

**Summary of Available Data for LOU 45  
Diesel Storage Tanks**  
Tronox Facility – Henderson, Nevada

- Name of Facility:** LOU 45 –Diesel Storage Tanks
- Goal of Closure:**
- Closure for future commercial/industrial use.
- Site Investigation Area:**
- Size: Diesel aboveground storage tank (AST): 500,000 gallon, approximately 170 feet by 140 feet (0.5 acre); Overflow AST: 18,000 gallon capacity AST (typical dimensions approximately 10 feet in diameter by 24 feet in length). Total area approximately 400 feet by 140 feet (1.3 acres).
  - Location: Central portion of the Site, just north of the Chemstar property.
  - Current Status/Features: LOU 45 is not currently active and the ASTs and piping have been removed. There are no structures except berms present at LOU45.
- Description:**
- LOU 45 consisted of a 500,000-gallon diesel AST with an 18,000-gallon overflow AST [Ref 4] and two additional tanks of similar size.
  - The Diesel Storage Tanks were operational from the early 1940s to 1994 (approximately 54 years) when the ASTs were removed [Ref. 1 and 4].
  - Each AST was located within its own bermed area [Ref. 4].
  - Both areas appear to be unpaved [Ref. 5].
  - The overflow AST was located northwest of the diesel AST [Ref. 4].
  - In 1991, soil staining was observed over approximately 30 percent of the surface soils surrounding the diesel AST and “diesel” odors were noted in localized areas [Ref. 4].
  - No soil staining or visual evidence of impact was observed in the area of the overflow AST [Ref. 4].
  - The 1979 aerial photographs shows a square building immediately south of the overflow AST; 1960 aerial photographs show an AST of similar or slightly larger size to the overflow tank at this location [Ref. 5].
  - The 1960 and 1979 aerial photographs show a large, bermed AST, similar in size or larger than the diesel AST [Ref. 5]. The purpose of these two additional ASTs is not known [Ref. 5].

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Process Waste Stream Associated with LOU 45	Known or Potential Constituents Associated with LOU 45
Diesel fuel releases	<ul style="list-style-type: none"> <li>• Metals</li> <li>• VOCs</li> <li>• SVOCs</li> <li>• TPH-DRO</li> </ul>

**Overlapping or Adjacent LOUs:**

The following LOUs overlap or are adjacent to LOU 45:

Overlapping LOUs

- LOU 60 (Acid Drain System) - A branch of the Acid Drain System from the Former Preparation Building passes through the length of LOU 45 near its southern boundary.

Adjacent LOUs

- LOU 7 (Old P-2 Pond and Associated Conveyance Facility) – Located north (downgradient) of LOU 45.
- LOU 8 (Old P-3 Pond and Associated Conveyance Facility) - Located north (downgradient) of LOU 45.
- LOU 14 (P-1 Pond and Associated Conveyance Facility) - Located northeast (downgradient) of LOU 45.
- LOU 34W (Former Manganese Tailings Area) - Located east (crossgradient) of LOU 45.
- LOU 64 (Koch Materials Company Site) - Located west (cross-gradient) of LOU 45.
- LOU 59 (Storm Sewer System) - Located south (upgradient) of LOU 45.

LOUs 7, 8 and 14 are downgradient to LOU 45 and LOUs 34W and 64 are crossgradient to LOU 45; therefore, they are not considered to affect LOU 45. LOU 45 is downgradient of a branch of LOU 59. Potential releases from LOU 59 may have occurred that affected LOU 45; however, no releases have been documented. Therefore, the addition of other chemical classes to the Phase B Analytical Plan for LOU 45 is not required.

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

**LOUs Potentially Affecting Soils in LOU 45:**

- LOU 60: A branch of the Acid Drain System passes along the southern length of LOU 45. The system carried effluent from onsite and offsite sources to the acid effluent neutralization plant. Potential releases from LOU 60 may have occurred that affected LOU 45; however, no releases have been documented.

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Known or potential chemical classes that are associated with LOU 60 are consistent with those listed for LOU 45; therefore, the addition of other chemical classes to the Phase B Analytical Plan for LOU 45 is not required.

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

**Known or Potential Chemical Classes:**

- Metals
- VOCs
- SVOCs
- TPH - DRO

**Known or Potential Release Mechanisms:**

- No reported releases were documented for this LOU; however, stains on soils indicate releases.
- Potential infiltration to subsurface soils and groundwater.
- Possible impacts to surrounding soils from surface releases.
  - Soil staining and “diesel” odors were observed in the area of the diesel AST [Ref. 4].

**Results of Historical Sampling:**

- Soil sampling was conducted in 1997 and 1999 [Ref. 1]:
  - In 1997, TPH-DRO was identified in soil samples.
  - The area was resampled in 1999 and only TPH-DRO was detected.
- One groundwater grab sample (SB5-5) showed detectable concentrations of TPH-DRO [Ref 1].
- An immediately downgradient monitoring well (M-21) and wells M-76, M-75, and M-2A are tested for chromium and perchlorate as part of periodic or routine groundwater monitoring program [Ref. 3].

Analytical results are summarized on LOU 45 Tables 3 through 5 (see attached) [Ref. 3].

**Did Historical Samples Address Potential Release?**

- No

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**Summary of Phase A SAI:**

Soil

- None specifically conducted for this LOU. The closest boring (SA11) is located approximately 150 feet northwest (cross-gradient) of LOU 45 and was not specifically sampled to evaluate this LOU [Ref. 2]. This boring is located within LOU 8 (Old P-3 Pond); therefore, is not considered to be representative of soil conditions at LOU 45.

Groundwater

- None specifically conducted for this LOU. The closest well sampled (M-76) is located approximately 330 feet to the north (downgradient) of LOU 45 and was not specifically sampled to evaluate this LOU [Ref. 2]. However, since well M-76 is located directly downgradient of LOU 45, it is considered to be representative of groundwater conditions downgradient of LOU 45.
- Analytical results for soil and groundwater from the Phase A sampling event are summarized in LOU 45 Tables 1 and 2 and LOU 45 Tables 6 through 12.

**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 for LOU 45 consists of collecting soil samples from the following 12 locations:

- Twelve (12) soil borings will be drilled within the boundaries of LOU 45.
- All 12 borings along with the analytical program to evaluate soil samples from LOU 45 are listed on **Table A – Soil Sampling and Analytical Plan for LOU 45.**
- 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 LOUs, based on the known process waste streams.
  - Eleven (11) of the 12 sample locations are judgmental locations and include soil borings SA185, SA186, SA153, SA44, SA43, SA45, SA42, SA187, SA188, SA172, SA41, and SA40.

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- Random sample grid locations:
  - Designed to assess whether unknown constituents associated with the LOU are present.
  - One (1) of the 12 sample locations is a randomly-placed location. This boring is RSAO5.

**Proposed Phase B Constituents List for Soils:**

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

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

**Proposed Phase B Groundwater Investigation/Rationale:**

- The Phase B groundwater investigation of LOU 45 consists of collecting groundwater samples from five (5) locations to evaluate local groundwater conditions and as part of Site-wide evaluation of constituent trends in groundwater.
  - Wells M-21, M-76, M-75, and M-2A north (downgradient) of LOU 45 will be used to evaluate local and area-wide groundwater conditions.
  - Well M-97 south (upgradient) of LOU 45 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 45 are listed on **Table B – Groundwater Sampling and Analytical Plan for LOU 45.**

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**Proposed Phase B Constituents List for Groundwater:** Groundwater samples will be analyzed for the following analytes:

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

**Proposed Phase B Soil Gas Investigation/Rationale:** Soil gas samples will be collected from two (2) locations to evaluate area conditions for the presence of vapor-phase VOCs in the vadose zone.

- SG95 and SG94 are located to evaluate VOCs beneath the two largest tanks observed in aerial photographs from 1960 and 1979.

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)

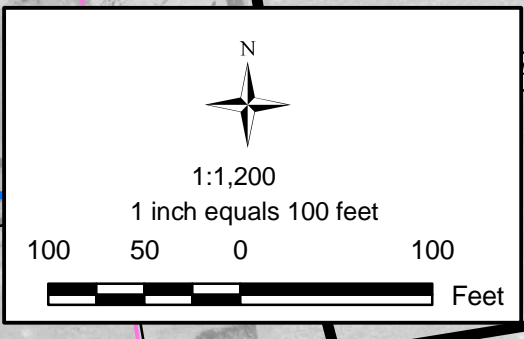
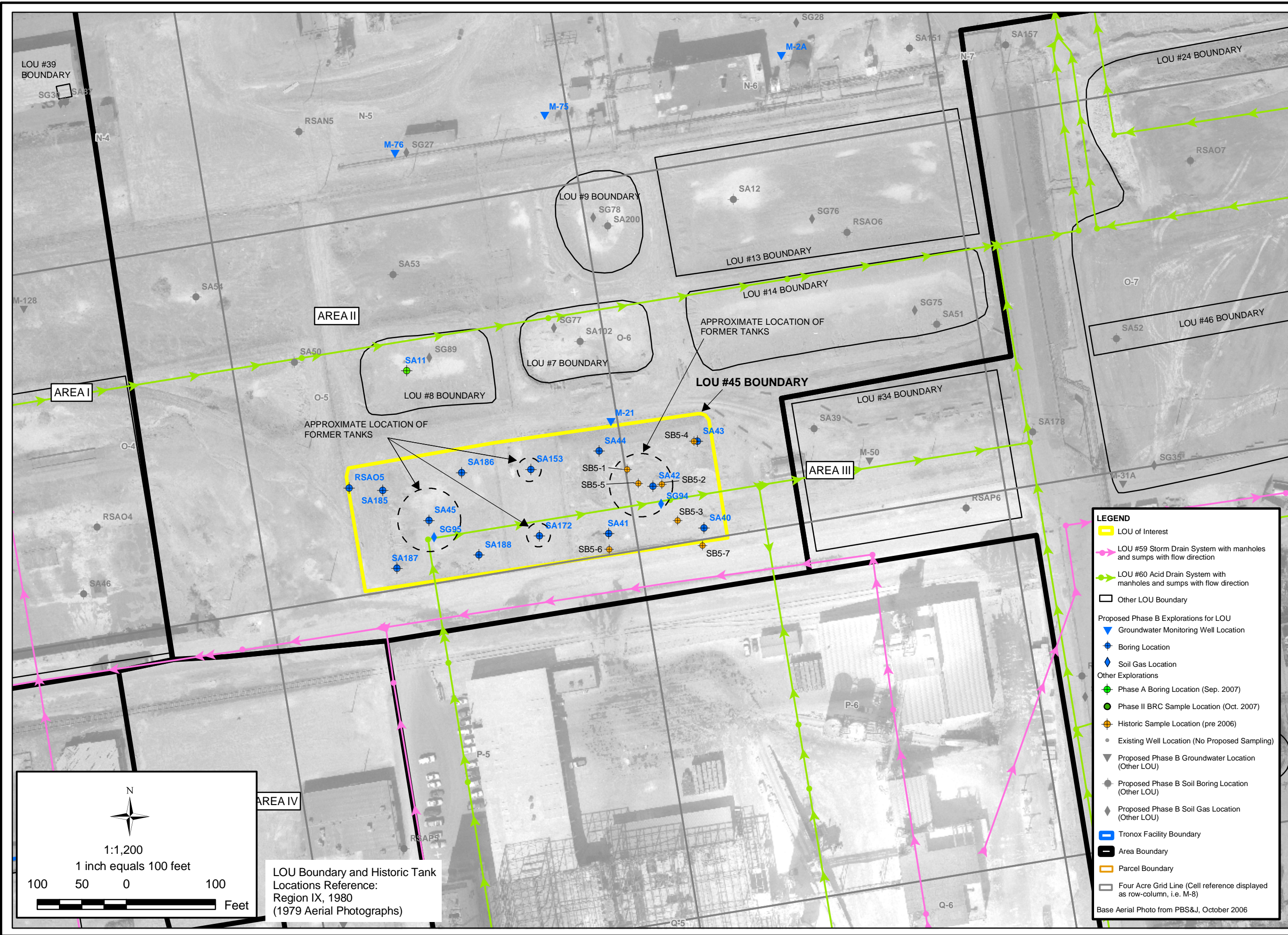
**References:**

1. ENSR, 2005, Conceptual Site Model, Kerr-McGee Facility, Henderson, Nevada, ENSR, Camarillo, California, 04020-023-130, February 2005 and August 2005.
2. ENSR, 2007a, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
3. ENSR, 2007b, Quarterly Performance Report for Remediation Systems, Tronox LLC, Henderson, Nevada, July-September 2007, November 2007.
4. Kleinfelder, 1993, Environmental Conditions Assessment, Kerr-McGee Chemical Corporation, Henderson, Nevada Facility, April 15, 1993 (Final).
5. Region IX, 1980, Aerial Reconnaissance of Hazardous Waste Sources BMI Industrial Complex, Henderson, 1943-1979

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**LOU Figure**



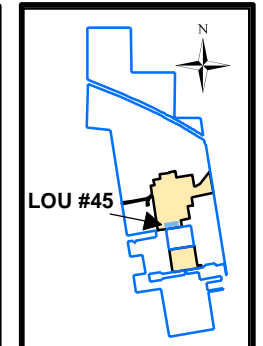


LOU Boundary and Historic Tank Locations Reference:  
Region IX, 1980  
(1979 Aerial Photographs)

**LEGEND**

- LOU of Interest
- LOU #59 Storm Drain System with manholes and sumps with flow direction
- LOU #60 Acid Drain System with manholes and sumps with flow direction
- Other LOU Boundary
- Proposed Phase B Explorations for LOU
  - ▼ Groundwater Monitoring Well Location
  - ◆ Boring Location
  - ◆ Soil Gas Location
- Other Explorations
  - ◆ Phase A Boring Location (Sep. 2007)
  - Phase II BRC Sample Location (Oct. 2007)
  - ◆ Historic Sample Location (pre 2006)
  - Existing Well Location (No Proposed Sampling)
  - ▼ Proposed Phase B Groundwater Location (Other LOU)
  - ◆ Proposed Phase B Soil Boring Location (Other LOU)
  - ◆ Proposed Phase B Soil Gas Location (Other LOU)
- Tronox Facility Boundary
- Area Boundary
- Parcel Boundary
- Four Acre Grid Line (Cell reference displayed as row-column, i.e. M-8)

Base Aerial Photo from PBS&J, October 2006



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CHECKED BY:	C. Schnell
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**SAMPLE LOCATIONS FOR LOU #45 DIESEL STORAGE TANKS**

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

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

FIGURE NUMBER:
<b>1</b>
SHEET NUMBER:
<b>X</b>



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**Sampling and Analytical Plans for LOU 45**

Table A – Soil Sampling and Analytical Plan for LOU 45  
Table B – Groundwater Sampling and Analytical Plan for LOU 45

Grid Location	LOU Number	Phase B Boring No.	Sample ID Number	Sample Depths <sup>1</sup> (ft. bgs)	Perchlorate (EPA 314.0)	Metals (EPA 6020)	Hex Cr (EPA 7199)	TPH-DRO/ORO (EPA 8015B)	TPH-GRO (EPA 8015B)	VOCs <sup>2</sup> (EPA 8260B)	Wet Chemistry <sup>3</sup>	Total Cyanide (EPA 9012A)	OCPs <sup>4</sup> (EPA 8081A)	SVOCs <sup>5</sup> (EPA 8270C)	Radio-nuclides <sup>6</sup>	Dioxins/Furans <sup>7</sup>	Asbestos <sup>8</sup> EPA/540/R-97/028	Geo-technical Tests <sup>10</sup>	Rationale
<b>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).</b>																			
O-5	45, 59, 60	SA41	SA41-0.0	0.0															Boring located to evaluate LOU 45 (Diesel Storage Tanks), LOU 59 (Storm Sewer System), and LOU 60 Acid Drain System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text for historic details) and between LOUs 59 and 60 to evaluate possible piping releases.
O-5	45, 59, 60		SA41-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45, 59, 60		SA41-10	10	X	X	X	X		X	X		Hold	X	X				
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	SA44	SA44-0.0	0.0														X	Boring located to evaluate LOU 45 (Diesel Storage Tanks), System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text for historic details).
O-5	45		SA44-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45		SA44-10	10	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA44-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA44-30	30	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA44-40	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 of a former tank to evaluate potential subsurface releases and near LOU 60 manhole which is a high risk release location.
O-5	45, 60		SA45-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45, 60		SA45-10	10	X	X	X	X		X	X		Hold	X	X				
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	45	SA153	SA153-0.0	0.0														X	Boring located to evaluate LOU 45 (Diesel Storage Tanks). Located beneath the footprint of a aboveground storage tank to evaluate subsurface releases (See LOU 45 summary for historical data).
O-5	45		SA153-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45		SA153-10	10	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA153-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA153-30	30	X	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 System). Located beneath the footprint of a aboveground storage tank to evaluate subsurface releases (See LOU 45 summary for historical data).
O-5	45, 59, 60		SA172-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45, 59, 60		SA172-10	10	X	X	X	X		X	X		Hold	X	X				
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	RSA05	RSA05-0.0	0.0														X	Boring located to evaluate LOU 45 (Diesel Storage Tanks). Randomly located within LOU 45 to evaluate possible surface runoff releases and to evaluate site wide conditions.
O-5	45		RSA05-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45		RSA05-10	10	X	X	X	X		X	X		Hold	X	X				
O-5	45		RSA05-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45		RSA05-30	30	X	X	X	X		X	X		Hold	X	X				
O-5	45		RSA05-35	35	X	X	X	X		X	X		X	X	X				
O-5	45	SA185	SA185-0.0	0.0														X	Boring located to evaluate LOU 45 (Diesel Storage Tanks), System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text for historic details).
O-5	45		SA185-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45		SA185-10	10	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA185-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA185-30	30	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA185-35	35	X	X	X	X		X	X		X	X	X				
O-5	45	SA186	SA186-0.0	0.0														X	Boring located to evaluate LOU 45 (Diesel Storage Tanks), System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text for historic details).
O-5	45		SA186-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45		SA186-10	10	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA186-20	20	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA186-30	30	X	X	X	X		X	X		Hold	X	X				
O-5	45		SA186-35	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 System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text for historic details) and between LOUs 59 and 60 to evaluate possible piping releases.
O-5	45, 59, 60		SA187-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45, 59, 60		SA187-10	10	X	X	X	X		X	X		Hold	X	X				
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 System). Located beneath the footprint of a aboveground storage tank to evaluate subsurface releases (See LOU 45 summary for historical data).
O-5	45, 59		SA188-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-5	45, 59		SA188-10	10	X	X	X	X		X	X		Hold	X	X				
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 System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text for historic details) and between LOUs 59 and 60 to evaluate possible piping releases.
O-6	45, 59		SA40-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-6	45, 59		SA40-10	10	X	X	X	X		X	X		Hold	X	X				
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 within the footprint of former aboveground storage tank to evaluate potential releases and near LOU 60 piping to evaluate possible local piping releases.
O-6	45, 60		SA42-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-6	45, 60		SA42-10	10	X	X	X	X		X	X		Hold	X	X				
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				
O-6	45	SA43	SA43-0.0	0.0														X	Boring located to evaluate LOU 45 (Diesel Storage Tanks), LOU 59 (Storm Sewer System), and LOU 60 Acid Drain System). Located on the perimeter of the former aboveground storage tank to evaluate potential releases (see text for historic details) and between LOUs 59 and 60 to evaluate possible piping releases.
O-6	45		SA43-0.5	0.5	X	X	X	X		X	X		X	X	X	X			
O-6	45		SA43-10	10	X	X	X	X		X	X		Hold	X	X				
O-6	45		SA43-20	20	X	X	X	X		X	X		Hold	X	X				
O-6	45		SA43-30	30	X	X	X	X		X	X		Hold	X	X				

Grid Location	LOU Number	Phase B Boring No.	Sample ID Number	Sample Depths <sup>1</sup> (ft. bgs)	Perchlorate (EPA 314.0)	Metals (EPA 6020)	Hex Cr (EPA 7199)	TPH-DRO/ORO (EPA 8015B)	TPH-GRO (EPA 8015B)	VOCs <sup>2</sup> (EPA 8260B)	Wet Chemistry <sup>3</sup>	Total Cyanide (EPA 9012A)	OCPs <sup>4</sup> (EPA 8081A)	SVOCs <sup>5</sup> (EPA 8270C)	Radio-nuclides <sup>6</sup>	Dioxins/Furans <sup>7</sup>	Asbestos <sup>8</sup> (EPA/540/R-97/028)	Geo-technical Tests <sup>10</sup>	Rationale
<b>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).</b>																			
O-6	45		SA43-40	40	X	X	X	X		X	X		X	X	X				
<b>Number of Samples:</b>					<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>0</b>	<b>64</b>	<b>64</b>	<b>0</b>	<b>26</b>	<b>64</b>	<b>64</b>	<b>13</b>	<b>13</b>	<b>0</b>	

**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.

Grid Location	Location Area	Monitoring Well No.	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval <sup>1</sup>	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Hex Cr (EPA 7199)	Metals	VOCs <sup>2</sup> (EPA 8260)	Wet Chemistry (a)	OCPs <sup>3</sup> (EPA 8081A)	SVOCs <sup>4</sup> (EPA 8270C)	Radionuclides <sup>5</sup>	Rationale
<b>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).</b>														
N5	II	M-75	34.6 - 49.3	Qal/MCf <sub>g</sub> 1	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	MCc <sub>g</sub> 1	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.
O5	II	M-21	18 - 38	MCf <sub>g</sub> 1	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	MCf <sub>g</sub> 1/MCc <sub>g</sub> 1	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.
<b>Number of Field Samples:</b>						<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	
<b>Notes:</b>														
* 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														
MCf <sub>g</sub> 1 Muddy Creek Formation - first fine-grained facies														
MCc <sub>g</sub> 1 Muddy Creek Formation - first coarse-grained facies														



**Summary of Available Data for LOU 45  
Diesel Storage Tanks**  
Tronox Facility – Henderson, Nevada

**Soil and Groundwater Characterization Data**

**Summary of Available Data for LOU 45  
Diesel Storage Tanks  
Tronox Facility – Henderson, Nevada**

LOU-specific analytes identified include:

- Metals (Phase A list)
- VOCs
- SVOCs

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

**LOU 45 Table 1 – Soil Characterization Data – Wet Chemistry**

**LOU 45 Table 2 – Groundwater Characterization Data – Metals**

LOU 45 Table 3a – Groundwater Characterization Data – Routine Monitoring

LOU 45 Table 3b – Groundwater Characterization Data – Routine Monitoring

LOU 45 Table 4a – Summary of Groundwater Analytical Data

LOU 45 Table 4b – Summary of Groundwater Analytical Data

LOU 45 Table 5 – Summary of Soil Analytical Data

LOU 45 Table 6 – Groundwater Characterization Data – Organochlorine Pesticides (OCP)

LOU 45 Table 7 – Groundwater Characterization Data – Organophosphorus Pesticides (OPP)

LOU 45 Table 8 – Groundwater Characterization Data – PCBs

**LOU 45 Table 9 – Groundwater Characterization Data – Perchlorate**

LOU 45 Table 10 – Groundwater Characterization Data – Radionuclides

LOU 45 Table 11 – Groundwater Characterization Data – SVOCs

LOU 45 Table 12 – Groundwater Characterization Data – VOCs

Notes for Phase A Data Tables are included at the end of the table

**LOU 45 Table 1**  
**Groundwater Characterization Data - Wet Chemistry**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

<b>Sampling Program</b>		Ph A <sup>1</sup>	
<b>Well ID</b>		M-76	
<b>Sample ID</b>		M-76	
<b>Sample Date</b>		12/04/2006	
<b>Wet Chemistry Parameters</b>	<b>MCL<sup>2</sup> mg/L</b>		<b>Units</b>
Total Dissolved Solids	5.00E+02 j	<b>3970</b>	mg/L
Total Suspended Solids	--	<b>20.0 J</b>	mg/L
Alkalinity (as CaCO <sub>3</sub> )	--	<b>5.0 U</b>	mg/L
Bicarbonate	--	<b>125</b>	mg/L
Total Alkalinity	--	<b>125</b>	mg/L
Ammonia (as N)	--	<b>50.0 U</b>	ug/L
MBAS	--	<b>0.21</b>	mg/L
Cyanide	2.00E-01	<b>R</b>	ug/L
pH (liquid)	--	<b>7.2 J</b>	none
Specific Conductance	--	<b>2320 J+</b>	umhos/cm
Bromide	--	<b>0.96</b>	mg/L
Chlorate	--	<b>820</b>	mg/L
Chloride	2.50E+02	<b>829</b>	mg/L
Nitrate (as N)	1.00E+01	<b>8.8</b>	mg/L
Nitrite	1.00E+00	<b>14.5</b>	mg/L
ortho-Phosphate	--	<b>15.0</b>	mg/L
Sulfate	2.50E+02 j	<b>770</b>	mg/L
Total Organic Carbon	--	<b>50.0 U</b>	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 45 Table 2  
Groundwater Characterization Data - Metals**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Well ID:		M-76	
Sample ID		M-76-Z	
Sample Date		05/09/2007	
Metals	MCL <sup>2</sup> ug/L		Unit
Aluminum	5.00E+01 j	393 U	ug/L
Antimony	6.00E+00	25.0 U	ug/L
Arsenic	1.00E+01	100 U	ug/L
Barium	2.00E+03	23.5 U	ug/L
Beryllium	4.00E+00	4.4 U	ug/L
Boron	7.30E+03	<b>3570</b>	ug/L
Cadmium	5.00E+00	2.9 U	ug/L
Calcium	--	<b>120000</b>	ug/L
Chromium (Total)	1.00E+02	<b>2380</b>	ug/L
Chromium-hexavalent	1.09E+02	<b>2590 J</b>	ug/L
Cobalt	7.30E+02	15.7 U	ug/L
Copper	1.30E+03 p	12.5 U	ug/L
Iron	3.00E+02 j	470 UJ	ug/L
Lead	1.50E+01 u	24.6 U	ug/L
Magnesium	1.50E+05 a	<b>74600</b>	ug/L
Manganese	5.00E+01 j	17.1 U	ug/L
Molybdenum	1.82E+02	<b>29.4 J</b>	ug/L
Nickel	7.30E+02	25.8 U	ug/L
Platinum	--	5.0 U	ug/L
Potassium	--	<b>16900</b>	ug/L
Selenium	5.00E+01	50.0 U	ug/L
Silver	1.00E+02 j	10.1 U	ug/L
Sodium	--	<b>978000</b>	ug/L
Strontium	2.19E+04	<b>3170</b>	ug/L
Thallium	2.00E+00	16.0 U	ug/L
Tin	2.19E+04	10.0 U	ug/L
Titanium	1.46E+05	19.6 U	ug/L
Tungsten	--	25.0 U	ug/L
Uranium	3.00E+01	<b>11.3 J</b>	ug/L
Vanadium	3.65E+01	80.0 U	ug/L
Zinc	5.00E+03 j	<b>96.5 J</b>	ug/L
Mercury	2.00E+00	<b>0.17 J+</b>	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) See footnote (b). 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. Only NAC 445A.455 Secondary standards are listed.



**LOU 45 Table 3a**  
**Groundwater Characterization Data - Routine Monitoring<sup>1</sup>**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Well ID	Date	Depth to water (ft)	Perchlorate mg/L	Qual	MCL <sup>2</sup> mg/L	Total Chromium mg/L	Qual	MCL mg/L	TDS mg/L	Qual	MCL mg/L	Nitrate (as N) mg/L	Qual	MCL mg/L	Chlorate mg/l	Qual	MCL mg/L
M-2A	5/5/2006	---	430	d	1.80E-02 a,m	18	d	1.00E-01 c	12100		5.00E+02 j			1.00E+01			--
M-2A	5/4/2007	---	362		1.80E-02 a,m	17		1.00E-01 c	10200		5.00E+02 j			1.00E+01			--
M-21	5/3/2006	---	32	d	1.80E-02 a,m	1.5	d	1.00E-01 c	3650		5.00E+02 j			1.00E+01			--
M-21	5/2/2007	---	3.05		1.80E-02 a,m	1.4		1.00E-01 c	3460		5.00E+02 j			1.00E+01			--
M-75	2/3/2006	---	140	d	1.80E-02 a,m	6.9	d	1.00E-01 c			5.00E+02 j			1.00E+01			--
M-75	5/5/2006	---	110	d	1.80E-02 a,m	6	d	1.00E-01 c	5960		5.00E+02 j			1.00E+01			--
M-75	11/3/2006	---	99.8	d	1.80E-02 a,m	5.2	d	1.00E-01 c	5090		5.00E+02 j			1.00E+01			--
M-75	2/2/2007	---	91.3		1.80E-02 a,m	5.3		1.00E-01 c	4990		5.00E+02 j			1.00E+01			--
M-75	5/4/2007	---	83.7		1.80E-02 a,m	4.7		1.00E-01 c	5080		5.00E+02 j			1.00E+01			--
M-76	2/3/2006	39.05	80	d	1.80E-02 a,m	3.1	d	1.00E-01 c			5.00E+02 j			1.00E+01			--
M-76	5/5/2006	39.08	83	d	1.80E-02 a,m	3.6	d	1.00E-01 c	4400		5.00E+02 j			1.00E+01			--
M-76	11/3/2006	38.74	81.3	d	1.80E-02 a,m	4	d	1.00E-01 c	4200		5.00E+02 j			1.00E+01			--
M-76	2/2/2007	38.80	97.6		1.80E-02 a,m	3.1		1.00E-01 c	3980		5.00E+02 j			1.00E+01			--
M-76	5/4/2007	39.15	77.9		1.80E-02 a,m	3.7		1.00E-01 c	4320		5.00E+02 j			1.00E+01			--
M-97	2/3/2006	39.83	60	d	1.80E-02 a,m	0.055	d	1.00E-01 c			5.00E+02 j			1.00E+01			--
M-97	5/4/2006	39.89	61	d	1.80E-02 a,m	0.06	d	1.00E-01 c	3640		5.00E+02 j			1.00E+01			--
M-97	8/2/2006	40.10	62	d	1.80E-02 a,m	0.067	d	1.00E-01 c	3140		5.00E+02 j			1.00E+01			--
M-97	11/1/2006	40.07	80	d	1.80E-02 a,m	0.072	d	1.00E-01 c	3600		5.00E+02 j			1.00E+01			--
M-97	1/31/2007	40.37	77.7		1.80E-02 a,m	0.066		1.00E-01 c	3660		5.00E+02 j			1.00E+01			--
M-97	5/3/2007	40.43	76.8	J	1.80E-02 a,m	0.063		1.00E-01 c	3770	J	5.00E+02 j			1.00E+01			--
M-97	8/1/2007	40.97	89.2		1.80E-02 a,m	0.61		1.00E-01 c	3730		5.00E+02 j			1.00E+01			--

**Notes:**

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

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

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

(m) Equal to the provisional action level derived by NDEP as referenced in "Defining a Perchlorate Drinking Water Standard". NDEP Bureau of Corrective Action. URL: [http://ndep.nv.gov/bca/perchlorate02\_05.htm].

(j) Secondary Drinking Water Regulation value.

< = 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

Laboratory Qualifiers:

d = the sample was diluted

**LOU 45 Table 3b  
Groundwater Characterization Data - Routine Monitoring**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water (ft TOC)	pH (Lab)	EC (Lab, µmho/cm)	Cr-total (ppm)	ClO <sub>4</sub> (ppm)	LAB	Well Location from Pond (Approximate)
M-2A	8/24/97	--	--	--	--	--	650	KMC	200 ft NE
M-2A	9/15/97	--	41.02	7.31	13000	--	--	KMC	
M-2A	4/27/98	46.71	41.41	7.28	6180	--	740	KMC	
M-2A	5/6/99	46.71	41.09	7.29	10900	20	800	KMC	
M-2A	5/5/00	46.71	41.78	7.39	14400	29	780	KMC	
M-2A	5/4/01	46.71	41.85	7.43	11700	25	580	KMC	
M-2A	4/30/02	--	40.55	7.3	12660	24	560	MW	
M-2A	4/30/03	--	41.37	--	14470	--	690	MW	
M-2A	5/6/04	--	--	7.3	13700	29	700	MW	
M-21	8/24/97	--	--	--	--	--	52	KMC	120 ft S
M-21	9/15/97	--	41.50	7.35	6000	--	NS	KMC	
M-21	4/27/98	44.63	42.05	7.28	6180	--	NS	KMC	
M-21	5/6/99	44.63	41.10	7.02	6460	4.00	66	KMC	
M-21	5/5/00	44.63	41.67	7.52	6410	3.30	50	KMC	
M-21	5/4/01	44.63	41.30	--	6200	--	49	KMC	
M-21	4/30/02	--	40.00	6.9	5580	3.6	54	MW	
M-21	4/30/03	--	41.09	--	5720	--	49	MW	
M-21	5/6/04	--	--	7.0	2970	0.8	24	MW	
M-75	4/27/98	--	42.51	7.39	5130	--	--	KMC	100 ft N
M-75	5/6/99	63.32	42.00	7.50	8610	8.80	160	KMC	
M-75	5/5/00	63.32	42.53	7.74	9140	12.00	180	KMC	
M-75	5/4/01	63.32	43.00	7.67	8180	11.00	150	KMC	
M-75	5/1/02	--	41.44	7.7	7260	5.1	100	MW	
M-75	5/1/03	--	42.05	--	7410	--	24	MW	
M-75	5/6/04	--	--	7.7	6080	4.8	78	MW	
M-76	8/24/97	--	--	--	--	--	200	KMC	200 ft NW
M-76	9/15/97	54.17	39.79	7.57	8940	--	--	KMC	
M-76	4/27/98	--	39.85	7.52	5440	--	200	KMC	
M-76	10/21/98	--	39.52	--	--	--	--	--	
M-76	5/6/99	54.17	38.32	7.51	8570	14.00	220	KMC	
M-76	5/5/00	54.17	39.56	7.80	8000	11.00	160	KMC	
M-76	5/4/01	54.17	39.40	7.69	7480	11.00	130	KMC	
M-76	4/30/02	--	37.84	7.6	6360	8	98	MW	
M-76	12/10/02	--	39.33	7.9	6370	6.1	--	MW	
M-76	1/21/03	--	39.43	7.6	6250	4.8	--	MW	
M-76	5/1/03	--	38.65	--	6840	--	120	MW	
M-76	7/9/03	--	39.56	--	--	--	--	--	
M-76	8/13/03	--	39.64	--	--	--	--	--	
M-76	9/8/03	--	39.74	--	--	--	--	--	
M-76	10/5/03	--	39.81	--	--	--	--	--	
M-76	11/4/03	--	39.93	--	--	--	--	--	
M-76	12/8/03	--	39.97	--	--	--	--	--	
M-76	1/8/04	--	40.02	--	--	--	--	--	
M-76	2/2/04	--	40.03	--	--	--	--	--	

**LOU 45 Table 3b (continued)**  
**Groundwater Characterization Data - Routine Monitoring**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

WELL #	Sample Date	Total Depth (ft bgs)	Depth to Water (ft TOC)	pH (Lab)	EC (Lab, $\mu$ mho/cm)	Cr-total (ppm)	ClO <sub>4</sub> (ppm)	LAB	Well Location from Pond (Approximate)
M-76	3/1/04	--	39.90	--	--	--	--	--	200 ft NW
M-76	4/1/04	--	39.76	--	--	--	--	--	
M-76	5/7/04	--	39.27	7.7	6190	4.8	100	MW	
M-76	6/10/04	--	39.56	--	--	--	--	--	

**Notes:**

ft bgs = feet below ground surface

$\mu$ mho/cm = micromhos per centimeter

ppm = parts per million

ft TOC = feet from Top of Casing

-- = Either no data was obtained or was not analyzed for the respective constituent.

Labs: KMC Kerr-McGee Chemical Corporation

MW Montgomery Watson

EC = Electrical Conductivity

Cr-total: Total Chromium

ClO<sub>4</sub>: Perchlorate

**Source:** Kerr-McGee Chemical Corporation, Mother-hen Database.

**LOU 45 Table 4a  
Summary of Groundwater Analytical Data**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevad

Water Analysis Sample Number <sup>1</sup>	Date	Well Location	Sample Depth (ft bgs)	TPH-d (mg/kg)	RL	MCL <sup>2</sup> mg/L
M-21	4/10/1997	20 ft N	WATER	< 1.0	1.0 mg/l	--
M-10	4/10/1997	1800 ft S/SE	WATER	<1.0	1.0 mg/l	--

Sample Analyzed for: TPH diesel, BTEX, and PAHs  
Sample Analysis by: LAS Laboratories

Sample Number <sup>3</sup>	Date	Well Location	Sample Depth (ft bgs)	TPH-d (mg/kg) EPA Method 8015M	RL	MCL <sup>2</sup> mg/L	BTEX (mg/kg) EPA Method 8020				PAHs* (µg/kg) EPA Method 8270
							Benzene	Toluene	Ethyl- benzene	Total Xylenes	
SB5-5	3/29/1999	Middle of LOU	WATER	13 mg/l	0.5 mg/l	--	NA	NA	NA	NA	NA
M-21	3/29/1999	20 ft N	WATER	ND	0.5 mg/l	--	NA	NA	NA	NA	NA

**Notes:**

1. ENSR, 1997, Phase II Environmental Conditions Assessment (ECA) located at Kerr-McGee Chemical Corporation, Henderson, Nevada, August 7, 1997.
  2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
  3. ENSR, 2001, Supplemental Phase II ECA
  4. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008).
- ft bgs = feet below ground surface  
 TPH-d = Total Petroleum Hydrocarbons, analyzed by EPA Metho 8015 diesel range.  
 mg/kg = milligrams per kilogram  
 µg/kg = micrograms per kilogran  
 NA = Not Analyzed, not tester
- RL = Reporting Limi  
 -DUP = duplicate sample taken at the indicated deptl (<34) = Not detected above the designated PQ  
 ND (<5) = Non-detect above laboratory Reporting Limit (RL) of 5 mg/l  
 ND (<2) = Non-detect above laboratory Reporting Limit of 2 mg/l  
 < = not detected above the designated reporting lim

**\* Analytes and detection limits for PAH's that were non-detect (µg/kg):**

Analyte	PQL	MSSL <sup>4</sup> mg/kg	Analyte	PQL	MSSL <sup>4</sup> mg/kg	Analyte	PQL	MSSL <sup>4</sup> mg/kg
Acenapthalene	500	3.30E+04	Benzo (a) pyrene	500	2.30E-01	Indeno (1,2,3-c,d) pyrene	500	2.30E+00
Acenapthylene	500	3.30E+04 (pp)	Chrysene	500	2.30E+02	Napthalene	500	2.10E+02
Anthracene	500	1.00E+05	Dibenzo(a,h)anthracene	500	2.30E-01	Phenanthrene	500	1.00E+05 (n)
Benzo (a) anthracene	500	2.30E+00	Flouranthene	500	2.40E+04	Pyrene	500	3.20E+04
Benzo(b) flouranthene	500	2.30E+00	Flourene	500	2.60E+04	Benzo(k) flouranthene	500	2.30E+01



**LOU 45 Table 4b  
Summary of Groundwater Analytical Data**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

**Analysis of water from M-97**

Water Sample	Date	Conductivity ( $\mu\text{S/cm}$ ) EPA 120.1	TPH-d (mg/l) EPA 8015M	VOCs* ( $\mu\text{g/l}$ ) EPA 8240			SVOCs** ( $\mu\text{g/l}$ ) EPA 8270		Arsenic ( $\mu\text{g/l}$ ) EPA 6010 ICP	pH EPA 150.1
				Acetone	Chloro- form	All Others	Di-n-butyl- phthalate	All Others		
M-97	4/9/1997	3690	<1.0	3.1 JB	18	ND	7.8	ND	0.124	7.72
<b>PQL</b>		1	1	10	5	various	10	various	0.01	0.1

**Periodic analysis of water from M-97**

WELL #	Date	Total Depth (ft bgs)	Depth to Water (ft TOC)	pH (Lab)	EC (Lab, $\mu\text{mho/cm}$ )	Cr-total (ppm)	$\text{ClO}_4$ (ppm)	LAB	Well Location from LOU (Approximate)
M-97	5/6/99	47.86	40.63	7.6	3290	0.09	11	KMC	320 ft N
M-97	5/5/00	47.86	41.31	8.09	3550	0.10	22	KMC	
M-97	5/4/01	47.86	40.53	--	3980	--	31	KMC	
M-97	5/1/02	47.86	39.00	7.5	4590	0.059	34	MW	
M-97	5/7/04	47.86	40.22	7.6	3640	0.076	18	MW	

**Notes:**

TPH-d = Total Petroleum Hydrocarbons, diesel range  
VOCs = Volatile organic compounds  
SVOCs = Semi-volatile organic compounds  
ft bgs = feet below ground surface  
ft TOC = feet from Top of Casing  
EC = Electrical Conductivity  
Cr-total = Total Chromium  
 $\text{ClO}_4$  = Perchlorate  
LOU = Letter of Understanding  
J = estimated value, constituent detected at a level less than the RDL or PQL and greater than the or equal to the MDL.  
B = Reported value is less than the contract required detection limit but greater than or equal to the instrument detection limit.  
-- = Either no data was obtained or was not analyzed for the respective constituent.

Labs: KMC Kerr-McGee Chemical Corporation  
MW Montgomery Watson

Sources: M-97 on 4/9/1997 from ENSR, 1997 Phase II ECA; and Kerr-McGee Chemical Corporation, Mother-hen Database.

**\*\* Analytes and detection limits for VOC's that were non-detect ( $\mu\text{g/L}$ ):**

Analyte	PQL	Analyte	PQL	Analyte	PQL
Chloromethane	5	Chloroform	5	1,1,2-Trichloroethane	5
Vinyl Chloride	5	1,1,1-Trichloroethane	5	Tetrachloroethene (PCE)	5
Bromomethane	5	Carbon Tetrachloride	5	Dibromochloromethane	5
Chloroethane	5	1,2-Dichloroethane	5	Chlorobenzene	5
Trichlorofluoromethane	5	Benzene	5	Ethyl benzene	5
Acetone	10	Trichloroethene (TCE)	5	m, p-Xylenes	5
1,1-Dichloroethene	5	1,2-Dichloropropane	5	o-Xylene	5
Carbon Disulfide	5	Bromodichloromethane	5	Styrene	5
Methylene Chloride	5	2-Chloroethylvinyl ether	20	Bromoform	5
trans-1,2-Dichloroethene	5	4-Methyl-2-Pentanone	10	1,1,2,2-Tetrachloroethane	5
Vinyl Acetate	10	cis-1,3-Dichloropropene	5	1,3-Dichlorobenzene	5
1,1-Dichloroethane	5	Toluene	5	1,4-Dichlorobenzene	5
2-Butanone	10	trans-1,3-Dichloropropene	5	1,2-Dichlorobenzene	5
cis-1,2-Dichloroethene	5	2-Hexanone	10		

**LOU 45 Table 4b (continued)  
Summary of Groundwater Analytical Data**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

**\*\* Analytes and detection limits for SVOC's that were non-detect (µg/L):**

Analyte	PQL	Analyte	PQL	Analyte	PQL
Phenol	10	Hexachlorobutadiene	10	N-Nitrosodimethylamine	10
Bis (2-chloroethyl) ether	10	4-Chloro-3-methylphenol	20	4-Bromophenyl phenyl ether	10
2-Chlorophenol	10	2-Methylnaphthalene	10	Hexachlorobenzene	10
1,3-Dichlorobenzene	10	Hexachlorocyclopentadiene	10	Pentachlorophenol	50
1,4-Dichlorobenzene	10	2,4,6-Trichlorophenol	10	Phenanthrene	10
Benzyl alcohol	20	2,4,5-Trichlorophenol	10	Anthracene	10
1,2-Dichlorobenzene	10	2-Chloronaphthalene	10	Carbazole	10
2-Methylphenol	10	2-Nitroaniline	50	Di-n-butyl phthalate	10
Bis (2-chloroisopropyl) ether	10	Dimethyl phthalate	10	Fluoranthene	10
4-Methylphenol	10	Acenaphthylene	10	Pyrene	10
N-Nitroso-di-N-propylamine	10	2,6-Dinitrotoluene	10	Butylbenzylphthalate	10
Hexachloroethane	10	3-Nitroaniline	50	3,3-Dichlorobenzidine	20
Nitrobenzene	10	Acenaphthene	10	Benz (a) anthracene	10
Isophorone	10	2,4-Dinitrophenol	50	Chrysene	10
2-Nitrophenol	10	4-Nitrophenol	50	Bis (2-ethylhexyl) phthalate	10
2,4-Dimethylphenol	10	Dibenzofuran	10	Di-n-octyl phthalate	10
Benzoic Acid	50	2,4-Dinitrotoluene	10	Benzo (b) fluoranthene	10
Bis (2-chloroethoxy) methane	10	Diethyl phthalate	10	Benzo (k) fluoranthene	10
2,4-Dichlorophenol	10	4-Chlorophenyl phenyl ether	10	Benzo (a) pyrene	10
1,2,4-Trichlorobenzene	10	Fluorene	10	Indeno (1,2,3-c,d) pyrene	10
Naphthalene	10	4-Nitroaniline	20	Dibenzo (a,h) anthracene	10
4-Chloroaniline	20	4,6-Dinitro-2-methylphenol	50	Benzo (g,h,i) perylene	10

**LOU 45 Table 5  
Summary of Soil Analytical Data<sup>1</sup>**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Sample Analyzed for: TPH diesel by EPA 8015M

Sample Matrix: Soil

Sample Analysis by: LAS Laboratories

Sample Number	Date	Sample Depth (ft bgs)	TPH-d (mg/kg)	MSSL <sup>2</sup> mg/kg
SB5-1	4/9/1997	-1	16,000	1.00E+02
SB5-1	4/9/1997	-5	<34	1.00E+02
SB5-1	4/9/1997	-10	<34	1.00E+02
SB5-2	4/9/1997	-1	7,500	1.00E+02
SB5-2	4/9/1997	-5	9,100	1.00E+02
SB5-2	4/9/1997	-10	6,700	1.00E+02
SB5-3	4/9/1997	-1	4,500	1.00E+02
SB5-3	4/9/1997	-5	1,300	1.00E+02
SB5-3	4/9/1997	-10	520	1.00E+02
SB5-3	4/9/1997	-10-DUP	800	1.00E+02
TPH Reporting Limit			34	

**LOU 45 Table 5 (continued)  
Summary of Soil Analytical Data<sup>1</sup>**

Diesel Fuel Storage Tank Area  
Tronox Facility - Henderson, Nevada

Sample Analyzed for: TPH diesel by EPA 8015M  
Sample Matrix: Soi  
Sample Analysis by: LAS Laboratories

Sample Number	Date	Sample Depth (ft bgs)	TPH-d (mg/kg) EPA Method 8015M	BTEX (mg/kg) EPA Method 8020				PAHs (µg/kg)* EPA Method 8270
				Benzene	Toluene	Ethyl- benzene	Total Xylenes	
SB5-4-5	3/29/1999	5	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-10	3/29/1999	10	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-15	3/29/1999	15	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-20	3/29/1999	20	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-25	3/29/1999	25	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-30	3/29/1999	30	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-35	3/29/1999	35	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-4-40	3/29/1999	40	<b>50</b>	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-5	3/29/1999	5	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-10	3/29/1999	10	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-15	3/29/1999	15	<b>25</b>	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-20	3/29/1999	20	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-25	3/29/1999	25	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-30	3/29/1999	30	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-35	3/29/1999	35	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-5-40	3/29/1999	40	<b>90</b>	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-5	3/29/1999	5	<b>38</b>	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-5D	3/29/1999	5	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-10	3/29/1999	10	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-15	3/29/1999	15	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-20	3/29/1999	20	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-25	3/29/1999	25	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-30	3/29/1999	30	ND (<10)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<0.5)
SB5-6-35	3/29/1999	35	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-6-40	3/29/1999	40	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-5	3/29/1999	5	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-10	3/29/1999	10	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-10D	3/29/1999	10	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
		<b>MSSL<sup>2</sup> mg/kg</b>	1.00E+02 (w)	1.60E+00	5.20E+02	2.30E+02	2.10E+02	

**LOU 45 Table 5 (continued)  
Summary of Soil Analytical Data<sup>1</sup>**

Diesel Fuel Storage Tank Area  
Tronox Facility - Henderson, Nevada

Sample Analyzed for: TPH diesel by EPA 8015M

Sample Matrix: Soil

Sample Analysis by: LAS Laboratories

Sample Number	Date	Sample Depth (ft bgs)	TPH-d (mg/kg) EPA Method 8015M	BTEX (mg/kg) EPA Method 8020				PAHs (µg/kg)* EPA Method 8270
				Benzene	Toluene	Ethyl- benzene	Total Xylenes	
SB5-7-15	3/29/1999	15	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-20	3/29/1999	20	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-25	3/29/1999	25	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-30	3/29/1999	30	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-35	3/29/1999	35	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
SB5-7-40	3/29/1999	40	ND (<10)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<0.5)
<b>MSSL<sup>2</sup> mg/kg</b>			1.00E+02 (w)	1.60E+00	5.20E+02	2.30E+02	2.10E+02	

**Notes:**

1. ENSR Corporation (ENSR), 1997, Phase II Environmental Conditions Assessment located at Kerr-McGee Chemical Corporation, Henderson, Nevada, August 7 1997.

2. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)

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

TPH-d = Total Petroleum Hydrocarbons, analyzed by EPA Method 8015 diesel range

-DUP = duplicate sample taken at the indicated depth

RL = Reporting Limit

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

NA = Not Analyzed, not tested

ft bgs = feet below ground surface

(<34) = Not detected above the designated PQL

ND (<5) = Non-detect above laboratory Reporting Limit (RL) of 5 mg/kg

ND (<2) = Non-detect above laboratory Reporting Limit of 2 mg/kg

< = not detected above the designated reporting limit

Source: ENSR, 2001, Supplemental Phase II ECA

\* Analytes, detection limits and PRG values for PAHs that were non-detect (µg/kg)

Analyte	PQL	MSSL <sup>2</sup> mg/kg	Analyte	PQL	MSSL <sup>2</sup> mg/kg	Analyte	PQL	MSSL <sup>2</sup> mg/kg
Acenaphthalene	500	3.30E+04	Benzo (a) pyrene	500	2.30E-01	Indeno (1,2,3-c,d) pyrene	500	2.30E+00
Acenaphthylene	500	3.30E+04 (pp)	Chrysene	500	2.30E+02	Napthalene	500	2.10E+02
Anthracene	500	1.00E+05	Dibenzo(a,h)anthracene	500	2.30E-01	Phenanthrene	500	1.00E+05 (n)
Benzo (a) anthracene	500	2.30E+00	Flouranthene	500	2.40E+04	Pyrene	500	3.20E+04
Benzo(b) flouranthene	500	2.30E+00	Flourene	500	2.60E+04	Benzo(k) flouranthene	500	2.30E+01

**LOU 45 Table 6**  
**Groundwater Characterization Data - Organochlorine Pesticides (OCPs)**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Well ID		M-76	
Sample ID		M-76	
Sample Date		12/04/2006	
Organochlorine Pesticides	MCL <sup>2</sup> ug/L		Unit
4,4'-DDD	2.80E-01	0.050 U	ug/L
4,4'-DDE	1.98E-01	0.050 U	ug/L
4,4'-DDT	1.98E-01	0.050 U	ug/L
Aldrin	4.00E-03	0.050 U	ug/L
Alpha-BHC	1.10E-02	0.050 U	ug/L
Alpha-chlordane	2.00E+00 (l)	0.050 U	ug/L
Beta-BHC	3.74E-02	0.050 U	ug/L
Delta-BHC	1.10E-02 (z)	0.050 U	ug/L
Dieldrin	4.20E-03 (z)	0.050 U	ug/L
Endosulfan I	2.19E+02 (aa)	0.050 U	ug/L
Endosulfan II	2.19E+02 (aa)	0.050 U	ug/L
Endosulfan Sulfate	2.19E+02 (aa)	0.050 U	ug/L
Endrin	2.00E+00	0.050 U	ug/L
Endrin Aldehyde	1.09E+01 (k)	0.050 U	ug/L
Endrin Ketone	1.09E+01 (k)	0.050 U	ug/L
Gamma-BHC (Lindane)	2.00E-01	0.050 U	ug/L
Gamma-Chlordane	2.00E+00 (l)	0.050 U	ug/L
Heptachlor	4.00E-01	0.050 U	ug/L
Heptachlor Epoxide	2.00E-01	0.050 U	ug/L
Methoxychlor	4.00E+01	0.10 U	ug/L
Tech-Chlordane	2.00E+00 (l)	0.50 U	ug/L
Toxaphene	3.00E+00	2.0 U	ug/L

**Notes:**

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility - Henderson, Nevada, September 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless noted.
  - (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.
  - (l) Value for chlordane used as surrogate for alpha-chlordane, chlordane (technical) and gamma-chlordane due to structural similarities.

**LOU 45 Table 7**  
**Groundwater Characterization Data - Organophosphorus Pesticides (OPPs)**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Well ID		M-76	
Sample ID		M-76	
Sample Date		12/04/2006	
OPPs	MCL <sup>2</sup> ug/L		Unit
Azinphos-methyl	--	2.5 U	ug/L
Bolstar	--	1.0 U	ug/L
Chlorpyrifos	1.09E+02	1.0 U	ug/L
Coumaphos	--	1.0 U	ug/L
Demeton-O	1.46E+00 (cc)	1.0 U	ug/L
Demeton-S	1.46E+00 (cc)	1.0 UJ	ug/L
Diazinon	3.28E+01	1.0 U	ug/L
Dichlorvos	2.32E-01	1.0 U	ug/L
Dimethoate	7.30E+00	1.0 UJ	ug/L
Disulfoton	1.46E+00	0.50 U	ug/L
EPN	3.65E-01	1.2 UJ	ug/L
Ethoprop	--	0.50 U	ug/L
Ethyl Parathion	9.12E+00 (tt)	1.0 U	ug/L
Famphur	--	1.0 U	ug/L
Fensulfothion	--	2.5 U	ug/L
Fenthion	9.10E+00 (ff)	2.5 U	ug/L
Malathion	7.30E+02	1.2 U	ug/L
Merphos	1.09E+00	5.0 U	ug/L
Methyl parathion	9.12E+00	4.0 U	ug/L
Mevinphos	--	6.2 U	ug/L
Naled	7.30E+01	1.0 U	ug/L
Phorate	7.30E+00	1.2 UJ	ug/L
Ronnel	1.82E+03	10 U	ug/L
Stirphos	--	3.5 U	ug/L
Sulfotep	1.82E+01	1.5 U	ug/L
Thionazin	--	1.0 U	ug/L
Tokuthion	--	1.6 U	ug/L
Trichloronate	--	0.50 U	ug/L

**Notes:**

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



**LOU 45 Table 8  
Groundwater Characterization Data - PCBs**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Well ID		M-76	
Sample ID		M-76	
Sample Date		12/04/2006	
PCBs	MCL <sup>2</sup> ug/L		Unit
Aroclor-1016	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1221	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1232	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1242	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1248	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1254	5.00E-01 (bb)	0.10 U	ug/L
Aroclor-1260	5.00E-01 (bb)	0.10 U	ug/L

**Notes:**

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

**LOU 45 Table 9  
Groundwater Characterization Data - Perchlorate**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Well ID Number	Sample ID	Sample Date	Perchlorate ug/L	MCL <sup>1</sup> ug/L	Sampling Program
M-76	M-76	12/04/2006	<b>77300 J+</b>	1.80E+01 a,(m)	Ph A <sup>2</sup>

**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](http://ndep.nv.gov/bca/perchlorate02_05.htm)].

**LOU 45 Table 10**  
**Groundwater Characterization Data - Radionuclides**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Well ID Number	Sample ID	Date	Ra-226	Ra-228	Th-228	Th-230	Th-232	U-233/234	U-235/236	U-238	Sampling Program
			pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	
M76	M76-Z	05/09/2007	0.184 U	0.543 UJ							Ph A <sup>1</sup>

**Notes:**

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

**LOU 45 Table 11**  
**Groundwater Characterization Data - SVOCs**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>
Well No.			M-76
Sample ID			M-76
Sample Date			12/04/2006
SVOCs	MCL <sup>2</sup> ug/L	Analytic Method	ug/L
1,4-Dioxane	6.11E+00	non-SIM	10 U
2-Methylnaphthalene	6.20E+00 (jj)	non-SIM	10 U
2-Methylnaphthalene	6.20E+00 (jj)	SIM	
Acenaphthene	3.65E+02	non-SIM	10 U
Acenaphthene	3.65E+02	SIM	
Acenaphthylene	3.65E+02 (pp)	non-SIM	10 U
Acenaphthylene	3.65E+02 (pp)	SIM	
Anthracene	1.83E+03	non-SIM	10 U
Anthracene	1.83E+03	SIM	
Benz(a)anthracene	9.21E-02	non-SIM	10 U
Benz(a)anthracene	9.21E-02	SIM	
Benzo(a)pyrene	2.00E-01	non-SIM	10 U
Benzo(a)pyrene	2.00E-01	SIM	
Benzo(b)fluoranthene	9.21E-02	non-SIM	10 U
Benzo(b)fluoranthene	9.21E-02	SIM	
Benzo(g,h,i)perylene	1.83E+02 (w)	non-SIM	10 U
Benzo(g,h,i)perylene	1.83E+02 (w)	SIM	
Benzo(k)fluoranthene	9.21E-01	non-SIM	10 U
Benzo(k)fluoranthene	9.21E-01	SIM	
bis(2-Ethylhexyl)phthalate	6.00E+00	non-SIM	10 U
Butyl benzyl phthalate	7.30E+03	non-SIM	10 U
Chrysene	9.21E+00	non-SIM	10 U
Chrysene	9.21E+00	SIM	
Dibenz(a,h)anthracene	9.21E-03	non-SIM	10 U
Dibenz(a,h)anthracene	9.21E-03	SIM	
Diethyl phthalate	2.92E+04	non-SIM	10 U
Dimethyl phthalate	3.65E+05	non-SIM	10 U
Di-N-Butyl phthalate	3.65E+03	non-SIM	10 U
Di-N-Octyl phthalate	1.46E+03	non-SIM	10 U
Fluoranthene	1.46E+03	non-SIM	10 U
Fluoranthene	1.46E+03	SIM	
Fluorene	2.43E+02	non-SIM	10 U
Fluorene	2.43E+02	SIM	
Hexachlorobenzene	1.00E+00	non-SIM	10 U
Hexachlorobenzene	1.00E+00	SIM	
Indeno(1,2,3-cd)pyrene	9.21E-02	non-SIM	10 U
Indeno(1,2,3-cd)pyrene	9.21E-02	SIM	
Naphthalene	6.20E+00	non-SIM	5.0 U
Naphthalene	6.20E+00	non-SIM	10 U
Naphthalene	6.20E+00	SIM	
Nitrobenzene	3.40E+00	non-SIM	10 U
Octachlorostyrene	--	non-SIM	10 U

**LOU 45 Table 11 (continued)**  
**Groundwater Characterization Data - SVOCs**

Diesel Fuel Storage Tank Area  
Tronox Facility - Henderson, Nevada

<b>Sampling Program</b>			Ph A <sup>1</sup>
<b>Well No.</b>			M-76
<b>Sample ID</b>			M-76
<b>Sample Date</b>			12/04/2006
<b>SVOCs</b>	<b>MCL<sup>2</sup> ug/L</b>	<b>Analytic Method</b>	<b>ug/L</b>
Phenanthrene	1.80E+03 (n)	non-SIM	10 U
Phenanthrene	1.80E+03 (n)	SIM	
Pyrene	1.83E+02	non-SIM	10 U
Pyrene	1.83E+02	SIM	
Pyridine	3.65E+01	non-SIM	20 UJ

**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 acenaphthylene based on structural similarities.
  - (w) Value for pyrene used as surrogate for benzo(g,h,i)perylene based on structural similarities.
  - (n) Value for anthracene used as surrogate for phenanthrene due to structural similarities.

**LOU 45 Table 12**  
**Groundwater Characterization Data - VOCs**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph- A <sup>1</sup>
Well ID		M-76
Sample ID		M76
Sample Date		12/04/2006
VOCs	MCL <sup>2</sup> ug/L	ug/L
Naphthalene	6.20E+00	5.0 U
1,1,1,2-Tetrachloroethane	4.32E-01	5.0 U
1,1,1-Trichloroethane	2.00E+02	5.0 U
1,1,2,2-Tetrachloroethane	5.00E+00	5.0 U
1,1,2-Trichloroethane	5.00E+00	5.0 U
1,1-Dichloroethane	8.11E+02	5.0 U
1,1-Dichloroethene	7.00E+00	5.0 U
1,1-Dichloropropene	3.95E-01 gg	5.0 U
1,2,3-Trichlorobenzene	7.16E+00 hh	5.0 U
1,2,3-Trichloropropane	5.60E-03	5.0 U
1,2,4-Trichlorobenzene	7.00E+01	5.0 U
1,2,4-Trimethylbenzene	1.23E+01	5.0 U
1,2-Dibromo-3-chloropropane	2.00E-01	5.0 UJ
1,2-Dichlorobenzene	6.00E+02	5.0 U
1,2-Dichloroethane	5.00E+00	5.0 U
1,2-Dichloropropane	5.00E+00	5.0 U
1,3,5-Trimethylbenzene	1.23E+01	5.0 U
1,3-Dichlorobenzene	1.83E+02	5.0 U
1,3-Dichloropropane	1.22E+02	5.0 U
1,4-Dichlorobenzene	7.50E+01	<b>0.86 J</b>
2,2-Dichloropropane	1.65E-01 ii	5.0 U
2-Butanone	6.97E+03	10 U
2-Chlorotoluene	1.22E+02	5.0 U
2-Hexanone	2.00E+03 nn	10 U
2-Methoxy-2-methyl-butane	--	5.0 U
4-Chlorotoluene	1.22E+02 ww	5.0 U
4-Isopropyltoluene	--	5.0 U
4-Methyl-2-pentanone	1.99E+03	10 UJ
Acetone	5.48E+03	10 U
Benzene	5.00E+00	5.0 U
Bromobenzene	2.03E+01	5.0 U
Bromochloromethane	1.81E-01 qq	5.0 U
Bromodichloromethane	8.00E+01 r	5.0 U
Bromoform	8.00E+01 r	5.0 U
Bromomethane	8.66E+00	10 UJ
Carbon tetrachloride	5.00E+00	<b>1.0 J</b>
Chlorobenzene	1.00E+02 o	5.0 U
Chloroethane	4.64E+00	5.0 U
Chloroform	8.00E+01 r	<b>290 J+</b>
Chloromethane	1.58E+02	5.0 U
cis-1,2-Dichloroethene	7.00E+01	5.0 U
cis-1,3-Dichloropropene	3.95E-01 gg	5.0 U
Dibromochloromethane	8.00E+01 r	5.0 U
Dibromomethane	6.08E+01 xx	5.0 U
Dichlorodifluoromethane	3.95E+02	5.0 U
Ethyl t-butyl ether	1.10E+01 kk	5.0 U
Ethylbenzene	7.00E+02	5.0 U
Ethylene dibromide	--	5.0 U
Hexachlorobutadiene	8.62E-01	5.0 U
Dibromomethane	6.08E+01 xx	5.0 U
Dichlorodifluoromethane	3.95E+02	5.0 U
Ethyl t-butyl ether	1.10E+01 kk	5.0 U

**LOU 45 Table 12 (continued)  
Groundwater Characterization Data - VOCs**

Diesel Fuel Storage Tank Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>
Well ID		M-76
Sample ID		M-76
Sample Date		12/04/2006
VOCs	MCL <sup>2</sup> ug/L	ug/L
Ethylbenzene	7.00E+02	5.0 U
Ethylene dibromide	--	5.0 U
Hexachlorobutadiene	8.62E-01	5.0 U
isopropyl ether	--	5.0 U
Isopropylbenzene	6.58E+02	5.0 U
Methyl tert butyl ether	2.00E+01 a,uu	5.0 U
Methylene chloride	5.00E+00	5.0 U
N-Butylbenzene	2.43E+02	5.0 U
N-Propylbenzene	2.43E+02	5.0 U
sec-Butylbenzene	2.43E+02	5.0 U
Styrene	1.00E+02	5.0 U
t-Butyl alcohol	--	10 UJ
tert-Butylbenzene	2.43E+02	5.0 U
Tetrachloroethene	5.00E+00	5.0 U
Toluene	1.00E+03	5.0 U
trans-1,2-Dichloroethylene	1.00E+02	5.0 U
trans-1,3-Dichloropropene	--	5.0 U
Trichloroethene	5.00E+00	5.0 U
Trichlorofluoromethane	--	5.0 U
Vinylchloride	2.00E+00	5.0 U
Xylene (Total)	1.00E+04	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](http://ndep.nv.gov/bca/mtbe_doc.htm)].

**LOU 45**  
**Notes for Phase A Data Tables**

Diesel Storage Tanks  
Tronox Facility - Henderson, Nevada

Blank	Not analyzed
<b>Bold</b>	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	Soluble metals
T	Total Metals
U	The analyte was analyzed for, but was not detected above the laboratory sample quantitation limit.
UJ	The analyte was not detected above the laboratory sample quantitation limit and the limit is approximate.
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
ml/min	Milliliters per minute
ng/kg	Nanogram per kilogram
nm	Not measure.
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