 6)**
Solutions from basement of Unit 6 [Ref. 3].	• Metals (hexavalent chromium) • Manganese sulfates
Ammonium Perchlorate process waste including filter slurry [Ref. 3].	• Metals (chromium) • Ammonia • Perchlorate • Wet chemistry analytes
Process Waste Streams Associated with LOU 4 (Hardesty Chemical Site) that May Have Been Conveyed by LOU 60 to the Flume	**Known or Potential Constituents Associated with LOU 4 (Hardesty Chemical Site)**
Effluents from Hardesty Chemical Site [Ref. 3].	• Metals • Wet chemistry analytes • VOCs • SVOCs • TPH • Organochlorine pesticides

Summary of Available Data for LOU 60 Acid Drain System in Area II

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Process Waste Streams Associated with LOU 27 (PCB Storage Area) that May Have Been Conveyed by LOU 60 to the Flume	Known or Potential Constituents Associated with LOU 27 (PCB Storage Area)
PCB cooling oil, PCB containing waste oil from transformer servicing, drums of solid waste from maintenance activities (PCB contaminated rags, oil sorb, and concrete).	• PCBs • TPH
Process Waste Streams Associated with LOU 28 (Hazardous Waste Storage Area) that May Have Been Conveyed by LOU 60 to the Flume	**Known or Potential Constituents Associated with LOU 28 (Hazardous Waste Storage Area)**
Non-hazardous and hazardous wastes	• Used oil • Flammable maintenance parts washing wastes • Hexavalent chromium-contaminated material • Miscellaneous compatible wastes

Overlapping or Adjacent LOUs:

The following LOUs in Area II overlap or are adjacent to LOU 60:

Overlapping LOUs

- LOU 57 (AP Plant Transfer Lines to Sodium Chlorate Process, AP Plant SIs and Transfer Lines) – Overlaps the flume of LOU 60 in the northern portion of Area II.
- LOU 5 (Beta Ditch) – Overlaps the flume of LOU 60 in the northern portion of Area II.
- LOUs 16 and 17 (Ponds AP-1, AP-2 and AP-3 and Associated Transfer Lines) – Overlaps the flume of LOU 60 in the northern portion of Area II.
- LOU 8 (Old P-3 Pond and Associated Conveyance Facilities) – Overlaps a segment of LOU 60 that originates to the west of the Site.
- LOU 7 (Old P-2 Pond and Associated Conveyance Facilities) – Overlaps a segment of LOU 60 that originates to the west of the Site.
- LOU 14 (Pond P-1 and Associated Conveyance Piping) – Overlaps a segment of LOU 60 that originates to the west of the Site.
- LOU 45 (Diesel Storage Tanks) – Overlaps a segment of LOU 60 that originates from the Chemstar property.
- LOU 12 (Hazardous Waste Storage Area) – Overlaps a segment of LOU 60 located between Units 3 and 4.

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

- LOU 43 (Unit 4 Basement) – Overlaps several of the southern segments of LOU 60 that originate in Unit 4 Basement.

Adjacent LOUs

- LOU 9 (New P-2 Pond and Associated Piping) – The southern boundary of LOU 9 is located north (downgradient) of a portion of LOU 60.
- LOU 13 (Pond S-1) – The southern boundary of LOU 13 is located north (downgradient) of a portion of LOU 60.
- LOU 15 (Platinum Drying Unit) – The northern boundary of LOU 15 is located south (upgradient) of a portion of LOU 60.
- LOU 11 (Sodium Chlorate Filter Cake Holding Area) – Located west (cross-gradient) and south (upgradient) of LOU 60.

Known or potential chemical classes associated with adjacent or overlapping LOUs are consistent with those listed for LOU 60; therefore, the addition of other chemical classes to the Phase B Analytical Plan for LOU 60 is not required.

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

Other LOUs Potentially Affecting Soils in LOU 60:

- LOU 4 – Former Hardesty Chemical Company: Process waste streams from LOU 4 may have been discharged to the Acid Drain System between 1946 and 1947. As a result, the analytical plan for samples collected from LOU 60 will include analyses for VOCs, SVOCs, TPH, and OCPs.
- LOU 61 – Unit 5 Basement: Process waste streams from this LOU may have been discharged to the Acid Drain System prior to 1984. As a result, the analytical plan for samples collected from LOU 60 will include analyses for perchlorate.
- LOU 62 – State Industries Inc. Site: Process waste streams from LOU 62 may have been discharged to the Acid Drain System [Ref. 3]. As a result, the analytical plan for samples collected from LOU 60 will include analyses for cyanide.
- LOU 44 – Unit 6 Basement: Process waste from the manganese dioxide production in Unit 6 was discharged to the Acid Drain System prior to 1976. Known or potential chemical classes associated with LOU 44 are consistent with those listed for LOU 60; therefore, the addition of other chemical classes to the Phase B Analytical Plan for LOU 60 is not required.

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

For further information on these LOUs, please refer to the specific LOU data packages.

Known or Potential Chemical Classes:

- Metals
- Hexavalent chromium
- Cyanide (associated with LOU 62)
- Perchlorate (associated with LOU 43 & 61)
- Wet chemistry analytes
- VOC (associated with LOU 4)
- SVOC (associated with LOU 4)
- TPH (associated with LOU 4)
- Organochlorine pesticides (associated with LOU 4)

Known or Potential Release Mechanisms:

- Releases to soil, surface water, or groundwater could have been waste constituent pathways associated with the Acid Drain System [Ref. 3].
- Releases to soil could have occurred due to breakage of liner pipes or from leakage at pipe joints and connections (no releases documented) [Ref. 3].
- If releases occurred on an on-going basis, migration to groundwater was possible (no releases documented) [Ref. 3].
- If constituents were present in waters conveyed by the surface drainage system, they could have discharged to the surface water of Beta Ditch during infrequent flow events of that channel [Ref. 3].

Results of Historical Sampling:

- No historical soil sampling is known to have been specifically conducted for LOU 60.
- Downgradient and upgradient monitoring wells M-34, M-17A, I-AR, and M-2A are routinely tested for hexavalent chromium, perchlorate, and TDS as part of a routine groundwater monitoring program. See attached LOU 60 Table 6 for a summary of historical analytical results [Ref. 4].

Did Historical Samples Address Potential Release?

- No

Summary of Phase A SAI:

<u>Soil</u>

- Phase A Investigation borings SA06 and SA11 are located adjacent or in close proximity to the pipelines for LOU 60 in Area II. These borings were specifically sampled to evaluate LOU 60 [Ref. 2].

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

- Phase A Investigation boring SA05 is located adjacent (upgradient) and in very close proximity to LOU 60. However, this boring was not specifically sampled to evaluate LOU 60.

Groundwater

- Phase A Investigation wells M-13 and M-12A are located near the pipelines for LOU 60 and were sampled specifically to evaluate this LOU [Ref. 2].

Chemical classes detected in Phase A soil borings SA05, SA06 and SA11:

- Metals
- Hexavalent chromium
- Perchlorate
- Wet chemistry analytes
- VOCs
- SVOCs (SA05 only)
- Organochlorine pesticides (SA05 and SA11 only)
- Dioxins/furans
- Radionuclides
- Asbestos (SA05 only)

As a result of the Phase A data, the Phase B analytical plan for samples collected from LOU 60 in Area II 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 60 Tables 1 through 5 and LOU 60 Tables 7 through 22 (see attached) [Ref. 2].

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

No

Is Phase B Investigation Recommended?

Yes

Proposed Phase B Soil Investigation/Rationale:

The Phase B investigation of this segment of LOU 60 consists of collecting soil samples from the following 19 locations:

- Five (5) soil borings will be drilled along the routes of LOU 60.
- Five (5) soil borings will be drilled south (upgradient) of LOU 60.
- Five (5) soil boring will be drilled north (downgradient) of LOU 60.
- Four (4) soil borings will be drilled east (cross-gradient) of LOU 60.

- The 19 borings along with the analytical program to evaluate soil samples from LOU 60 area listed on **Table A: Soil Sampling and Analytical Plan for LOU 60.**

- 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 60, based on the known process waste streams.
  - Seventeen (17) of the 19 sample locations are judgmental locations and consist of soil borings SA64, SA198, SA154, SA50, SA45, SA42, SA125, SA30, SA126, SA102, SA187, SA188, SA172, SA41, SA40, SA161, and SA32.
- Random sample grid locations:
  - Are designed to assess whether unknown constituents associated with LOU 60 are present.
  - Two (2) soil boring RSAQ6 and RSAR6 are randomly-placed sample locations.

Proposed Chemical Classes for Phase B Investigation for soils:

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

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

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Proposed Phase B Groundwater Investigation/Rationale:

The Phase B groundwater investigation of LOU 60 in Area II consists of collecting groundwater samples from eleven (11) locations to evaluate local groundwater conditions and as part of Site-wide evaluation of constituent trends in groundwater.

- Well M-110 located beneath LOU 60 will be used to evaluate local and area-wide groundwater conditions.
- Wells M-17A and M12A located north (downgradient) of LOU 60 will be used to evaluate local and area-wide groundwater conditions.
- Wells M-111, M-97, and M13 located south (upgradient) of LOU 60 will be used to evaluate local and area-wide groundwater conditions.
- Wells M-2A, M-21, M-75, and M-76 located both north and south (downgradient and upgradient) of the various branches of LOU 60 of LOU 60 will be used to evaluate local and area-wide groundwater conditions.
- Well M-34 located east (cross-gradient) of LOU 60 will be used to evaluate local and area-wide groundwater conditions.
- The sampling wells and the analytical program to evaluate groundwater samples associated with LOU 60 are listed on **Table B – Groundwater Sampling and Analytical Plan for LOU 60.**

Proposed Phase B Constituents List for Groundwater:

Groundwater samples will be analyzed for the following analytes:

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

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Proposed Phase B Soil Gas Investigation/Rationale:

Soil gas samples will be collected from ten (10) locations to evaluate area conditions for the presence of vapor-phase VOCs in the vadose zone.

- SG82 is located to evaluate VOCs associated with LOU 60 and is within LOUs 16 and 17.
- SG79 is located to evaluate VOCs associated with LOU 60 and is within LOUs 16 and 17.
- SG89 is located to evaluate VOCs associated with LOU 60 and is within LOU 8.
- SG77 is located to evaluate VOCs associated with LOU 60 and is within LOU 7.
- SG94 is located to evaluate VOCs associated with LOU 60 and is within LOU 45.
- SG95 is located to evaluate VOCs associated with LOU 60 and is within LOU 45.
- SG39 is located to evaluate VOCs associated with LOU 60 and is co-located with well M-13.
- SG40 is located to evaluate VOCs associated with LOU 60 and is co-located with well M-12A.
- SG69 is located to evaluate VOCs associated with LOU 60, and Units 3 and 4.
- SG86 is located to evaluate VOCs associated with LOU 60.

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 (EPA TO-15)

References:

1. ENSR, 2005, Conceptual Site Model, Kerr-McGee Facility, Henderson, Nevada, ENSR, Camarillo, California, 04020-023-130, February 2005 and August 2005.
2. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
3. Kleinfelder, 1993, Environmental Conditions Assessment, Kerr-McGee Chemical Corporation, Henderson, Nevada Facility, April 15, 1993 (Final).
4. ENSR, 2007, Quarterly Performance Report for Remediation Systems, Tronox, Henderson, Nevada, July-September 2007, November 2007.

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

LOU Figure

J:\TronoxGIS\mxd\Phase_B_WorkPlan\LOUs\lou-60_Acid_Drains_Area-2.mxd

N

1:2,400
1 inch equals 200 feet

200 100 0 200
Feet

AREA II

AREA III

UNIT 5

9th STREET

10th STREET

8th STREET

7th STREET

AVENUE G

AVENUE H

FORMER U.S. VANADIUM SITE

LOU #65A BOUNDARY

LEGEND

- LOU #60 Acid Drain System with manholes and sumps with flow direction in Area II
- LOU #59 Storm Sewer System with manholes and sumps with flow direction
- LOU #60 Acid Drain System with manholes and sumps with flow direction in other areas
- Other LOU Boundary
- Other LOU Associated Pipelines

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

Acid Drain Reference:
Kleinfelder 1993, Map 31

FIGURE NUMBER: 1

SHEET NUMBER: X

SAMPLE LOCATIONS FOR LOU #60 IN AREA II FORMER ACID DRAIN SYSTEM SEGMENT

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

SCALE:	DATE:	PROJECT NUMBER:
AS SHOWN	6/16/2008	04020-023-430

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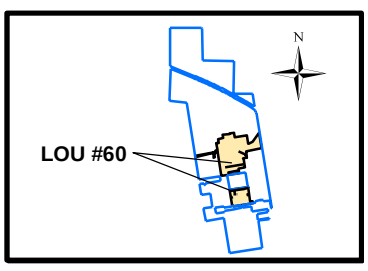

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Sampling and Analytical Plan for LOU 60:

Table A – Soil Sampling and Analytical Plan for LOU 60
Table B – Groundwater Sampling and Analytical Plan for LOU 600

Table A
Soil Sampling and Analytical Plan for LOU 60 in Area II
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)	TPH-GRO (EPA 8015B)	VOCs[2.] (EPA 8260B)	Wet Chemistry[3.]	Total Cyanide (EPA 9012A)	OCPs[4.] (EPA 8081A)	SVOCs[5.] (EPA 8270C)	Radio-nuclides[6.]	Dioxins/ Furans[7.]	Asbestos[9.] EPA/540/R-97/028	Geo-technical Tests[10.]	Rationale
Borings are organized by grid location as shown on Plate A - Starting point is on the northwestern most grid in Area 2 (M-2) and ending with the southeastern most grid in Area 2 (S-7).																			
M-6	16, 17, 57, 60	SA64	SA64-0.0	0.0													X		Boring located to evaluate LOUs 16 and 17 (Ponds AP-1 through AP-3 and Associated Transfer Lines), LOU 57 (AP
M-6	16, 17, 57, 60		SA64-0.5	0.5	X	X	X			X	X		X	X	X	X			Plant Transfer Lines to Sodium Chlorate Process, AP Plant SIs and Transfer Lines), and LOU 60 (Acid Drain System).
M-6	16, 17, 57, 60		SA64-10	10	X	X	X			X	X		Hold	X	X			X	Located in a low spot of bottom of LOU 16 and 17 for worst case coverage, near LOU 60 to evaluate possible piping
M-6	16, 17, 57, 60		SA64-20	20	X	X	X			X	X		Hold	X	X				releases, and for general coverage of LOU 57.
M-6	16, 17, 57, 60		SA64-30	30	X	X	X			X	X		X	X	X				
M-6	16, 17, 57, 60	SA198	SA198-0.0	0.0													X		Boring located to evaluate LOU 16 and 17 (Ponds AP-1 through AP-3 and Associated Transfer Lines), LOU 57 (AP
M-6	16, 17, 57, 60		SA198-0.5	0.5	X	X	X			X	X		X	X	X	X			Plant Transfer Lines to Sodium Chlorate Process, AP Plant SIs and Transfer Lines), and LOU 60 (Acid Drain System).
M-6	16, 17, 57, 60		SA198-10	10	X	X	X			X	X		Hold	X	X				Located in a low spot of bottom of LOU 16 and 17 to evaluate worst case conditions and for general coverage of LOU 57
M-6	16, 17, 57, 60		SA198-20	20	X	X	X			X	X		Hold	X	X				and adjacent to the LOU 60 pipeline to evaluate potiential local releases.
M-6	16, 17, 57, 60		SA198-30	30	X	X	X			X	X		Hold	X	X				
M-6	16, 17, 57, 60		SA198-35	35	X	X	X			X	X		X	X	X				
N-7	5	SA154	SA154-0.0	0.0													X		Boring located to evaluate LOU 5 (Beta Ditch). Located in the bottom of the Eastern Diversion Ditch to evaluate
N-7	5		SA154-0.5	0.5	X	X	X	X		X	X		X	X	X	X			upstream tributary source flows in the ditch.
N-7	5		SA154-10	10	X	X	X	X		X	X		Hold	X	X				
N-7	5		SA154-20	20	X	X	X	X		X	X		Hold	X	X				
N-7	5		SA154-30	30	X	X	X	X		X	X		Hold	X	X				
N-7	5		SA154-40	40	X	X	X	X		X	X		X	X	X				
O-5	45, 59, 60	SA41	SA41-0.0	0.0													X		Boring located to evaluate LOU 45 (Diesel Storage Tanks), LOU 59 (Storm Sewer System), and LOU 60 Acid Drain
O-5	45, 59, 60		SA41-0.5	0.5	X	X	X	X		X	X		X	X	X	X			System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text
O-5	45, 59, 60		SA41-10	10	X	X	X	X		X	X		Hold	X	X				for historic details) and between LOUs 59 and 60 to evaluate possible piping releases.
O-5	45, 59, 60		SA41-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45, 59, 60		SA21-30	20	X	X	X	X		X	X		Hold	X	X				
O-5	45, 59, 60		SA21-40	40	X	X	X	X		X	X		X	X	X				
O-5	45, 60	SA45	SA45-0.0	0.0													X		Boring located to evaluate LOU 45 (Diesel Storage Tanks) and LOU 60 (Acid Drain System). Located within the footprint
O-5	45, 60		SA45-0.5	0.5	X	X	X	X		X	X		X	X	X	X			of a former tank to evaluate potential subsurface releases and near LOU 60 manhole which is a high risk release
O-5	45, 60		SA45-10	10	X	X	X	X		X	X		Hold	X	X				location.
O-5	45, 60		SA45-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45, 60		SA45-30	30	X	X	X	X		X	X		Hold	X	X				
O-5	45, 60		SA45-40	40	X	X	X	X		X	X		X	X	X				
O-5	8	SA50	SA50-0.0	0.0													X		Boring located as a westward step out to LOU 8 (Old P-3 Pond and Associated Conveyance Facilities). For general
O-5	8		SA50-0.5	0.5	X	X	X	X		X	X		X	X	X	X			site conditions and possible overflow release of surface runoff. Borin will also serve to evaluate potential releases from
O-5	8		SA50-10	10	X	X	X	X		X	X		Hold	X	X				LOU 60 (former Acid Drain System).
O-5	8		SA50-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	8		SA50-30	30	X	X	X	X		X	X		X	X	X				
O-5	7, 60	SA102	SA102-0.0	0.0													X		Boring located to evaluate LOU 7 (Old P-2 Pond and Associated Conveyance Facilities), LOU 8 (Old P-3 Facilities),
O-5	7, 60		SA102-0.5	0.5	X	X	X			X	X		X	X	X	X			and LOU 60 (Acid Drain System). Located at a lowspot in bottom of LOU 7 for worst case evaluation and near LOU 60
O-5	7, 60		SA102-10	10	X	X	X			X	X		Hold	X	X			X	for piping releases.
O-5	7, 60		SA102-20	20	X	X	X			X	X		X	X	X				
O-5	45, 59, 60	SA172	SA172-0.0	0.0													X		Boring located to evaluate LOU 45 (Diesel Storage Tanks) and LOU 59 (Storm Sewer System), and LOU 60 (Acid Drain
O-5	45, 59, 60		SA172-0.5	0.5	X	X	X	X		X	X		X	X	X	X			System). Located beneath the footprint of a aboveground storage tank to evaluate subsurface releases (See LOU 45
O-5	45, 59, 60		SA172-10	10	X	X	X	X		X	X		Hold	X	X				summary for historical data).
O-5	45, 59, 60		SA172-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45, 59, 60		SA172-30	30	X	X	X	X		X	X		Hold	X	X				
O-5	45, 59, 60		SA172-35	35	X	X	X	X		X	X		X	X	X				
O-5	45, 59, 60	SA187	SA187-0.0	0.0													X		Boring located to evaluate LOU 45 (Diesel Storage Tanks), LOU 59 (Storm Sewer System), and LOU 60 Acid Drain
O-5	45, 59, 60		SA187-0.5	0.5	X	X	X	X		X	X		X	X	X	X			System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text
O-5	45, 59, 60		SA187-10	10	X	X	X	X		X	X		Hold	X	X				for historic details) and between LOUs 59 and 60 to evaluate possible piping releases.
O-5	45, 59, 60		SA187-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45, 59, 60		SA187-30	30	X	X	X	X		X	X		Hold	X	X				
O-5	45, 59, 60		SA187-35	35	X	X	X	X		X	X		X	X	X				
O-5	45, 59	SA188	SA188-0.0	0.0													X		Boring located to evaluate LOU 45 (Diesel Storage Tanks) and LOU 59 (Storm Sewer System), and LOU 60 (Acid Drain
O-5	45, 59		SA188-0.5	0.5	X	X	X	X		X	X		X	X	X	X			System). Located beneath the footprint of a aboveground storage tank to evaluate subsurface releases (See LOU 45
O-5	45, 59		SA188-10	10	X	X	X	X		X	X		Hold	X	X				summary for historical data).
O-5	45, 59		SA188-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45, 59		SA188-30	30	X	X	X	X		X	X		Hold	X	X				
O-5	45, 59		SA188-35	35	X	X	X	X		X	X		X	X	X				
O-6	45, 59	SA40	SA40-0.0	0.0													X		Boring located to evaluate LOU 45 (Diesel Storage Tanks), LOU 59 (Storm Sewer System), and LOU 60 Acid Drain
O-6	45, 59		SA40-0.5	0.5	X	X	X	X		X	X		X	X	X	X			System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text
O-6	45, 59		SA40-10	10	X	X	X	X		X	X		Hold	X	X				for historic details) and between LOUs 59 and 60 to evaluate possible piping releases.
O-6	45, 59		SA40-20	20	X	X	X	X		X	X		Hold	X	X				
O-6	45, 59		SA40-30	30	X	X	X	X		X	X		Hold	X	X				
O-6	45, 59		SA40-40	40	X	X	X	X		X	X		X	X	X				
O-6	45, 60	SA42	SA42-0.0	0.0													X		Boring located to evaluate LOU 45 (Diesel Storage Tanks) and LOU 60 (Acid Drain System). Located at a low spot
O-6	45, 60		SA42-0.5	0.5	X	X	X	X		X	X		X	X	X	X			within the footprint of former aboveground storage tank to evaluate potential releases and near LOU 60 piping to evaluate
O-6	45, 60		SA42-10	10	X	X	X	X		X	X		Hold	X	X				possible local piping releases.
O-6	45, 60		SA42-20	20	X	X	X	X		X	X		Hold	X	X				
O-6	45, 60		SA42-30	30	X	X	X	X		X	X		Hold	X	X				
O-6	45, 60		SA42-40	40	X	X	X	X		X	X		X	X	X				
Q-6	15, 60	SA126	SA126-0.0	0.0													X		Boring located to evaluate LOU 15 (Platinum Drying Unit) and LOU 60 (Acid Drain System). Located as close as
Q-6	15, 60		SA126-0.5	0.5	X	X	X	X		X	X		X	X	X	X			possible and downslope of LOU 15 to evaluate potential surface runoff releases and adjacent to LOU 60 piping to
Q-6	15, 60		SA126-10	10	X	X	X	X		X	X		Hold	X	X				evaluate local piping releases.
Q-6	15, 60		SA126-20	20	X	X	X	X		X	X		Hold	X	X				
Q-6	15, 60		SA126-30	30	X	X	X	X		X	X		Hold	X	X				
Q-6	15, 60		SA126-35	35	X	X	X	X		X	X		X	X	X				
Q-6	43, 59, 60	RSAQ6	RSAQ6-0.0	0.0													X		Boring located nearby LOU 43 (Unit 4 Basement and Old Sodium Chlorate Plant Decommissioning), LOU 59 Storm
Q-6	43, 59, 60		RSAQ6-0.5	0.5	X	X	X	X		X	X		X	X	X	X			Sewer System), and LOU 60 (Acid Drain System). Located downslope of OU 43 to evaluate potential subsurface

Table B
Groundwater Sampling And Analysis Plan for LOU 60 in Area II
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson Nevada

Grid Location	Location Area	Monitoring Well No.	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)	OCPs[3] (EPA 8081A)	SVOCs[4] (EPA 8270C)	Radionuclides[5]	Rationale
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area II (L-4) and ending with the southeastern-most grid covering Area II (S-7).														
M5	II	M-110	30 - 40	Qal/MCfg1	no	X	X	X	X	X	X	X	X	Located to evaluate LOU 57 as a downgradient stepout for LOU 5; and for general Site coverage.
M5	II	M-111A*	29.7 - 39.7	Qal/MCfg1	new well	X	X	X	X	X	X	X	X	Replacement well for M-111 which was destroyed by site grading and located to evaluate LOU 57; a downgradient stepout for LOU 52; as an upgradient stepout for LOUs 5 and 19; and for general Site coverage.
N5	II	M-75	34.6 - 49.3	Qal/MCfg1	no	X	X	X	X	X	X	X	X	Located to serve as a downgradient stepout for LOUs 7, 8, 9, and 45; as an upgradient stepout for LOUs 16, 17, 19, 53 and 57; and for general Site coverage.
N5	II	M-76	34.6 - 49.3	MCcg1	yes	X	X	X	X	X	X	X	X	Located to serve as a downgradient stepout for LOUs 8 and 45; as an upgradient stepout for LOUs 53 and 57; and for general Site coverage.
N6	II	M-2A*	nr	nr	yes	X	X	X	X	X	X	X	X	Located as a downgradient stepout for LOUs 7, 8, 9, 13, 14, 20, 34, and 45; as an upgradient stepout for LOUs 16, 17, 18, 22, 23, 53, and 57; and for general Site coverage.
N6	II	M-17A	35 - 45	Qal/MCfg1	no	X	X	X	X	X	X	X	X	Located to evaluate LOU 57; as an upgradient stepout for LOUs 5, 16, 17, 18, 22, and 23; and for general Site coverage.
N7	II	M-34	25 - 40	Qal/MCfg1	no	X	X	X	X	X	X	X	X	Located to evaluate the outfall of the culvert that empties into the Eastern Diversion segment of LOU 5; as a downgradient stepout for LOUs 13 and 14 as un upgradient step out for LOUs 20, 22, and 23; and for general Site coverage.
O5	II	M-21	18 - 38	MCfg1	no	X	X	X	X	X	X	X	X	Located to evaluate LOU 45; as an upgradient stepout for LOUs 7, 9, 13 and 14; as a downgradient stepout for LOU 59; and for general Site coverage.
P5	IIS	M-97	35 - 45	MCfg1/MCcg1	yes	X	X	X	X	X	X	X	X	Located to serve as an upgradient stepout for LOU 45 and segments of LOU 59 located in Area II; and for general Site coverage.
Q5	II	M-13	40 - 50	Qal/MCfg1	yes	X	X	X	X	X	X	X	X	Located to serve as a downgradient stepout for LOU 60; as an upgradient stepout for LOUs 36 and 45; and for general Site coverage.
Q6	II	M-12A	28 48	MCfg1	yes	X	X	X	X	X	X	X	X	Located as a downgradient stepout for LOUs 12, 15, 29, 36, 43, 59 and 60; and for general Site coverage.
				Number of Field Samples:		**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	

Notes:

* Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR 2007). ENSR is in the process of obtaining information from BMI.
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 isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
IIIN/E/W/S Well located outside (north, east, west, or south) of Area II.
nr Not recorded in the All Wells Database (June 2008).
TBD To be determined when well is constructed
(a) Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
Qal Quaternary Alluvium
MCfg1 Muddy Creek Formation - first fine-grained facies
MCcg1 Muddy Creek Formation - first coarse-grained facies

Table A
Soil Sampling and Analytical Plan for LOU 60 in Area II
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)	TPH-GRO (EPA 8015B)	VOCs[2.] (EPA 8260B)	Wet Chemistry[3.]	Total Cyanide (EPA 9012A)	OCPs[4.] (EPA 8081A)	SVOCs[5.] (EPA 8270C)	Radio-nuclides[6.]	Dioxins/ Furans[7.]	Asbestos[9.] EPA/540/R-97/028	Geo-technical Tests[10.]	Rationale
Borings are organized by grid location as shown on Plate A - Starting point is on the northwestern most grid in Area 2 (M-2) and ending with the southeastern most grid in Area 2 (S-7).																			
Q-6	43, 59, 60		RSAQ6-10	10	X	X	X	X		X	X		Hold	X	X				releases and near LOU 60 piping to evaluate local piping releases.
Q-6	43, 59, 60		RSAQ6-20	20	X	X	X	X		X	X		Hold	X	X				
Q-6	43, 59, 60		RSAQ6-30	30	X	X	X	X		X	X		Hold	X	X				
Q-6	43, 59, 60		RSAQ6-35	35	X	X	X	X		X	X		X	X	X				
R-6	59, 60	SA30	SA30-0.0	0.0													X		Boring located to evaluate LOU 59 (Storm Sewer System) and LOU 60 (Acid 'Drain System). Located near LOU 59
R-6	59, 60		SA30-0.5	0.5	X	X	X	X		X	X		X	X	X	X			and 60 piping to evaluate possible local piping releases and for general site coverage in Unit Buildings area.
R-6	59, 60		SA30-10	10	X	X	X	X		X	X		Hold	X	X			X	
R-6	59, 60		SA30-20	20	X	X	X	X		X	X		Hold	X	X				
R-6	59, 60		SA30-30	30	X	X	X	X		X	X		Hold	X	X				
R-6	59, 60		SA30-35	35	X	X	X	X		X	X		X	X	X				
R-6	43, 60	SA32	SA32-0.0	0.0													X		Boring located to evaluate LOU 43 (Unit 4 Basement and Old Sodium Chlorate Plant Decommissioning), and LOU 60
R-6	43, 60		SA32-0.5	0.5	X	X	X	X		X	X		X		X	X			(Acid DrainSystem). Located within the footprint of LOU 43 as a worst case location and also located near LOU 60
R-6	43, 60		SA32-10	10	X	X	X	X		X	X		Hold		X				piping to evaluate local piping releases near a manhole.
R-6	43, 60		SA32-20	20	X	X	X	X		X	X		Hold		X				
R-6	43, 60		SA32-30	30	X	X	X	X		X	X		Hold		X				
R-6	43, 60		SA32-35	35	X	X	X	X		X	X		X		X				
R-6	12, 59, 60	SA125	SA125-0.0	0.0													X		Boring located to evaluate LOU 12 (Hazardous Waste Storage Area), LOU 59 (Storm Sewer System), and LOU 60
R-6	12, 59, 60		SA125-0.5	0.5	X	X	X	X		X	X		X	X	X	X			(Acid DrainSystem). Located downslope of LOU 12 to evaluate surface runoff releases and adjacent to LOU 59 and 60
R-6	12, 59, 60		SA125-10	10	X	X	X	X		X	X		Hold	X	X				piping to evaluate high risk release locations (Manhole).
R-6	12, 59, 60		SA125-20	20	X	X	X	X		X	X		Hold	X	X				
R-6	12, 59, 60		SA125-30	30	X	X	X	X		X	X		Hold	X	X				
R-6	12, 59, 60		SA125-35	35	X	X	X	X		X	X		X	X	X				
R-6	43	SA161	SA161-0.0	0.0													X		Boring located to evaluate LOU 43 (Unit 4 Basement and Old Sodium Chlorate Plant Decommissioning).
R-6	43		SA161-0.5	0.5	X	X	X			X	X		X		X	X			Colocated with SG70 to compare VOC results, and for general site coverage.
R-6	43		SA161-10	10	X	X	X			X	X		Hold		X				
R-6	43		SA161-20	20	X	X	X			X	X		Hold		X				
R-6	43		SA161-30	30	X	X	X			X	X		Hold		X				
R-6	43		SA161-35	35	X	X	X			X	X		X		X				
R-6	43, 59	RSAR6	RSAR6-0.0	0.0													X		Boring located to evaluate LOU 43 (Unit 4 Basement and Old Sodium Chlorate Plant Decommissioning),
R-6	43, 59		RSAR6-0.5	0.5	X	X	X	X		X	X		X	X	X	X			and LOU 59 (Storm Sewer System) and LOU 60 (Acid Drain System). Random boring located near LOU 43 as a
R-6	43, 59		RSAR6-10	10	X	X	X	X		X	X		Hold	X	X				stepout for general coverage, adjacent to LOU 59 and 60 piping to evaluate high risk release area (junction) and for site
R-6	43, 59		RSAR6-20	20	X	X	X	X		X	X		Hold	X	X				wide coverage.
R-6	43, 59		RSAR6-30	30	X	X	X	X		X	X		Hold	X	X				
R-6	43, 59		RSAR6-35	35	X	X	X	X		X	X		X	X	X				
Number of Samples:					**91**	**91**	**91**	**74**	**0**	**91**	**91**	**0**	**38**	**81**	**91**	**19**	**19**	**3**	

Notes:

n/a	Not applicable - boring is not associated with a specific LOU but is located to evaluate soil for general area-wide coverage.
X	Sample will be collected and analyzed.
	No sample collected under Phase B sampling program.
DD*	Sample depth to be determined in the field where DD = sample depth (ft).
TPH-DRO/ORO	Total petroleum hydrocarbons - Diesel-Range Organics/Oil-Range Organics.
1.	The 0.5 ft bgs sample will be collected from the 0.0 to 0.5 ft bgs interval, unless the area is paved. If area is paved, samples will be collected at 0.5 feet below or from a representative depth beneath the pavement. Alternately, 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 isotopic thorium and isotopic uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
7.	Dioxins/furans will be analyzed by EPA Method 8290 for all samples. Screening reports will be provided for 90% of the samples and full data packages for 10% of the samples.
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).
11.	SPLP samples will be analyzed by EPA method 1312 using two preparation methods: 1) with extraction fluid #2 (reagent water at pH 5.0±0.05), and 2) with extraction method #3 (reagent water); per NDEP.

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

Soil and Groundwater Characterization Data

Summary of Available Data for LOU 60 Acid Drain System in Area II

Tronox Facility – Henderson, Nevada

LOU-specific analytes identified include:

- Metals
- Hexavalent chromium
- Wet chemistry analytes
- Perchlorate
- Acids
- Cyanide
- Caustics

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

LOU 60 Table 1 – Soil Characterization Data – Wet Chemistry
LOU 60 Table 2 – Groundwater Characterization Data – Wet Chemistry
LOU 60 Table 3 – Soil Characterization Data – Dioxins and Dibenzofurans
LOU 60 Table 4 – Soil Characterization Data – Metals
LOU 60 Table 5 – Groundwater Characterization Data – Metals
LOU 60 Table 6 – Groundwater Characterization Data – Routine Monitoring
LOU 60 Table 7 – Soil Characterization Data – Organochlorine Pesticides (OCPs)
LOU 60 Table 8 – Groundwater Characterization Data – Organochlorine Pesticides (OCPs)
LOU 60 Table 9 – Soil Characterization Data – Organophosphorus Pesticides (OPPs)
LOU 60 Table 10 – Groundwater Characterization Data – Organophosphorus Pesticides (OPPs)
LOU 60 Table 11 – Soil Characterization Data – PCBs
LOU 60 Table 12 – Groundwater Characterization Data – PCBs
LOU 60 Table 13 – Soil Characterization Data – Perchlorate
LOU 60 Table 14 – Groundwater Characterization Data – Perchlorate
LOU 60 Table 15 – Soil Characterization Data – Radionuclides
LOU 60 Table 16 – Groundwater Characterization Data – Radionuclides
LOU 60 Table 17 – Soil Characterization Data – SVOCs
LOU 60 Table 18 – Groundwater Characterization Data – SVOCs
LOU 60 Table 19 – Soil Characteristic Data - TPH and Fuel Alcohols
LOU 60 Table 20 – Soil Characterization Data – VOCs
LOU 60 Table 21 – Groundwater Characterization Data – VOCs
LOU 60 Table 22 – Soil Characterization Data – Long Asbestos Fibers in Respirable Soil Fraction
Notes for Phase A Data Tables are included at the end of the table.

LOU 60 Table 1
Soil Characterization Data - Wet Chemistry

Acid Drain 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	Ph A[1]	Ph A	Ph A	Ph A	Ph A	
Boring No.		SA5	SA5	SA5	SA5	SA5	SA6	SA6	SA6	SA6	SA6	SA6	SA11	SA11	SA11	SA11	SA11	
Sample ID		SA5-0.5	SA5-10	SA5-20	SA5-30	SA5-37	SA6-0.5	SA6-0.5D	SA6-10	SA6-20	SA6-30	SA6-35	SA11-0.5	SA11-0.5D	SA11-10	SA11-20	SA11-30	
Sample Depth (ft)		0.5	10	20	30	37	0.5	0.5	10	20	30	35	0.5	0.5	10	20	30	
Sample Date		11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006	
Wet Chemistry Parameter	**MSSL[2] mg/kg**																	**Units**
Percent moisture	--	**22.6**	**14.2**	**15.2**	**7.6**	**39.9**	**5.8**	**13.8**	**7.6**	**7.7**	**5.0**	**32.6**	**7.6**	**12.0**	**6.9**	**4.6**	**38.8**	percent
Alkalinity (as CaCO3)	--	**561**	58.2 U	**90.7**	54.1 U	83.2 U	**637 J**	**352 J**	**109 J**	**131 J**	52.6 UJ	**148 J**	**339 J+**	**402 J+**	**97.6 J+**	52.4 UJ	81.7 UJ	mg/kg
Bicarbonate	--	**1400**	**861**	**363**	**301**	**411**	**2970 J**	**1410 J**	**530 J**	**690 J**	**292 J**	**387 J**	**662 J+**	**1100 J+**	**694 J+**	**222 J+**	**322 J+**	mg/kg
Total Alkalinity	--	**1960**	**874**	**454**	**314**	**430**	**3610 J**	**1760 J**	**640 J**	**821 J**	**304 J**	**536 J**	**1000 J+**	**1500 J+**	**792 J+**	**233 J+**	**355 J+**	mg/kg
Ammonia (as N)	--	6.5 UJ	5.8 UJ	5.9 UJ	5.4 UJ	8.3 UJ	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 UJ	5.4 UJ	5.7 UJ	5.4 UJ	5.2 UJ	8.2 UJ	mg/kg
Cyanide	1.37E+04	R	R	R	R	R	R	R	R	R	R	R	0.54 UJ	0.57 UJ	0.54 UJ	0.52 UJ	0.82 UJ	mg/kg
MBAS	--	**2.4 J**	**2.5 J**	2.1 U	**2.5 J**	**4.6 J**	**2.4 J**	2.2 U	2.2 U	2.2 U	2.2 U	3.1 U	2.6 U	2.2 U	2.7 U	2.8 U	3.5 U	mg/kg
pH (solid)	--	**10.0**	**7.9**	**8.3**	**8.3**	**7.8**	**9.6**	**9.5**	**8.4**	**9.0**	**8.1**	**7.9**	**9.8**	**8.8**	**8.4**	**8.4**	**8.5**	none
Bromide	--	3.2 U	29.1 U	29.5 U	27.1 U	41.6 U	2.7 U	2.9 U	2.7 U	2.7 U	26.3 U	37.1 U	2.7 U	28.4 U	26.8 U	**0.95 J**	4.1 U	mg/kg
Chlorate	--	**14.4 J-**	**642 J-**	**1310 J-**	**429 J-**	8.3 UJ	5.3 UJ	5.8 UJ	**2.8 J-**	**3.0 J-**	**86.9 J-**	**207 J-**	**1300**	**1410**	5.4 U	5.2 U	**1370**	mg/kg
Chloride	--	**13.0**	**377**	**1560**	**1070**	**5600**	**5.1**	**8.5**	**9.8**	**13.9**	**77.7**	**414**	**136**	**317**	**588**	**1980**	**518**	mg/kg
Nitrate (as N)	--	0.26 U	**4.3 J+**	**20.2 J+**	**21.0**	**68.2**	**0.48 J+**	**0.27 J+**	**1.6 J+**	**2.3 J+**	**19.6**	**26.5**	**1.1 J+**	**3.5 J+**	**5.5**	**11.5**	**4.5**	mg/kg
Nitrite	--	**0.21 J**	2.3 U	2.4 U	2.2 U	3.3 U	0.21 U	0.23 U	**0.32**	**0.93**	2.1 U	3.0 U	**2.0 J**	2.3 U	2.1 U	2.1 U	3.3 U	mg/kg
ortho-Phosphate	--	6.5 U	5.8 U	5.9 U	5.4 U	166 U	5.3 U	5.8 U	**3.9 J**	**1.6 J**	**79.6 J**	7.4 U	54.1 U	5.7 U	**2900 J**	**7760 J**	8.2 U	mg/kg
Sulfate	--	**77.0**	**479**	**168**	**1030**	**804**	**115**	**147**	**175**	**214**	**7710**	**599**	**93.6 J**	**199 J**	**381 J**	**49.7 J**	**174 J**	mg/kg
Total Organic Carbon	--	**15200**	**6000**	**8300**	**6600**	**11200**	**9100**	**4300**	**6420**	**7220**	**900 J**	**9150**	**6500**	**8700**	**7900**	**5300**	**3400**	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 60 Table 2
Groundwater Characterization Data - Wet Chemistry

Acid Drain System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	
Well ID		M-12A	M-13	
Sample ID		M-12A	M-13	
Sample Date		12/05/2006	12/01/2006	
Wet Chemistry Parameters	**MCL[2] mg/L**			**Units**
Total Dissolved Solids	5.00E+02 j	**8170**	**3440**	mg/L
Total Suspended Solids	--	**57.0 J**	**17.0 J**	mg/L
Alkalinity (as CaCO3)	--	5.0 U	5.0 U	mg/L
Bicarbonate	--	**381**	**111 J+**	mg/L
Total Alkalinity	--	**381**	**111 J+**	mg/L
Ammonia (as N)	--	50.0 U	50.0 U	ug/L
MBAS	--	**0.41**	0.16 U	mg/L
Cyanide	2.00E-01	R	R	ug/L
pH (liquid)	--	**7.8 J**	**7.5 J**	none
Specific Conductance	--	**3660 J+**	**2320**	umhos/cm
Bromide	--	25.0 U	**0.60**	mg/L
Chlorate	--	**2370**	**279**	mg/L
Chloride	2.50E+02	**1030**	**394**	mg/L
Nitrate (as N)	1.00E+01	**15.2**	**1.8**	mg/L
Nitrite	1.00E+00	10.0 U	R	mg/L
ortho-Phosphate	--	500 U	5.0 U	mg/L
Sulfate	2.50E+02 j	**1510**	**1520**	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 60 Table 3
Soil Characterization Data - Dioxins and Dibenzofurans

Acid Drain System
Tronox Facility - Henderson, Nevada

			Sampling Program	Ph A[1]	Ph A	Ph A	Ph A	Ph A
			Boring No.	SA5	SA6	SA6	SA11	SA11
			Sample ID	SA5-0.5	SA6-0.5	SA6-0.5D	SA11-0.5	SA11-0.5D
			Sample Depth (ft)	0.5	0.5	0.5	0.5	0.5
			Sample Date	11/14/2006	11/14/2006	11/14/2006	11/09/2006	11/09/2006
chemical_name:	**Method**	**Unit**	**MSSL[2] ng/kg**					
Dioxin 8290 SCREEN Total TEQ-ENSR Calculated (a) ng/kg		ng/kg	--	**15.09**	**0.64**		**10.3**	
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	--	**15.09**	**0.72**		**10.3**	
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	--	**80.879**	**7.730**	**2.554**	**32.917**	**69.353**
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	--	**5.161**	**1.036**	**0.461**	**3.477**	**6.317**
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	--	**36.815**	**2.617**	**0.801**	**15.475**	**34.356**
1,2,3,4,7,8,9-Heptachlorodibenzofuran	SW 846 8290	ng/kg	--					
1,2,3,4,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	**37.078**	**2.392**	**0.864**	**13.715**	**32.600**
1,2,3,4,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--					
1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	**0.652**	0.059 U	0.055 U	**0.279**	**0.600**
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	--	**20.664**	**1.665**	**0.552**	**8.318**	**19.180**
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	--	**1.273**	**0.191**	**0.140**	**0.866**	**1.673**
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	--	**5.906**	**0.259**	**0.145**	**0.997**	**6.594**
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	--	**1.340**	**0.256**	**0.176**	**0.845**	**1.687**
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--					
1,2,3,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--	**18.712**	**0.886**	**0.456**	**6.223**	**16.527**
1,2,3,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--					
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	**0.846**	0.059 U	0.047 U	**0.550**	**1.075**
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--					
2,3,4,6,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	**10.995**	**0.795**	**0.262**	**3.861**	**9.620**
2,3,4,6,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--					
2,3,4,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--	**8.426**	0.279 U	**0.195**	**3.060**	**7.344**
2,3,4,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--					
2,3,7,8-Tetrachlorodibenzofuran	8290 Screen	ng/kg	--	**19.343**	**1.724**	**0.752**	**7.570**	**19.669**
2,3,7,8-Tetrachlorodibenzofuran	SW 846 8290	ng/kg	--					
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	1.00E+03 h,v	**0.132**	0.077 U	0.059 U	**0.209**	**0.454**
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	1.00E+03 h,v					
Octachlorodibenzofuran	8290 Screen	ng/kg	--	**237.642**	**20.727**	**6.640**	**81.562**	**159.252**
Octachlorodibenzofuran	SW 846 8290	ng/kg	--					
Octachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	**7.486**	**6.287**	**2.965**	**6.222**	**9.591**
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 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. A value of 1000 ng/kg is applicable to residential soils. The range of 5000 to 20000 ng/kg is applicable to commercial/industrial soils. The Agency for Toxic Substances and Disease Registry (ATSDR) provides a screening level of 50 ng/kg for dioxin in residential soil [http://www.atsdr.cdc.gov/substances/dioxin/policy/].

LOU 60 Table 4
Soil Characterization Data - Metals

Acid Drain 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	Ph A	Ph A	Ph A	Ph A	Ph A
Boring No.		SA5	SA5	SA5	SA5	SA5	SA6	SA6	SA6	SA6	SA6	SA6	SA11	SA11	SA11	SA11	SA11
Sample ID		SA5-0.5	SA5-10	SA5-20	SA5-30	SA5-37	SA6-0.5	SA6-0.5D	SA6-10	SA6-20	SA6-30	SA6-35	SA11-0.5	SA11-0.5D	SA11-10	SA11-20	SA11-30
Sample Depth (ft)		0.5	10	20	30	37	0.5	0.5	10	20	30	35	0.5	0.5	10	20	30
Sample Date		11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006
Metals	**MSSL[2] 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	**6440**	**5440**	**5450**	**4130**	**12500**	**6160**	**6710**	**6440**	**6220**	**5800**	**12500**	**7100**	**7150**	**7830**	**4880**	**15800**
Antimony	4.50E+02	**0.32 J-**	**0.15 J-**	**0.13 J-**	**0.16 J-**	**0.25 J-**	**0.15 J-**	**0.15 J-**	**0.16 J-**	**0.18 J-**	**0.16 J-**	**0.27 J-**	**0.11 J-**	**0.13 J-**	**0.12 J-**	**0.083 J-**	**0.22 J-**
Arsenic	2.80E+02	**3.2**	**2.7**	**2.5**	**10.9**	**27.6**	**2.4**	**3.1**	**3.1**	**4.0**	**4.2**	**24.4**	**2.9**	**2.7**	**3.8**	**4.6**	**20.3**
Barium	1.00E+05	**176 J+**	**129 J+**	**98.2 J+**	**100 J+**	**39.3 J+**	**163 J+**	**149 J+**	**162 J+**	**186 J+**	**143 J+**	**40.1 J+**	**187 J**	**155 J**	**159 J**	**128 J**	**64.1 J**
Beryllium	2.20E+03	**0.48**	**0.47**	**0.41**	**0.28**	**0.94**	**0.40**	**0.44**	**0.50**	**0.46**	**0.43**	**0.70**	**0.49**	**0.48**	**0.51**	**0.32**	**0.76**
Boron	1.00E+05	6.7 UJ	6.0 UJ	7.0 UJ	17.9 UJ	85.7 UJ	5.2 UJ	5.3 UJ	5.6 UJ	6.0 UJ	5.8 UJ	20.8 UJ	**14.6 J-**	**15.4 J-**	5.3 UJ	5.7 UJ	**19.5 J-**
Cadmium	5.60E+02	**0.11**	**0.085**	**0.063**	**0.039 J**	**0.11**	**0.089**	**0.10**	**0.083**	**0.083**	**0.090**	**0.12**	**0.091**	**0.071**	**0.070**	**0.062**	**0.12**
Calcium	--	**22400**	**20700**	**24000**	**47100**	**31600**	**24600**	**19400**	**29300**	**33600**	**25500**	**32500**	**29500**	**25300**	**23400**	**15100**	**10100**
Chromium (Total)	7.10E+01	**14.8**	**6.6**	**7.2**	**5.9**	**38.8**	**8.5**	**12.8**	**10.6**	**10.1**	**7.7**	**27.4**	**12.5 J-**	**13.1 J-**	**23.3 J-**	**11.7 J-**	**38.1 J-**
Chromium-hexavalent	5.00E+02	**2.4**	0.23 U	0.24 U	**8.4**	0.33 U	**0.22**	**0.13 J**	0.22 U	0.22 U	0.21 U	**0.21 J**	**2.1**	**2.1**	**11.8**	**3.1**	**2.1**
Cobalt	2.10E+03	**8.8 J-**	**6.9 J-**	**6.1 J-**	**4.2 J-**	**4.5 J-**	**5.4 J-**	**5.9 J-**	**5.6 J-**	**6.4 J-**	**6.3 J-**	**5.2 J-**	**6.1 J-**	**6.3 J-**	**6.2 J-**	**3.2 J-**	**6.6 J-**
Copper	4.20E+04	**14.3 J-**	**10.6 J-**	**11.3 J**	**7.6 J-**	**10.5 J-**	**10.1 J-**	**12.4 J-**	**11.4 J-**	**12.0 J-**	**12.4 J-**	**12.0 J-**	**12.7 J**	**12.8 J**	**12.3 J**	**12.7 J**	**15.5 J**
Iron	1.00E+05	**11800**	**10400**	**9680**	**6500**	**11300**	**9600**	**11600**	**11700**	**12000**	**11200**	**12600**	**11600**	**12100**	**11800**	**7650**	**17200**
Lead	8.00E+02	**24.2**	**6.2**	**5.5**	**5.6**	**6.6**	**7.1**	**11.5**	**7.6**	**8.1**	**7.4**	**8.3**	**7.0**	**8.2**	**8.2**	**6.0**	**10.0**
Magnesium	--	**7040 J-**	**6850 J-**	**7480 J-**	**7810 J-**	**46100 J-**	**6570 J-**	**7250 J-**	**6730 J-**	**8850 J-**	**6880 J-**	**28300 J-**	**7130 J-**	**7270 J-**	**10200 J-**	**5580 J-**	**47400 J-**
Manganese	3.50E+04	**483 J**	**254 J**	**234 J**	**131 J**	**167 J**	**249 J**	**271 J**	**227 J**	**301 J**	**323 J**	**195 J**	**250**	**261**	**298**	**128**	**335**
Molybdenum	5.70E+03	**0.69**	**0.90**	**0.34 J**	**0.56**	**1.1**	**0.48 J**	**0.64**	**0.46 J**	**0.43 J**	**0.47 J**	**0.95**	**0.48 J**	**0.48 J**	**0.41 J**	**0.44 J**	**0.84**
Nickel	2.30E+04	**12.7 J-**	**13.7 J-**	**13.1 J-**	**10.1 J-**	**11.4 J-**	**12.8 J-**	**12.6 J-**	**12.1 J-**	**11.9 J-**	**12.2 J-**	**12.5 J-**	**11.8 J-**	**12.4 J-**	**12.3 J-**	**9.2 J-**	**14.0 J-**
Platinum	--	**0.015 J**	0.012 U	0.012 U	0.011 U	**0.018 J**	**0.012 J**	**0.018 J**	**0.018 J**	**0.016 J**	**0.015 J**	**0.022 J**	**0.011 J**	**0.012 J**	**0.013 J**	0.011 U	**0.018 J**
Potassium	--	**2000 J-**	**1290 J-**	**980 J-**	**1110 J-**	**3110 J-**	**2100 J-**	**2200 J-**	**2030 J-**	**1220 J-**	**1050 J-**	**3180 J-**	**3510**	**2730**	**2730**	**2000**	**4110**
Selenium	5.70E+03	0.14 UJ	0.13 UJ	0.13 UJ	0.12 UJ	0.18 UJ	0.12 UJ	0.13 UJ	0.12 UJ	0.12 UJ	0.11 UJ	0.16 UJ	0.12 U	0.12 U	0.12 U	0.11 U	0.18 U
Silver	5.70E+03	**0.13 J**	**0.088 J**	**0.081 J**	**0.074 J**	**0.14 J**	**0.10 J**	**0.13 J**	**0.13 J**	**0.12 J**	**0.12 J**	**0.17 J**	**0.12 J**	**0.13 J**	**0.14 J**	**0.088 J**	**0.20 J**
Sodium	--	**1790 J-**	**522 J-**	**532 J-**	**1120 J-**	**4560 J-**	**626 J-**	**560 J-**	**581 J-**	**443 J-**	**699 J-**	**577 J-**	**2660 J-**	**2300 J-**	**3730 J-**	**1750 J-**	**3670 J-**
Strontium	1.00E+05	**151 J+**	**200 J+**	**210 J+**	**1120 J+**	**102 J+**	**126 J+**	**101 J+**	**188 J+**	**207 J+**	**299 J+**	**159 J+**	**121 J**	**106 J**	**112 J**	**206 J**	**78.1 J**
Thallium	--	0.091 U	0.081 U	0.082 U	0.076 U	0.19 U	0.080 U	0.081 U	0.095 U	0.082 U	0.082 U	0.22 U	**0.096 J**	0.08 U	0.075 U	0.073 U	**0.24 J**
Tin	--	**0.79**	**0.39**	**0.35**	**0.27**	**0.58**	**0.40**	**0.55**	**0.48**	**0.46**	**0.47**	**0.64**	**0.52**	**0.47**	**0.46**	**0.41**	**0.81**
Titanium	--	**511**	**370**	**366**	**287**	**502**	**361 J**	**616 J**	**549 J**	**463 J**	**507 J**	**530 J**	**520**	**442**	**534**	**330**	**537**
Tungsten	--	0.41 UJ	0.44 UJ	0.27 UJ	0.33 UJ	0.39 UJ	0.28 UJ	0.30 UJ	0.29 UJ	0.42 UJ	0.39 UJ	0.55 UJ	**0.24 J-**	**0.27 J-**	**0.32 J-**	**0.24 J-**	**0.80 J-**
Uranium	--	**1.1**	**1.1**	**1.0**	**2.3**	**6.1**	**0.80**	**1.0**	**1.0**	**2.1**	**1.8**	**3.7**	**1.0**	**0.98**	**1.6**	**1.4**	**3.9**
Vanadium	5.70E+03	**33.2 J-**	**29.9 J-**	**26.7 J-**	**24.9 J-**	**33.3 J-**	**21.8 J-**	**30.5 J-**	**33.8 J-**	**35.2 J-**	**34.8 J-**	**32.7 J-**	**29.6 J-**	**31.3 J-**	**31.9 J-**	**21.8 J-**	**27.6 J-**
Zinc	1.00E+05	**31.8 J-**	**27.8 J-**	**25.2 J-**	**18.9 J-**	**32.3 J-**	**24.1 J-**	**29.6 J-**	**24.8 J-**	**23.9 J-**	**24.9 J-**	**36.1 J-**	**23.9 J-**	**24.9 J-**	**23.2 J-**	**16.6 J-**	**36.9 J-**
Mercury	3.41E+02 (t)	**0.018 J-**	0.0078 UJ	0.0079 UJ	0.0072 UJ	0.011 UJ	0.0071 UJ	**0.011 J-**	0.0072 UJ	0.0072 UJ	0.007 UJ	0.0099 UJ	**0.014 J**	**0.015 J**	**0.026 J**	**0.0084 J**	**0.019 J**

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).
(t) Value for mercury and compounds.

LOU 60 Table 5
Groundwater Characterization Data - Metals

Acid Drain System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	
Well ID:		M-12A	M-13	
Sample ID		M-12A-Z	-	
Sample Date		05/11/2007	05/09/2007	
Metals	**MCL[2] ug/L**			**Unit**
Aluminum	5.00E+01 j	786 U	197 U	ug/L
Antimony	6.00E+00	50.0 U	12.5 U	ug/L
Arsenic	1.00E+01	**700**	**51.6 J**	ug/L
Barium	2.00E+03	24.7 U	10.7 U	ug/L
Beryllium	4.00E+00	8.8 U	2.2 U	ug/L
Boron	7.30E+03	3340 U	**2680**	ug/L
Cadmium	5.00E+00	5.7 U	1.4 U	ug/L
Calcium	--	**50100**	**204000**	ug/L
Chromium (Total)	1.00E+02	**12800**	**292**	ug/L
Chromium-hexavalent	1.09E+02	**14000**	0.20 UJ	ug/L
Cobalt	7.30E+02	31.3 U	7.8 U	ug/L
Copper	1.30E+03 p	25.0 U	6.3 U	ug/L
Iron	3.00E+02 j	940 UJ	**4370 J-**	ug/L
Lead	1.50E+01 u	49.2 U	12.3 U	ug/L
Magnesium	1.50E+05 a	**19000**	**94700**	ug/L
Manganese	5.00E+01 j	140 U	**1580**	ug/L
Molybdenum	1.82E+02	**51.1 J**	**32.5 J**	ug/L
Nickel	7.30E+02	51.7 U	12.9 U	ug/L
Platinum	--	10.0 U	2.5 U	ug/L
Potassium	--	**44400**	**13500**	ug/L
Selenium	5.00E+01	100 U	25.0 U	ug/L
Silver	1.00E+02 j	20.3 U	5.1 U	ug/L
Sodium	--	**2330000**	**613000**	ug/L
Strontium	2.19E+04	**1620**	**5000**	ug/L
Thallium	2.00E+00	32.0 U	8.0 U	ug/L
Tin	2.19E+04	20.0 U	5.0 U	ug/L
Titanium	1.46E+05	39.1 U	9.8 U	ug/L
Tungsten	--	50.0 U	12.5 U	ug/L
Uranium	3.00E+01	**39.4 J**	**23.8 J**	ug/L
Vanadium	3.65E+01	160 UJ	40.0 U	ug/L
Zinc	5.00E+03 j	100 U	48.1 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.
(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.

LOU 60 Table 6
Groundwater Characterization Data - Routine Monitoring[1]

Acid Drain System
Tronox, Henderson, Nevada

Well ID	Date	Depth to water (ft)	Perchlorate mg/L	Qual	MCL[2] mg/L	Total Chromium mg/L	Qual	MCL[2] mg/L	TDS mg/L	Qual	MCL[2] mg/L	Nitrate (as N) mg/L	Qual	MCL[2] mg/L	Chlorate mg/L	Qual	MCL[2] mg/L
M-34	2/2/2006	---	1800	d	1.80E-02 a,m	17	d	1.00E-01			5.00E+02 j			1.00E+01			--
M-34	5/3/2006	---	1700	d	1.80E-02 a,m	18	d	1.00E-01	8960		5.00E+02 j			1.00E+01			--
M-34	5/7/2006	40.86	1950	d	1.80E-02 a,m			1.00E-01	14500		5.00E+02 j			1.00E+01			--
M-34	8/2/2006	---	1550	d	1.80E-02 a,m	18	d	1.00E-01	7430		5.00E+02 j			1.00E+01			--
M-34	11/1/2006	---	1910	d	1.80E-02 a,m	18	d	1.00E-01	10900		5.00E+02 j			1.00E+01			--
M-34	1/31/2007	---	1860		1.80E-02 a,m	17		1.00E-01	12000		5.00E+02 j			1.00E+01			--
M-34	5/2/2007	37.52	1670		1.80E-02 a,m	17		1.00E-01	9850		5.00E+02 j			1.00E+01			--
M-34	8/1/2007	---	2130		1.80E-02 a,m	16		1.00E-01	11900		5.00E+02 j			1.00E+01			--
M-17A	2/3/2006	32.38	860	d	1.80E-02 a,m	28	d	1.00E-01			5.00E+02 j			1.00E+01			--
M-17A	5/5/2006	32.64	810	d	1.80E-02 a,m	29	d	1.00E-01	16200		5.00E+02 j			1.00E+01			--
M-17A	8/4/2006	33.02	788	d	1.80E-02 a,m	29	d	1.00E-01	10400		5.00E+02 j			1.00E+01			--
M-17A	11/3/2006	33.04	775	d	1.80E-02 a,m	28	d	1.00E-01	13830		5.00E+02 j			1.00E+01			--
M-17A	2/2/2007	32.91	788		1.80E-02 a,m	28		1.00E-01	14300		5.00E+02 j			1.00E+01			--
M-17A	5/4/2007	32.99	671		1.80E-02 a,m	28		1.00E-01	12800		5.00E+02 j			1.00E+01			--
M-17A	8/3/2007	33.41	974		1.80E-02 a,m	27		1.00E-01	13800	J-	5.00E+02 j			1.00E+01			--
I-AR	2/2/2006	27.04	2800	d	1.80E-02 a,m	0.023	d	1.00E-01			5.00E+02 j			1.00E+01			--
I-AR	5/2/2006	28.10	2800	d	1.80E-02 a,m	<0.01	ud	1.00E-01	5830		5.00E+02 j			1.00E+01			--
I-AR	8/1/2006	28.64	2630	d	1.80E-02 a,m	0.058	d	1.00E-01	5090		5.00E+02 j			1.00E+01			--
I-AR	1/30/2007	28.78	3120		1.80E-02 a,m	0.14		1.00E-01	5940		5.00E+02 j			1.00E+01			--
I-AR	5/1/2007	42.33	3670		1.80E-02 a,m	0.53		1.00E-01	6850		5.00E+02 j			1.00E+01			--
I-AR	7/31/2007	41.99	4020		1.80E-02 a,m	0.49		1.00E-01	6850		5.00E+02 j			1.00E+01			--
M-2A	5/5/2006	---	430	d	1.80E-02 a,m	18	d	1.00E-01	12100		5.00E+02 j			1.00E+01			--
M-2A	5/4/2007	---	362		1.80E-02 a,m	17		1.00E-01	10200		5.00E+02 j			1.00E+01			--

Notes
1. ENSR, 2007, Quarterly Performance Report for Remediation Systems, Tronox, Henderson, Nevada, July-September 2007, November 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
< = less than the reporting limit
Blank cell or --- = no data and or no qualifier
Qual = data qualifiers applied by laboratory or during data validation
TDS = Total Dissolved Solids
mg/l = milligram per liter
(a) NAC 445A.455 Secondary standards. Certain provisions of the National Primary Drinking Water Regulations are adopted by reference (NAC 445A.4525). These values are listed in the first column of this table and are therefore not listed again here. Only NAC 445A.455 Secondary standards are listed.
(m) Equal to the provisional action level derived by NDEP as referenced in "Defining a Perchlorate Drinking Water Standard". NDEP Bureau of Corrective Action. URL: [http://ndep.nv.gov/bca/perchlorate02_05.htm].
(j) Secondary Drinking Water Regulation value.

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

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

LOU 60 Table 7
Soil Characterization Data - Organochlorine Pesticides (OCPs)

Acid Drain System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	Ph A	Ph A	Ph A	
Boring No.		SA5	SA6	SA6	SA11	SA11	
Sample ID		SA5-0.5	SA6-0.5	SA6-0.5D	SA11-0.5	SA11-0.5D	
Sample Depth (ft)		0.5	0.5	0.5	0.5	0.5	
Sample Date		11/14/2006	11/14/2006	11/14/2006	11/09/2006	11/09/2006	
Organochlorine Pesticides	**MSSL[2] mg/kg**						**Unit**
4,4'-DDD	1.10E+01	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
4,4'-DDE	7.80E+00	0.0022 U	0.0018 U	0.0020 U	**0.012 J+**	0.0019 UJ	mg/kg
4,4'-DDT	7.80E+00	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Aldrin	1.10E-01	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Alpha-BHC	4.00E-01	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Alpha-chlordane	1.40E+00 (y)	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Beta-BHC	1.40E+00	**0.0035**	0.0018 U	0.0020 U	**0.030 J+**	0.0019 UJ	mg/kg
Delta-BHC	--	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Dieldrin	1.20E-01	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Endosulfan I	4.10E+03 (aa)	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Endosulfan II	4.10E+03 (aa)	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Endosulfan Sulfate	4.10E+03 (aa)	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Endrin	2.10E+02	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Endrin Aldehyde	2.10E+02 (k)	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Endrin Ketone	2.10E+02 (k)	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Gamma-BHC (Lindane)	1.90E+00	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Gamma-Chlordane	1.40E+00 (y)	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Heptachlor	4.30E-01	0.0022 U	0.0018 U	R	0.0018 UJ	0.0019 U	mg/kg
Heptachlor Epoxide	2.10E-01	0.0022 U	0.0018 U	0.0020 U	0.0018 UJ	0.0019 U	mg/kg
Methoxychlor	3.40E+03	0.0043 UJ	0.0035 UJ	0.0038 UJ	0.0036 UJ	0.0038 U	mg/kg
Tech-Chlordane	1.40E+00	0.013 U	0.011 U	0.012 U	0.011 UJ	0.011 U	mg/kg
Toxaphene	1.70E+00	0.065 U	0.053 U	0.058 U	0.054 UJ	0.057 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).
(y) Value for chlordane (technical) used as surrogate for alpha-chlordane and gamma-chlordane 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 60 Table 8
Groundwater Characterization Data - Organochlorine Pesticides (OCPs)

Acid Drain System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A	
	Well ID	M-12A	M-13	
	Sample ID	M-12A	M-13	
	Sample Date	12/05/2006	12/01/2006	
Organochlorine Pesticides	**MCL[2] ug/L**			**Unit**
4,4'-DDD	2.80E-01	0.050 U	0.050 U	ug/L
4,4'-DDE	1.98E-01	0.050 U	0.050 U	ug/L
4,4'-DDT	1.98E-01	0.050 U	0.050 U	ug/L
Aldrin	4.00E-03	0.050 U	0.050 U	ug/L
Alpha-BHC	1.10E-02	0.050 U	0.050 U	ug/L
Alpha-chlordane	2.00E+00 (l)	0.050 U	0.050 U	ug/L
Beta-BHC	3.74E-02	0.050 U	0.050 U	ug/L
Delta-BHC	1.10E-02 (z)	0.050 U	0.050 U	ug/L
Dieldrin	4.20E-03 (z)	0.050 U	0.050 U	ug/L
Endosulfan I	2.19E+02 (aa)	0.050 U	0.050 U	ug/L
Endosulfan II	2.19E+02 (aa)	0.050 U	0.050 U	ug/L
Endosulfan Sulfate	2.19E+02 (aa)	0.050 U	0.050 U	ug/L
Endrin	2.00E+00	0.050 U	0.050 U	ug/L
Endrin Aldehyde	1.09E+01 (k)	0.050 U	0.050 U	ug/L
Endrin Ketone	1.09E+01 (k)	0.050 U	0.050 U	ug/L
Gamma-BHC (Lindane)	2.00E-01	0.050 U	0.050 U	ug/L
Gamma-Chlordane	2.00E+00 (l)	0.050 U	0.050 U	ug/L
Heptachlor	4.00E-01	0.050 U	0.050 U	ug/L
Heptachlor Epoxide	2.00E-01	0.050 U	0.050 U	ug/L
Methoxychlor	4.00E+01	0.10 U	0.10 U	ug/L
Tech-Chlordane	2.00E+00 (l)	0.50 U	0.50 U	ug/L
Toxaphene	3.00E+00	2.0 U	2.0 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.
(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 60 Table 9
Soil Characterization Data - Organophosphorus Pesticides (OPPs)

Acid Drain System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	Ph A	Ph A	Ph A	
Boring No.		SA5	SA6	SA6	SA11	SA11	
Sample ID		SA5-0.5	SA6-0.5	SA6-0.5D	SA11-0.5	SA11-0.5D	
Sample Depth (ft)		0.5	0.5	0.5	0.5	0.5	
Sample Date		11/14/2006	11/14/2006	11/14/2006	11/09/2006	11/09/2006	
OPPs	**MSSL[2] mg/kg**						**Unit**
Azinphos-methyl	--	0.017 UJ	0.014 UJ	0.015 UJ	0.014 UJ	0.015 UJ	mg/kg
Bolstar	--	0.017 U	0.014 U	0.015 U	0.014 UJ	0.015 U	mg/kg
Chlorpyrifos	2.10E+03	0.026 U	0.021 U	0.023 U	0.022 UJ	0.023 U	mg/kg
Coumaphos	--	0.017 UJ	0.014 UJ	0.015 UJ	0.014 UJ	0.015 U	mg/kg
Demeton-O	--	0.050 U	0.041 U	0.045 U	0.042 UJ	0.044 U	mg/kg
Demeton-S	--	0.019 U	0.016 U	0.017 U	0.016 UJ	0.017 U	mg/kg
Diazinon	6.20E+02	0.028 U	0.023 U	0.026 U	0.024 UJ	0.025 U	mg/kg
Dichlorvos	6.60E+00	0.030 U	0.024 U	0.027 U	0.025 UJ	0.026 U	mg/kg
Dimethoate	--	**0.013 J**	**0.011 J**	**0.012 J**	0.024 UJ	0.025 U	mg/kg
Disulfoton	2.70E+01	0.062 U	0.051 U	0.056 U	0.052 UJ	0.055 U	mg/kg
EPN	--	0.017 U	0.014 UJ	0.015 U	0.014 UJ	0.015 U	mg/kg
Ethoprop	--	0.019 U	0.016 U	0.017 U	0.016 UJ	0.017 U	mg/kg
Ethyl Parathion	4.10E+03	0.023 U	0.019 U	0.021 U	0.019 UJ	0.020 U	mg/kg
Famphur	--	0.017 UJ	0.014 UJ	0.015 UJ	0.014 UJ	0.015 U	mg/kg
Fensulfothion	--	0.017 U	0.014 U	0.015 U	0.014 UJ	0.015 U	mg/kg
Fenthion	1.70E+02 (ff)	0.043 U	0.035 U	0.038 U	0.036 UJ	0.038 U	mg/kg
Malathion	1.40E+04	0.019 U	0.016 U	0.017 U	0.016 UJ	0.017 U	mg/kg
Merphos	--	0.039 U	0.032 U	0.035 U	0.032 UJ	0.034 U	mg/kg
Methyl parathion	1.70E+02	0.026 U	0.021 U	0.023 U	0.022 UJ	0.023 U	mg/kg
Mevinphos	--	0.019 U	0.016 U	0.017 U	0.016 UJ	0.017 U	mg/kg
Naled	1.40E+03	0.043 UJ	0.035 UJ	0.038 UJ	0.036 UJ	0.038 UJ	mg/kg
Phorate	--	0.026 U	0.021 U	0.023 U	0.022 UJ	0.023 U	mg/kg
Ronnel	3.40E+04	0.023 U	0.019 UJ	0.021 U	0.019 UJ	0.020 UJ	mg/kg
Stirphos	--	0.019 UJ	0.016 UJ	0.017 UJ	0.016 UJ	0.017 UJ	mg/kg
Sulfotep	--	0.026 U	0.021 U	0.023 U	0.022 UJ	0.023 U	mg/kg
Thionazin	--	0.023 U	0.019 U	0.021 U	0.019 UJ	0.020 U	mg/kg
Tokuthion	--	0.026 U	0.021 U	0.023 U	0.022 UJ	0.023 U	mg/kg
Trichloronate	--	0.026 U	0.021 U	0.023 U	0.022 UJ	0.023 U	mg/kg

Notes:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA, Region 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 60 Table 10
Groundwater Characterization Data - Organophosphorus Pesticides (OPPs)

Acid Drain System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A	
	Well ID	M12A	M13	
	Sample ID	M12A	M13	
	Sample Date	12/05/2006	12/01/2006	
OPPs	**MCL[2] ug/L**			**Unit**
Azinphos-methyl	--	2.5 U	2.5 UJ	ug/L
Bolstar	--	1.0 U	1.0 U	ug/L
Chlorpyrifos	1.09E+02	1.0 U	1.0 U	ug/L
Coumaphos	--	1.0 U	1.0 U	ug/L
Demeton-O	1.46E+00 (cc)	1.0 U	1.0 U	ug/L
Demeton-S	1.46E+00 (cc)	1.0 UJ	1.0 U	ug/L
Diazinon	3.28E+01	1.0 U	1.0 U	ug/L
Dichlorvos	2.32E-01	1.0 U	1.0 U	ug/L
Dimethoate	7.30E+00	1.0 U	1.0 U	ug/L
Disulfoton	1.46E+00	0.50 U	0.50 U	ug/L
EPN	3.65E-01	1.2 U	1.2 U	ug/L
Ethoprop	--	0.50 U	0.50 U	ug/L
Ethyl Parathion	9.12E+00 (tt)	1.0 U	1.0 U	ug/L
Famphur	--	1.0 U	1.0 U	ug/L
Fensulfothion	--	2.5 U	2.5 U	ug/L
Fenthion	9.10E+00 (ff)	2.5 U	2.5 U	ug/L
Malathion	7.30E+02	1.2 U	1.2 U	ug/L
Merphos	1.09E+00	5.0 U	5.0 U	ug/L
Methyl parathion	9.12E+00	4.0 U	4.0 U	ug/L
Mevinphos	--	6.2 U	6.2 U	ug/L
Naled	7.30E+01	1.0 UJ	1.0 UJ	ug/L
Phorate	7.30E+00	1.2 UJ	1.2 U	ug/L
Ronnel	1.82E+03	10 U	10 U	ug/L
Stirphos	--	3.5 U	3.5 U	ug/L
Sulfotep	1.82E+01	1.5 U	1.5 U	ug/L
Thionazin	--	1.0 U	1.0 U	ug/L
Tokuthion	--	1.6 U	1.6 U	ug/L
Trichloronate	--	0.50 U	0.50 U	ug/L

Notes:
1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
(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 60 Table 11
Soil Characterization Data - PCBs

Acid Drain 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	Ph A	Ph A	Ph A	Ph A	Ph A
Boring ID		SA5	SA5	SA5	SA5	SA5	SA6	SA6	SA6	SA6	SA6	SA6	SA11	SA11	SA11	SA11	SA11
Sample ID		SA5-0.5	SA5-10	SA5-20	SA5-30	SA5-37	SA6-0.5	SA6-0.5D	SA6-10	SA6-20	SA6-30	SA6-35	SA11-0.5	SA11-0.5D	SA11-10	SA11-20	SA11-30
Sample Depth (ft)		0.5	10	20	30	37	0.5	0.5	10	20	30	35	0.5	0.5	10	20	30
Sample Date		11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006
PCBs	**MSSL[2] 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
Aroclor-1016	2.40E+01 (i)	0.043 U	0.038 U	0.039 U	0.036 U	0.055 U	0.035 U	0.038 U	0.036 U	0.036 U	0.035 U	0.049 U	0.036 U	0.038 U	0.035 U	0.035 U	0.054 U
Aroclor-1221	8.30E-01 (i)	0.043 U	0.038 U	0.039 U	0.036 U	0.055 U	0.035 U	0.038 U	0.036 U	0.036 U	0.035 U	0.049 U	0.036 U	0.038 U	0.035 U	0.035 U	0.054 U
Aroclor-1232	8.30E-01 (i)	0.043 U	0.038 U	0.039 U	0.036 U	0.055 U	0.035 U	0.038 U	0.036 U	0.036 U	0.035 U	0.049 U	0.036 U	0.038 U	0.035 U	0.035 U	0.054 U
Aroclor-1242	8.30E-01 (i)	0.043 U	0.038 U	0.039 U	0.036 U	0.055 U	0.035 U	0.038 U	0.036 U	0.036 U	0.035 U	0.049 U	0.036 U	0.038 U	0.035 U	0.035 U	0.054 U
Aroclor-1248	8.30E-01 (i)	0.043 U	0.038 U	0.039 U	0.036 U	0.055 U	0.035 U	0.038 U	0.036 U	0.036 U	0.035 U	0.049 U	0.036 U	0.038 U	0.035 U	0.035 U	0.054 U
Aroclor-1254	8.30E-01 (i)	0.043 U	0.038 U	0.039 U	0.036 U	0.055 U	0.035 U	0.038 U	0.036 U	0.036 U	0.035 U	0.049 U	0.036 U	0.038 U	0.035 U	0.035 U	0.054 U
Aroclor-1260	8.30E-01 (i)	0.043 U	0.038 U	0.039 U	0.036 U	0.055 U	0.035 U	0.038 U	0.036 U	0.036 U	0.035 U	0.049 U	0.036 U	0.038 U	0.035 U	0.035 U	0.054 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).
(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 60 Table 12
Groundwater Characterization Data - PCBs

Acid Drain System
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A[1]	Ph A	
Well ID		M-12A	M-13	
Sample ID		M-12A	M-13	
Sample Date		12/05/2006	12/01/2006	
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.

LOU 60 Table 13
Soil Characterization Data - Perchlorate

Acid Drain System
Tronox Facility - Henderson, Nevada

Boring ID	Sample ID	Sample Depth (ft)	Sample Date	Perchlorate ug/kg	MSSL[1] ug/kg	Sampling Program
SA5	SA5-0.5	0.5	11/14/2006	**14900**	7.95E+05	Ph A[2]
SA5	SA5-10	10	11/14/2006	**112000**	7.95E+05	Ph A
SA5	SA5-20	20	11/14/2006	**66400**	7.95E+05	Ph A
SA5	SA5-30	30	11/14/2006	**19100**	7.95E+05	Ph A
SA5	SA5-37	37	11/14/2006	**375000**	7.95E+05	Ph A
SA6	SA6-0.5	0.5	11/14/2006	**239**	7.95E+05	Ph A
SA6	SA6-0.5D	0.5	11/14/2006	**426**	7.95E+05	Ph A
SA6	SA6-10	10	11/14/2006	**2320**	7.95E+05	Ph A
SA6	SA6-20	20	11/14/2006	**3020**	7.95E+05	Ph A
SA6	SA6-30	30	11/14/2006	**5340**	7.95E+05	Ph A
SA6	SA6-35	35	11/14/2006	**54100**	7.95E+05	Ph A
SA11	SA11-0.5	0.5	11/09/2006	**62500**	7.95E+05	Ph A
SA11	SA11-0.5D	0.5	11/09/2006	**72400**	7.95E+05	Ph A
SA11	SA11-10	10	11/09/2006	**204000**	7.95E+05	Ph A
SA11	SA11-20	20	11/09/2006	**210000**	7.95E+05	Ph A
SA11	SA11-30	30	11/09/2006	**56900**	7.95E+05	Ph A

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.

LOU 60 Table 14
Groundwater Characterization Data - Perchlorate

Acid Drain System
Tronox Facility - Henderson, Nevada

Well ID Number	Sample ID	Sample Date	Perchlorate	Units	MCL[1] ug/L	Sampling Program
M-12A	M-12A	12/05/2006	**323000 J+**	ug/L	1.80E+01 a,(m)	Ph A[2]
M-13	M-13	12/01/2006	**25300**	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 60 Table 15
Soil Characterization Data - Radionuclides

Acid Drain System
Tronox Facility - Henderson, Nevada

Boring ID Number	Sample ID	Sample Depth (ft)	Date	Ra-226 (gamma) pCi/g	Ra-228 (gamma) pCi/g	Th-228 (TH MOD) pCi/g	Th-230 (TH MOD) pCi/g	Th-232 (TH MOD) pCi/g	U-233/234 (U MOD) pCi/g	U-235/236 (U MOD) pCi/g	U-238 (U MOD) pCi/g	Sampling Program
SA5	SA5-0.5	0.5	11/14/2006	**1.12 J**	**1.92**							Ph A[1]
SA5	SA5-10	10	11/14/2006	**1.07 J**	**1.66**							Ph A
SA5	SA5-20	20	11/14/2006	**1.1 J**	**1.52**							Ph A
SA5	SA5-30	30	11/14/2006	**2.29**	**1.68**	**0.481 JB**	**2.23**	**0.59 J**	**1.58**	**0.0469 J**	**1.37**	Ph A
SA5	SA5-37	37	11/14/2006	**2.46**	**0.806 J**							Ph A
SA6	SA6-0.5	0.5	11/14/2006	**1.18 J**	**1.87**							Ph A
SA6	SA6-0.5D	0.5	11/14/2006	**1.32 J**	**1.89**							Ph A
SA6	SA6-10	10	11/14/2006	**1.07 J**	**1.8**	**0.601 J**	**0.619 JB**	**0.668 J**	**0.787**	**0.0165 J**	**0.483 J**	Ph A
SA6	SA6-20	20	11/14/2006	**1.21 J**	**1.63**							Ph A
SA6	SA6-30	30	11/14/2006	**1.49 J**	**1.94**							Ph A
SA6	SA6-35	35	11/14/2006	**2.1**	1.1 U							Ph A
SA11	SA11-0.5	0.5	11/09/2006	**0.947 J+**	**1.8 J+**							Ph A
SA11	SA11-0.5D	0.5	11/09/2006	**0.905 J+**	**1.87 J+**							Ph A
SA11	SA11-10	10	11/09/2006	**1.7 J+**	**1.95 J+**	**0.663 J**	**0.833 J**	**0.836 J**	**0.663**	0.004 U	**0.37 J**	Ph A
SA11	SA11-20	20	11/09/2006	**1.06 J+**	**1.68 J+**							Ph A
SA11	SA11-30	30	11/09/2006	**2.49 J+**	**1.17 J+**							Ph A

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

LOU 60 Table 16
Groundwater Characterization Data - Radionuclides

Acid Drain System
Tronox Facility - Henderson, Nevada

Well ID Number	Sample ID	Date	Ra-226 pCi/L	Ra-228 pCi/L	Th-228 pCi/L	Th-230 pCi/L	Th-232 pCi/L	U-233/234 pCi/L	U-235/236 pCi/L	U-238 pCi/L	Sampling Program
M12A	M12A-Z	05/11/2007	**0.601 J**	**1.45**							Ph A[1]
M13	M13-Z	05/09/2007	0.0728 U	0.152 UJ							Ph A

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

LOU 60 Table 17
Soil Characterization Data - SVOCS

Acid Drain 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	Ph A	Ph A	Ph A	Ph A	Ph A
		Boring No.	SA5	SA5	SA5	SA5	SA5	SA6	SA6	SA6	SA6	SA6	SA6	SA 11	SA 11	SA 11	SA 11	SA 11
		Sample ID	SA5-0.5	SA5-10	SA5-20	SA5-30	SA5-37	SA6-0.5	SA6-0.5D	SA6-10	SA6-20	SA6-30	SA6-35	SA11-0.5	SA11-0.5D	SA11-10	SA11-20	SA11-30
		Sample Depth (ft)	0.5	10	20	30	37	0.5	0.5	10	20	30	35	0.5	0.5	10	20	30
		Sample Date	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006
SVOC	**Analytical Method**	**MSSL[2] 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
1,4-Dioxane	non-SIM	1.70E+05	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
2-Methylnaphthalene	non-SIM	2.10E+05 (jj)	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
2-Methylnaphthalene	SIM	2.10E+05 (jj)	8.5 U					7.0 U	7.7 U									
Acenaphthene	non-SIM	3.30E+07	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Acenaphthene	SIM	3.30E+07	8.5 U					7.0 U	7.7 U									
Acenaphthylene	non-SIM	3.30E+07 (pp)	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Acenaphthylene	SIM	3.30E+07 (pp)	8.5 U					7.0 U	7.7 U									
Anthracene	non-SIM	1.00E+08	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Anthracene	SIM	1.00E+08	8.5 U					7.0 U	7.7 U									
Benz(a)anthracene	non-SIM	2.30E+03	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Benz(a)anthracene	SIM	2.30E+03	8.5 U					7.0 U	7.7 U									
Benzo(a)pyrene	non-SIM	2.30E+02	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Benzo(a)pyrene	SIM	2.30E+02	8.5 U					7.0 U	7.7 U									
Benzo(b)fluoranthene	non-SIM	2.30E+03	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Benzo(b)fluoranthene	SIM	2.30E+03	8.5 U					7.0 U	7.7 U									
Benzo(g,h,i)perylene	non-SIM	3.20E+07 (w)	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Benzo(g,h,i)perylene	SIM	3.20E+07 (w)	8.5 U					7.0 U	7.7 U									
Benzo(k)fluoranthene	non-SIM	2.30E+04	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Benzo(k)fluoranthene	SIM	2.30E+04	8.5 U					7.0 U	7.7 U									
bis(2-Ethylhexyl)phthalate	non-SIM	1.40E+05	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	**410**	380 U	350 U	350 U	540 U
Butyl benzyl phthalate	non-SIM	2.40E+05	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Chrysene	non-SIM	2.30E+05	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Chrysene	SIM	2.30E+05	8.5 U					7.0 U	7.7 U									
Dibenz(a,h)anthracene	non-SIM	2.30E+02	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Dibenz(a,h)anthracene	SIM	2.30E+02	8.5 U					7.0 U	7.7 U									
Diethyl phthalate	non-SIM	1.00E+08	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Dimethyl phthalate	non-SIM	1.00E+08	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Di-N-Butyl phthalate	non-SIM	6.80E+07	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Di-N-Octyl phthalate	non-SIM	--	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Fluoranthene	non-SIM	2.40E+07	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Fluoranthene	SIM	2.40E+07	8.5 U					7.0 U	7.7 U									
Fluorene	non-SIM	2.60E+07	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Fluorene	SIM	2.60E+07	8.5 U					7.0 U	7.7 U									
Hexachlorobenzene	non-SIM	1.20E+03	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	**960**	380 U	350 U	350 U	540 U
Hexachlorobenzene	SIM	1.20E+03	**21**					7.0 U	7.7 U									
Indeno(1,2,3-cd)pyrene	non-SIM	2.30E+03	430 U	380 U	390 U	360 U	550 U	350 UJ	380 UJ	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Indeno(1,2,3-cd)pyrene	SIM	2.30E+03	8.5 U					7.0 U	7.7 U									
Naphthalene	non-SIM	2.10E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
Naphthalene	non-SIM	2.10E+05	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Naphthalene	SIM	2.10E+05	8.5 U					7.0 U	7.7 U									
Nitrobenzene	non-SIM	1.10E+05	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Octachlorostyrene	non-SIM	--	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	**210 J**	380 U	350 U	350 U	540 U
Phenanthrene	non-SIM	1.00E+08 (n)	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Phenanthrene	SIM	1.00E+08 (n)	8.5 U					7.0 U	7.7 U									
Pyrene	non-SIM	3.20E+07	430 U	380 U	390 U	360 U	550 U	350 U	380 U	360 U	360 U	350 U	490 U	360 U	380 U	350 U	350 U	540 U
Pyrene	SIM	3.20E+07	8.5 U					7.0 U	7.7 U									
Pyridine	non-SIM	6.80E+05	2100 U	1900 U	1900 U	1700 U	2700 U	1700 U	1900 U	1700 U	1700 U	1700 U	2400 U	1700 U	1800 U	1700 U	1700 U	2600 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 60 Table 18
Groundwater Characterization Data - SVOC

Acid Drain System
Tronox Facility - Henderson, Nevada

		Sampling Program	Ph A[1]	Ph A
		Well No.	M-12A	M-13
		Sample ID	M-12A	M-13
		Sample Date	12/05/2006	12/01/2006
SVOCs	**Analytical Method**	**MCL[2] ug/L**	ug/L	ug/L
1,4-Dioxane	non-SIM	6.11E+00	10 U	**9.9**
2-Methylnaphthalene	non-SIM	6.20E+00 (jj)	10 U	10 U
2-Methylnaphthalene	SIM	6.20E+00 (jj)		0.20 U
Acenaphthene	non-SIM	3.65E+02	10 U	10 U
Acenaphthene	SIM	3.65E+02		0.20 U
Acenaphthylene	non-SIM	3.65E+02 (pp)	10 U	10 U
Acenaphthylene	SIM	3.65E+02 (pp)		0.20 U
Anthracene	non-SIM	1.83E+03	10 U	10 U
Anthracene	SIM	1.83E+03		0.20 U
Benz(a)anthracene	non-SIM	9.21E-02	10 U	10 U
Benz(a)anthracene	SIM	9.21E-02		0.20 U
Benzo(a)pyrene	non-SIM	2.00E-01	10 U	10 U
Benzo(a)pyrene	SIM	2.00E-01		0.20 U
Benzo(b)fluoranthene	non-SIM	9.21E-02	10 U	10 U
Benzo(b)fluoranthene	SIM	9.21E-02		0.20 U
Benzo(g,h,i)perylene	non-SIM	1.83E+02 (w)	10 U	10 U
Benzo(g,h,i)perylene	SIM	1.83E+02 (w)		0.20 U
Benzo(k)fluoranthene	non-SIM	9.21E-01	10 U	10 U
Benzo(k)fluoranthene	SIM	9.21E-01		0.20 U
bis(2-Ethylhexyl)phthalate	non-SIM	6.00E+00	10 U	10 U
Butyl benzyl phthalate	non-SIM	7.30E+03	10 U	10 U
Chrysene	non-SIM	9.21E+00	10 U	10 U
Chrysene	SIM	9.21E+00		0.20 U
Dibenz(a,h)anthracene	non-SIM	9.21E-03	10 U	10 U
Dibenz(a,h)anthracene	SIM	9.21E-03		0.20 U
Diethyl phthalate	non-SIM	2.92E+04	10 U	10 U
Dimethyl phthalate	non-SIM	3.65E+05	10 U	10 U
Di-N-Butyl phthalate	non-SIM	3.65E+03	10 U	10 U
Di-N-Octyl phthalate	non-SIM	1.46E+03	10 U	10 U
Fluoranthene	non-SIM	1.46E+03	10 U	10 U
Fluoranthene	SIM	1.46E+03		0.20 U
Fluorene	non-SIM	2.43E+02	10 U	10 U
Fluorene	SIM	2.43E+02		0.20 U
Hexachlorobenzene	non-SIM	1.00E+00	10 U	10 U
Hexachlorobenzene	SIM	1.00E+00		0.20 U
Indeno(1,2,3-cd)pyrene	non-SIM	9.21E-02	10 U	10 U
Indeno(1,2,3-cd)pyrene	SIM	9.21E-02		0.20 U
Naphthalene	non-SIM	6.20E+00	5.0 U	5.0 U
Naphthalene	non-SIM	6.20E+00	10 U	10 U
Naphthalene	SIM	6.20E+00		0.20 U
Nitrobenzene	non-SIM	3.40E+00	10 U	10 U
Octachlorostyrene	non-SIM	--	10 U	10 U

LOU 60 Table 18 (continued)
Groundwater Characterization Data - SVOCS

Acid Drain System
Tronox Facility - Henderson, Nevada

		Sampling Program	Ph A	Ph A
		Well No.	M-12A	M-13
		Sample ID	M-12A	M-13
		Sample Date	12/05/2006	12/01/2006
SVOCs	**Analytical Method**	**MCL[2] ug/L**	ug/L	ug/L
Phenanthrene	non-SIM	1.80E+03 (n)	10 U	10 U
Phenanthrene	SIM	1.80E+03 (n)		0.20 U
Pyrene	non-SIM	1.83E+02	10 U	10 U
Pyrene	SIM	1.83E+02		0.20 U
Pyridine	non-SIM	3.65E+01	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.
(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 60 Table 19
Soil Characteristic Data - TPH and Fuel Alcohols

Acid Drain 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**
SA6	SA6-0.5	0.5	11/14/2006	53 UJ	69 UJ	53 UJ	27 U	27 U	0.11 U	Ph A[2]
SA6	SA6-0.5D	0.5	11/14/2006	58 UJ	75 UJ	58 UJ	29 U	29 U	0.12 U	Ph A
SA6	SA6-10	10	11/14/2006	54 UJ	108 UJ	54 UJ	27 U	27 U	0.11 U	Ph A
SA6	SA6-20	20	11/14/2006	54 UJ	85 UJ	54 UJ	27 U	27 U	0.11 U	Ph A
SA6	SA6-30	30	11/14/2006	53 UJ	98 UJ	53 UJ	26 U	26 U	0.11 U	Ph A
SA6	SA6-35	35	11/14/2006	74 UJ	112 UJ	74 UJ	37 U	37 U	0.15 U	Ph A
SA11	SA11-0.5	0.5	11/09/2006				**86**	27 U	0.11 UJ	Ph A
SA11	SA11-0.5D	0.5	11/09/2006				28 U	28 U	0.11 U	Ph A
SA11	SA11-10	10	11/09/2006				27 U	27 U	0.11 U	Ph A
SA11	SA11-20	20	11/09/2006				26 U	26 U	0.10 U	Ph A
SA11	SA11-30	30	11/09/2006				41 U	41 U	0.16 U	Ph A

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.
(w) Value for pyrene used as surrogate for benzo(g,h,i)perylene based on structural similarities.

LOU 60 Table 20
Soil Characterization Data - VOCs

Acid Drain 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	Ph A	Ph A	Ph A	Ph A	Ph A
	Boring No.	SA5	SA5	SA5	SA5	SA5	SA6	SA6	SA6	SA6	SA6	SA6	SA11	SA11	SA11	SA11	SA11
	Sample ID	SA5-0.5	SA5-10	SA5-20	SA5-30	SA5-37	SA6-0.5	SA6-0.5D	SA6-10	SA6-20	SA6-30	SA6-35	SA11-0.5	SA11-0.5D	SA11-10	SA11-20	SA11-30
	Sample Depth (ft)	0.5	10	20	30	37	0.5	0.5	10	20	30	35	0.5	0.5	10	20	30
	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	11/09/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006
VOCs	**MSSL[2] 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+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
1,1,1,2-Tetrachloroethane	7.60E+03	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
1,1,1-Trichloroethane	1.40E+06	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
1,1,2,2-Tetrachloroethane	9.70E+02	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
1,1,2-Trichloroethane	2.10E+03	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
1,1-Dichloroethane	2.30E+06	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
1,1-Dichloroethene	4.70E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 U	5.2 U	8.2 U
1,1-Dichloropropene	1.75E+03 (gg)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
1,2,3-Trichlorobenzene	2.60E+05 (hh)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	**1.3 J**	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
1,2,3-Trichloropropane	1.60E+03	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
1,2,4-Trichlorobenzene	2.60E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	**3.7 J**	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
1,2,4-Trimethylbenzene	2.20E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
1,2-Dibromo-3-chloropropane	2.00E+01	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	5.7 U	5.4 U	5.2 U	8.2 U
1,2-Dichlorobenzene	3.70E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
1,2-Dichloroethane	8.40E+02	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
1,2-Dichloropropane	8.50E+02	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
1,3,5-Trimethylbenzene	7.80E+04	6.5 UJ	5.8 U	5.9 UJ	5.4 U	8.3 U	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 U	5.4 UJ	9.1 UJ	5.4 UJ	5.2 UJ	8.2 UJ
1,3-Dichlorobenzene	1.40E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
1,3-Dichloropropane	4.10E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
1,4-Dichlorobenzene	8.10E+03	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	**1.7 J**	5.7 U	5.4 UJ	**0.92 J**	**5.6 J**
2,2-Dichloropropane	8.50E+02 (ii)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
2-Butanone	3.40E+07	13 U	12 U	12 U	11 U	17 U	11 U	12 U	11 U	11 U	11 U	15 U	11 U	11 U	**1.7 J**	10 U	16 U
2-Chlorotoluene	5.10E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	5.7 U	5.4 U	5.2 U	8.2 U
2-Hexanone	1.72E+07 (nn)	13 UJ	12 UJ	12 UJ	11 UJ	17 UJ	11 UJ	12 UJ	11 UJ	11 UJ	11 UJ	15 UJ	11 U	18 UJ	11 U	10 U	16 U
2-Methoxy-2-methyl-butane	--	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
4-Chlorotoluene	5.10E+05 (ww)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
4-Isopropyltoluene	--	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
4-Methyl-2-pentanone	1.70E+07	13 U	12 U	12 U	11 U	17 U	11 U	12 U	11 U	11 U	11 U	15 U	11 U	18 U	11 U	10 U	16 U
Acetone	6.00E+07	13 U	12 U	12 U	11 U	17 U	11 U	12 UJ	11 U	11 U	11 U	15 U	11 UJ	11 U	14 UJ	10 UJ	16 UJ
Benzene	1.60E+03	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
Bromobenzene	1.20E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	5.7 U	5.4 U	5.2 U	8.2 U
Bromochloromethane	1.75E+03 (qq)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	5.7 U	5.4 U	5.2 U	8.2 U
Bromodichloromethane	2.60E+03	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
Bromoform	2.40E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	5.7 U	5.4 U	**0.93 J**	8.2 U
Bromomethane	1.50E+04	13 U	12 U	12 U	11 U	17 U	11 U	12 U	11 U	11 U	11 U	15 U	11 UJ	11 U	11 UJ	10 UJ	16 UJ
Carbon tetrachloride	5.80E+02	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
Chlorobenzene	5.00E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
Chloroethane	7.20E+03	6.5 UJ	5.8 UJ	5.9 UJ	5.4 UJ	8.3 UJ	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 UJ	5.4 UJ	5.7 UJ	5.4 UJ	5.2 UJ	8.2 UJ
Chloroform	5.80E+02	6.5 U	5.8 U	**0.79 J**	**19**	**120**	5.3 U	5.8 U	**0.50 J**	5.4 U	5.3 U	**28**	**150**	**130**	**14**	**48**	**17**
Chloromethane	1.70E+05	6.5 UJ	5.8 UJ	5.9 UJ	5.4 UJ	8.3 UJ	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 UJ	5.4 UJ	5.7 UJ	5.4 UJ	5.2 UJ	8.2 UJ
cis-1,2-Dichloroethene	1.60E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U

LOU 60 Table 20 (continued)
Soil Characterization Data - VOCs

Acid Drain 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	Ph A	Ph A	Ph A	Ph A	Ph A
	Boring No.	SA5	SA5	SA5	SA5	SA5	SA6	SA6	SA6	SA6	SA6	SA6	SA11	SA11	SA11	SA11	SA11
	Sample ID	SA5-0.5	SA5-10	SA5-20	SA5-30	SA5-37	SA6-0.5	SA6-0.5D	SA6-10	SA6-20	SA6-30	SA6-35	SA11-0.5	SA11-0.5D	SA11-10	SA11-20	SA11-30
	Sample Depth (ft)	0.5	10	20	30	37	0.5	0.5	10	20	30	35	0.5	0.5	10	20	30
	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	11/09/2006	11/09/2006	11/09/2006	11/09/2006	11/09/2006
VOCs	**MSSL[2] 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
cis-1,3-Dichloropropene	1.75E+03 (gg)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
Dibromochloromethane	2.60E+03	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	5.7 U	5.4 U	5.2 U	8.2 U
Dibromomethane	5.90E+05 (xx)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	5.7 U	5.4 U	5.2 U	8.2 U
Dichlorodifluoromethane	3.40E+05	6.5 UJ	5.8 UJ	5.9 UJ	5.4 UJ	8.3 UJ	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 UJ	5.4 UJ	5.7 UJ	5.4 UJ	5.2 UJ	8.2 UJ
Ethyl t-butyl ether	7.90E+04 (kk)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
Ethylbenzene	2.30E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
Ethylene dibromide	7.00E+01	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	5.7 U	5.4 U	5.2 U	8.2 U
Hexachlorobutadiene	2.50E+04	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	**4.5 J**	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
isopropyl ether	--	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
Isopropylbenzene	5.80E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
Methyl tert butyl ether	7.90E+04	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
Methylene chloride	2.20E+04	6.5 U	5.8 UJ	5.9 U	5.4 UJ	8.3 UJ	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 UJ	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	14 UJ
N-Butylbenzene	2.40E+05	6.5 UJ	5.8 U	5.9 UJ	5.4 U	8.3 U	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 U	5.4 UJ	5.7 UJ	5.4 UJ	5.2 UJ	8.2 UJ
N-Propylbenzene	2.40E+05	6.5 UJ	5.8 U	5.9 UJ	5.4 U	8.3 U	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 U	5.4 UJ	9.1 UJ	5.4 UJ	5.2 UJ	8.2 UJ
sec-Butylbenzene	2.20E+05	6.5 UJ	5.8 U	5.9 UJ	5.4 U	8.3 U	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 U	5.4 UJ	5.7 UJ	5.4 UJ	5.2 UJ	8.2 UJ
Styrene	1.70E+06	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
t-Butyl alcohol	--	13 UJ	12 UJ	12 UJ	11 UJ	17 UJ	11 UJ	12 UJ	11 UJ	11 UJ	11 UJ	15 UJ	17 UJ	23 UJ	14.0 UJ	13 UJ	22 UJ
tert-Butylbenzene	3.90E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	5.7 U	5.4 UJ	5.2 UJ	8.2 UJ
Tetrachloroethene	1.70E+03	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
Toluene	5.20E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
trans-1,2-Dichloroethylene	2.00E+05	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
trans-1,3-Dichloropropene	1.75E+03 (gg)	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	8.2 UJ
Trichloroethene	1.00E+02	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 UJ	9.1 U	5.4 UJ	5.2 UJ	**1.4 J**
Trichlorofluoromethane	1.40E+06	6.5 UJ	5.8 UJ	5.9 UJ	5.4 UJ	8.3 UJ	5.3 UJ	5.8 UJ	5.4 UJ	5.4 UJ	5.3 UJ	7.4 UJ	5.4 UJ	9.1 UJ	5.4 UJ	5.2 UJ	8.2 UJ
Vinylchloride	8.60E+02	6.5 U	5.8 U	5.9 U	5.4 U	8.3 U	5.3 U	5.8 U	5.4 U	5.4 U	5.3 U	7.4 U	5.4 U	9.1 U	5.4 U	5.2 U	8.2 U
Xylene (Total)	2.10E+05	13 U	12 U	12 U	11 U	17 U	11 U	12 U	11 U	11 U	11 U	15 U	11 UJ	18 U	11 UJ	10 UJ	16 UJ

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).
(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.

LOU 60 Table 21
Groundwater Characteristic Data - VOCs

Acid Drain System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A[1]	Ph A
	Well ID	M-12A	M-13
	Sample ID	M-12A	M-13
	Sample Date	12/05/2006	12/01/2006
VOCs	**MCL[2] ug/L**	ug/L	ug/L
Naphthalene	6.20E+00	5.0 U	5.0 U
1,1,1,2-Tetrachloroethane	4.32E-01	5.0 U	5.0 U
1,1,1-Trichloroethane	2.00E+02	5.0 U	**1.6 J**
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	5.0 U	**2.6 J**
1,1-Dichloroethene	7.00E+00	5.0 U	**2.7 J**
1,1-Dichloropropene	3.95E-01 gg	5.0 U	5.0 U
1,2,3-Trichlorobenzene	7.16E+00 hh	5.0 U	5.0 U
1,2,3-Trichloropropane	5.60E-03	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 UJ	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	5.0 U	5.0 U
1,3-Dichlorobenzene	1.83E+02	5.0 U	5.0 U
1,3-Dichloropropane	1.22E+02	5.0 U	5.0 U
1,4-Dichlorobenzene	7.50E+01	5.0 U	5.0 U
2,2-Dichloropropane	1.65E-01 ii	5.0 U	5.0 U
2-Butanone	6.97E+03	10 U	10 U
2-Chlorotoluene	1.22E+02	5.0 U	5.0 U
2-Hexanone	2.00E+03 nn	10 U	10 UJ
2-Methoxy-2-methyl-butane	--	5.0 U	5.0 U
4-Chlorotoluene	1.22E+02 ww	5.0 U	5.0 U
4-Isopropyltoluene	--	5.0 U	5.0 U
4-Methyl-2-pentanone	1.99E+03	10 UJ	10 U
Acetone	5.48E+03	10 U	10 U
Benzene	5.00E+00	5.0 U	5.0 U
Bromobenzene	2.03E+01	5.0 U	5.0 U
Bromochloromethane	1.81E-01 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	10 UJ	10 UJ
Carbon tetrachloride	5.00E+00	5.0 U	5.0 U
Chlorobenzene	1.00E+02 o	5.0 U	5.0 U
Chloroethane	4.64E+00	5.0 U	5.0 UJ
Chloroform	8.00E+01 r	**1600 J+**	**40**
Chloromethane	1.58E+02	5.0 U	5.0 UJ
cis-1,2-Dichloroethene	7.00E+01	5.0 U	5.0 U
cis-1,3-Dichloropropene	3.95E-01 gg	5.0 U	5.0 U
Dibromochloromethane	8.00E+01 r	5.0 U	5.0 U
Dibromomethane	6.08E+01 xx	5.0 U	5.0 U
Dichlorodifluoromethane	3.95E+02	5.0 U	5.0 UJ
Ethyl t-butyl ether	1.10E+01 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
Hexachlorobutadiene	8.62E-01	5.0 U	5.0 U
isopropyl ether	--	5.0 U	5.0 U
Isopropylbenzene	6.58E+02	5.0 U	5.0 U
Methyl tert butyl ether	2.00E+01 a,uu	5.0 U	5.0 U

LOU 60 Table 21 (continued)
Groundwater Characteristic Data - VOCs

Acid Drain System
Tronox Facility - Henderson, Nevada

	Sampling Program	Ph A	Ph A
	Well ID	M-12A	M-13
	Sample ID	M-12A	M-13
	Sample Date	12/05/2006	12/01/2006
VOCs	**MCL[2] ug/L**	ug/L	ug/L
Methylene chloride	5.00E+00	5.0 U	5.0 U
N-Butylbenzene	2.43E+02	5.0 U	5.0 U
N-Propylbenzene	2.43E+02	5.0 U	5.0 U
sec-Butylbenzene	2.43E+02	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	5.0 U	5.0 U
Tetrachloroethene	5.00E+00	**0.93 J**	**0.44 J**
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	5.0 U	**33**
Trichlorofluoromethane	--	5.0 U	5.0 UJ
Vinylchloride	2.00E+00	5.0 U	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.
(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.
(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.
(uu) NDEP, 1998. Oxygenated Fuel Corrective Action Guidance. Draft. October, 12 1998. URL [http://ndep.nv.gov/bca/mtbe_doc.htm].

LOU 60 Table 22
Soil Characterization Data - Long Asbestos Fibers in Respirable Soil Fraction

Acid Drain System
Tronox Facility - Henderson, Nevada

Boring No.	Sample ID	Sample Date	Long Amphibole Protocol Structures s/gPM10	Long Amphibole Protocol Structures (structures/samples)	Long Chrysotile Protocol Structures s/gPM10	Long Chrysotile Protocol Structures (structures/samples)	Sampling Program
SA5	SA5	12/07/2006	2980000 U	0	**35800000**	**12**	Ph A[1]
SA6	SA6	12/07/2006	2846000 U	0	2846000 U	0	Ph A
SA11	SA11	12/02/2006	**2940000**	1	**5890000**	2	Ph A
SA11D	SA11D	12/02/2006	2922000 U	0	**5840000**	2	Ph A

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

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Notes for Phase A Data Tables

Acid Drain 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.
--	Not established