

**Summary of Available Data for LOU 4 Hardesty Chemical Company Site,  
LOU 26 Trash Storage Area, LOU 27 PCB Storage Area, and LOU 28  
Hazardous Waste Storage Area  
Tronox Facility – Henderson, Nevada**

- Name of Facilities:** **LOU 4 – Former Hardesty Chemical Company Site,  
LOU 26 – Trash Storage Area,  
LOU 27 – PCB Storage Area, and  
LOU 28 – Hazardous Waste Storage Area**
- Goal of Closure:**
- Closure for future commercial and industrial use for LOUs 4, 26, 27, and 28.
- Site Investigation Areas:**
- LOU 4 – Former Hardesty Chemical Company Site**
- Size:
    - Northern Area: Approximately 92 feet by 41 feet (0.09 acre).
    - Southern Area: Northern half is approximately 265 feet by 120 feet (0.7 acre); southern half is approximately 60 feet by 350 feet (0.5 acre).
  - Location:
    - Northern Area: North of Unit 2, north of Avenue G and railroad tracks
    - Southern Area: Northern portion of Unit 2 and area adjacent to and north of building Unit 2.
  - Current Status/Features: The Former Hardesty Chemical Company Site is not currently active and the above ground storage tanks (ASTs) and underground storage tanks (USTs) associated with fuel oil and chemical storage have been removed.
- LOU 26 – Trash Storage Area**
- Size:
    - Western Area: Approximately 65 feet by 50 feet (0.07-acre).
    - Eastern Area: Approximately 65feet by 100 feet (0.15 acre).
  - Location:
    - Western Area: North of the Unit 1 building.
    - Eastern Area: North of the Unit 2 building.
  - Current Status/Features: LOU 26 is no longer active. The asphalt pad has been removed.
- LOU 27 – PCB Storage Area**
- Size: Three concrete vaults approximately 12 feet by 15 feet each.
  - Location: Southwestern portion of Unit 2 [Ref. 2].

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- Current Status/Features: LOU 27 is no longer active. The PCB Storage Area, consisting of three concrete vaults and plastic liner, is still present within the existing structure.

**LOU 28 – Hazardous Waste Storage Area**

- Size: Approximately 65 feet by 15 feet (0.02 acres) segregated into four storage areas.
- Location: North of Unit 2 building.
- Current Status/Features: LOU 28 which was used for the storage of hazardous waste is no longer active. The concrete pad has been removed. However, two ASTs with secondary containment are now present.

**Descriptions:**

**LOU 4 – Former Hardesty Chemical Company**

- LOU 4 was leased by the Hardesty Chemical Company (Hardesty) from 1945 to 1947 to produce chemicals [Ref. 2 and 6].
- Manufactured products included: synthetic hydrochloric acid (muriatic acid), monochlorobenzene, paradichlorobenzene, orthodichlorobenzene, synthetic detergents, pesticides (i.e., DDT), and soda arsenite solution [Ref. 2 and 7].
- There was no documentation of production quantities, waste streams, or disposal locations [Ref. 2].
- Waste was reportedly transported via tanker truck to a remote location and burned or discharged to the “sewer” [Ref. 2 and 7].
- One tank farm operated by Hardesty was located north of Unit 2 and north of the railroad tracks. The tank farm contained two USTs for fuel oil, one AST for blended kerosene, and two electrolysis cell ASTs (one for chlorinated alcohol and one for sludge) [Ref. 2, 7, 11, and 12].
- A second tank farm was located within Unit 2 and consisted of one AST for sulfuric acid, one UST for kerosene storage, and one UST for benzene storage [Ref. 2, 7, 11, and 12].
- The approximate location for connection/pipeline routes between the two Hardesty operations is shown on Figure 1 [Ref. 6, 9, 12, and 13].
- None of the tanks have been present onsite since at least 1996 [Ref. 7].
- LOU 4 was leased and operated by Amecco Chemical from 1947 through June 1949 [Ref. 2].

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**LOU 26 – Trash Storage Area**

- Common trash from the sodium chlorate and sodium perchlorate process areas were placed in 55-gallon drums at both staging areas while awaiting transportation for off-site disposal. Trash from the chlorate and perchlorate areas was segregated from other trash due to the potential for incidental residual chlorate or perchlorate to remain in the waste [Ref. 8].
- The trash storage areas were in use from 1980 to the mid-1990s when sodium chlorate production permanently ceased [Ref. 1 and 8].
- The drums were routinely shipped to U.S. Ecology, Inc. Landfill in Beatty, Nevada as a “non-hazardous waste” to prevent mixing of the Site waste, which might be contaminated with chlorates or perchlorates from the production area, with other refuse and thus avoiding a potential fire hazard [Ref. 8].

**LOU 27– PCB Storage Area**

- LOU 27 was used to store equipment and drums containing PCB oils and wastes and to transfer PCB fluids from equipment to drums [Ref. 8].
- LOU 27 operated from 1978 until circa 1991 [Ref. 8].
- The floor of the PCB Storage Area is 12 inches below grade [Ref. 8].
- The three vaults have 8-inch thick concrete walls [Ref. 8].
- The floor of the PCB Storage Area was covered with 6-mil black plastic sheeting [Ref. 8].
- PCB containing oil and other PCB containing wastes from the vaults were shipped off-site for disposal [Ref. 8].
- Containment was in good condition when observed in 1991 [Ref. 8].
- The PCB Storage Area was reported to have no problems in the inspection conducted by USEPA in 1989 [Ref. 8].
- Currently the floor is in good shape with minor cracking observed. There is one vault with a lowered floor and HDPE liner. The vaults are currently either empty or used for equipment storage [Ref. 14].

**LOU 28 – Hazardous Waste Storage Area**

- LOU 28 was used for staging both hazardous and non-hazardous waste which were segregated and placed in drums [Ref. 1 and 8].
- The facility consisted of a concrete pad segregated into four areas surrounded by a gravel surface. The southern three of the four areas had concrete curbing [Ref. 1 and 8].

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- The fourth area on northern end was used to store empty drums and was not bermed [Ref. 8].
- The staging area consisted of a concrete pad which was in compliance with RCRA requirements [Ref. 1].
- Wastes handled at LOU 28 include waste oil, flammable wastes, bases, acids, and miscellaneous compatible wastes [Ref. 8].
- LOU 28 operated from 1983 to circa 1994 [Ref. 1 and 8].
- Minor cracking, pitting, and etching was observed in 1991 [Ref. 1 and 8].
- Minor hairline cracks were observed in the berms and floors. One seam was observed in the center of the bermed unit [Ref. 7].
- Surface runoff from LOU 28 flowed to the northeast toward the storm drain at the intersection of Avenue G and Seventh Street [Ref. 8].
- The northern, unbermed pad and four feet of underlying soil were removed in November 1994 and the hazardous waste storage area was moved to an area west of the administration building [Ref. 10].
- Soil samples from the floor of the excavation were non-detect for TPH (see Table 24) [Ref. 1].
- Two ASTs with secondary containment replaced this LOU circa 1994 to 1998 [Ref. 10].
- The two ASTs currently located in this area were used to store chlorate [Ref. 5]. There is currently no plan to continue the use of these tanks in the future [Ref. 5].

<b>Process Waste Streams Associated with LOU 4</b>	<b>Known or Potential Constituents Associated with LOU 4</b>
Acid production wastes	<ul style="list-style-type: none"> <li>• Acids (muriatic/hydrochloric and sulfuric)</li> <li>• Wet chemistry analytes</li> </ul>
Benzene compounds production wastes	<ul style="list-style-type: none"> <li>• VOCs (benzene derivatives)</li> <li>• SVOCs</li> </ul>
Chlorinated paraffin production wastes	<ul style="list-style-type: none"> <li>• VOCs (halogenated, unspecified)</li> <li>• SVOCs</li> <li>• TPH-DRO</li> </ul>
Soda arsenite production wastes	<ul style="list-style-type: none"> <li>• Metals (arsenic)</li> </ul>

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Detergents production wastes	<ul style="list-style-type: none"> <li>Wet chemistry analytes</li> <li>Surfactants</li> </ul>
Kerosene wastes	<ul style="list-style-type: none"> <li>TPH-DRO and TPH-ORO</li> </ul>
Pesticides	<ul style="list-style-type: none"> <li>DDT</li> </ul>
<b>Process Waste Stream Associated with LOU 26</b>	<b>Known or Potential Chemicals Associated with LOU 26</b>
Dry incidental paper wastes with potential residual perchlorate or chlorate – waste stream did not include liquids [Ref. 8 and 9].	<ul style="list-style-type: none"> <li>Metals</li> <li>Chlorate</li> <li>Perchlorate</li> <li>Ammonia</li> <li>Wet chemistry analytes</li> </ul>
<b>Process Waste Streams Associated with LOU 27</b>	<b>Known or Potential Chemicals Associated with LOU 27</b>
PCB cooling oil, PCB containing waste oil from transformer servicing, drums of solid waste from maintenance activities (PCB contaminated rags, oil absorbent, and concrete) [Ref. 8].	<ul style="list-style-type: none"> <li>PCBs</li> <li>TPH</li> </ul>
<b>Process Waste Streams Associated with LOU 28</b>	<b>Known or Potential Chemicals Associated with LOU 28</b>
Non-hazardous and hazardous wastes such as used oil, flammable maintenance parts, washing wastes, hexavalent chromium contaminated material, and miscellaneous compatible wastes [Ref. 8].	<ul style="list-style-type: none"> <li>Metals</li> <li>Hexavalent chromium</li> <li>Perchlorate</li> <li>Wet chemistry analytes</li> <li>VOCs</li> <li>SVOCs</li> <li>TPH</li> </ul>

**Overlapping or Adjacent LOUs:**

The following LOUs overlap or are adjacent to each other as shown on Figure 1:

Overlapping LOUs

- LOU 26 (Trash Storage Area) – Eastern portion of LOU 26 (LOU 26E) overlaps the southwestern portion of LOU 4. Western portion of LOU 26 (LOU 26W) is located west (cross-gradient) of LOU 4.
- LOU 27 (PCB Storage Area) – Overlaps the southwestern portion of LOU 4.

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- LOU 60 (Acid Drain System) – Branches of the Acid Drain System originate from and run through the central, northern, and southern portions of the southern area of LOU 4. A portion of the system also crosses the southern portion of LOU 27. There have been no reported releases from the system. Therefore, the addition of other chemical classes to the Phase B Analytical Plan for LOUs 4 and 27 is not required.

Only LOU 27 and LOU 26E have the potential to affect LOU 4 (see discussion below).

Adjacent LOUs

- LOU 25 (Process Hardware Storage Area) – Located near the southwest corner of LOU 4. LOU 25 is upgradient of LOU 4 and based on the operations it is unlikely to have impacted LOU 4.
- LOU 28 (Hazardous Waste storage Area) – Located east (cross-gradient) of LOU 4.
- LOU 59 (Storm Sewer System) – Branches of the sewer system are adjacent to LOU 4 and 26.
- LOU 60 (Acid Drain System) – Located on east side of LOU 26W and LOU 28.

LOUs 28, 59, and 26W are cross-gradient to each other as well as to LOUs 4, 26E, and 27. No releases are known to have occurred from these LOUs; therefore, these LOUs are not considered to have the potential to affect each other.

The addition of chemical classes related to LOUs 25, 59 and 60 to the proposed Phase B Analytical Plan for LOUs 4, 26, 27, and 28 are not required.

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

**LOUs Potentially Affecting Soils in Other LOUs:**

The following LOUs are overlapping; therefore, they have the potential to affect each other:

- LOU 27 (PCB Storage Area) – This LOU was used as a storage area for oils and wastes containing PCBs and to transfer oils from equipment to drums. As LOU 27 overlaps portions of LOU 4 any release from LOU 27 could potentially affect LOU 4. No releases have been reported and no cracks were observed in the containment structure. However, the analytical plan for samples

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collected at one boring for LOU 27 will include analyses for PCBs.

- LOU 26E (Trash Storage Area) – Drums with common trash from the sodium chlorate and sodium perchlorate process areas were temporarily stored in the staging area of this LOU. No releases have been reported; however, the potential exists for minimal amounts of residual chlorate and perchlorate to have been released to the ground surface of LOU 4. As a result, the analytical plan for samples collected for LOU 4 will include analyses for perchlorate.
- LOU 4 (Former Hardesty Chemical Company Site) – A tank farm was located within Unit 2 and consisted of one AST for sulfuric acid, one UST for kerosene storage, and one UST for benzene storage. Known or potential chemical classes associated with LOU 4 are consistent with those listed for LOU 26E and 27; therefore, the addition of other chemical classes to the Phase B Analytical Plan for LOU 4 is not required.

**Known or Potential Chemical Classes:**

- Metals
- Hexavalent chromium (associated with LOU 28)
- Perchlorate (associated with LOU 26)
- Wet chemistry analytes
- VOCs
- SVOCs
- TPH
- Organochlorine pesticides (associated with LOU 4)
- PCBs (associated with LOU 27)

**Known or Potential Release Mechanisms:**

- No known releases were identified in the documents reviewed for LOUs 4, 26, and 27.
- For LOUs 4, 26, 27, and 28 there is the potential for infiltration to subsurface soil and groundwater.
- Additional LOU-specific known or potential release mechanisms are listed below.

**LOU 4 – Former Hardesty Chemical Company Site**

- Potential leaks from USTs and ASTs to surrounding soils.
- Potential discharges of wastes to the acid drain system and eventual discharge to the former Trade Effluent Settling Ponds (LOU 1).

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**LOU 26 – Trash Storage Area**

- Potential for releases from LOU 26 are considered to be minimal since dry incidental paper wastes with potential residual perchlorate or chlorate were in sealed drums that were transported for off-site non-hazardous disposal.
- Rain water run-off potentially containing residual perchlorate or chlorate is not considered a potential release mechanism since the trash was placed in sealed drums prior to disposal.
- Waste streams from LOU 26 did not include liquid.

**LOU 27 – PCB Storage Area**

- No known releases were identified for LOU 27 in the documents reviewed.

**LOU 28 – Hazardous Waste Storage Area**

- In 1991, a 12-inch diameter oil stain was observed south of the facility. There was no other evidence of releases [Ref. 10].
- Possible surface runoff/overspill.

**Results of Historical Sampling:**

- No known historical soil sampling was identified in the documents reviewed for LOUs 4, 26, and 27.

**LOU 4 – Former Hardesty Chemical Company Site**

Groundwater

- In 1997, one well (M-97) was installed downgradient of the former tank farm to address LOU 4 [Ref. 2]. Results from this groundwater sample are presented in LOUs 4, 26, 27, and 28 Table 6.

**LOU 26 – Trash Storage Area**

Groundwater

- Downgradient monitoring wells M-92 and M-97 are routinely tested for hexavalent chromium, perchlorate, and TDS as part of routine groundwater monitoring program. See attached LOUs 4, 26, 27, and 28 Table 7 for a summary of historical analytical results.

**LOU 27 – PCB Storage Area**

- No known historical soil sampling was identified in the documents reviewed for LOU 27.

**LOU 28 – Hazardous Waste Storage Area**

Soil

- Soil sampling conducted during the northern pad removal indicated detectable concentrations of TPH (LOUs 4, 26, 27, and 28 Table 24) [Ref. 7].



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- In November 1994 analysis of a soil composite sample (U2-7) from several locations in the bottom of the unbermed pad excavation was non-detect for TPH (LOUs 4, 26, 27, and 28 Table 24) [Ref. 7].

Groundwater

- Downgradient monitoring wells (M-92 and M-97) are routinely tested for perchlorate, hexavalent chromium, and TDS as part of a routine groundwater monitoring program [Ref. 4]. Results from this groundwater sample are presented in LOUs 4, 26, 27, and 28 Tables 6 and 7.

**Did Historical Samples Address Potential Release?**

- No

**Summary of Phase A SAI:**

Soil

- Boring SA04 is the closest Phase A location to the LOUs to be sampled. [Ref. 3].

Groundwater

- Well M-97 is the closest Phase A well to the LOUs to be sampled [Ref. 3].

Chemical classes detected in Phase A soil borings from SA04 include the following:

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

As a result of the Phase A data, the Phase B analytical plan for samples collected from LOUs 4, 26, 27, and 28 will be expanded to include analyses for dioxins/furans, radionuclides, and asbestos.

- Analytical results for the soil and groundwater from the Phase A sampling event are summarized in LOUs 4, 26, 27, and 28 Tables 1 through 5 and LOUs 4, 26, 27, and 28 Tables 8 through 23 (see attached).

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**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 LOUs 4, 26, 27, and 28 consists of collecting soil samples from the following 14 locations:

- One (1) soil boring will be drilled along the former above ground pipeline between the north and south areas of LOU 4.
  - Two (2) soil borings will be drilled south (upgradient) of LOUs 4, 26, 27, and 28.
  - One (1) soil boring will be drilled north (downgradient) of LOU 28 and the southern portion of LOU 4.
  - Two (2) soil borings will be drilled east (cross-gradient) of LOUs 4 and 28.
  - All 14 borings along with the analytical program to evaluate soil samples from LOUs 4, 26, 27, and 28 are listed on **Table A – Soil Sampling and Analytical Plan for LOUs 4, 26, 27, and 28.**
- 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 14 sample locations are judgmental locations and include soil borings SA 138, SA205, SA203, SA204, SA148, SA 120, SA121, SA84, SA101, SA29, and SA191.
  - Random sample grid locations:
    - Designed to assess whether unknown constituents associated with the LOUs are present.
    - Three (3) of the 14 sample locations are randomly-placed locations and include soil borings RSAQ4, RSAQ5, and RSAR5.

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

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

- Metals (Phase A list)
- Hexavalent chromium
- Perchlorate
- Wet chemistry analytes
- VOCs
- SVOCs
- TPH-DRO/ORO
- Organochlorine pesticides
- PCBs (SA101 only)

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

- Radionuclides
- Dioxins/furans
- Asbestos

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 LOUs 4, 26, 27, and 28 consists of collecting groundwater samples from two (2) locations to evaluate local groundwater conditions and as part of Site-wide evaluation of constituent trends in groundwater.

- Well M-97 north (downgradient) of LOUs 4, 26, 27, and 28 will be used to evaluate local and area-wide groundwater conditions.
- Well M-143 within LOU 4 will be used to evaluate local and area-wide groundwater conditions.

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- The sampling wells and the analytical program to evaluate groundwater samples associated with LOUs 4, 26, 27, and 28 are listed on **Table B – Groundwater Sampling and Analytical Plan for LOUs 4, 26, 27, and 28.**

**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 three (3) locations to evaluate area conditions for the presence of vapor-phase VOCs in the vadose zone.

- SG72, SG73, and SG74 are located to evaluate VOCs from the benzene and alcohol ASTs and the USTs in the southern portion of LOU 4.

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)

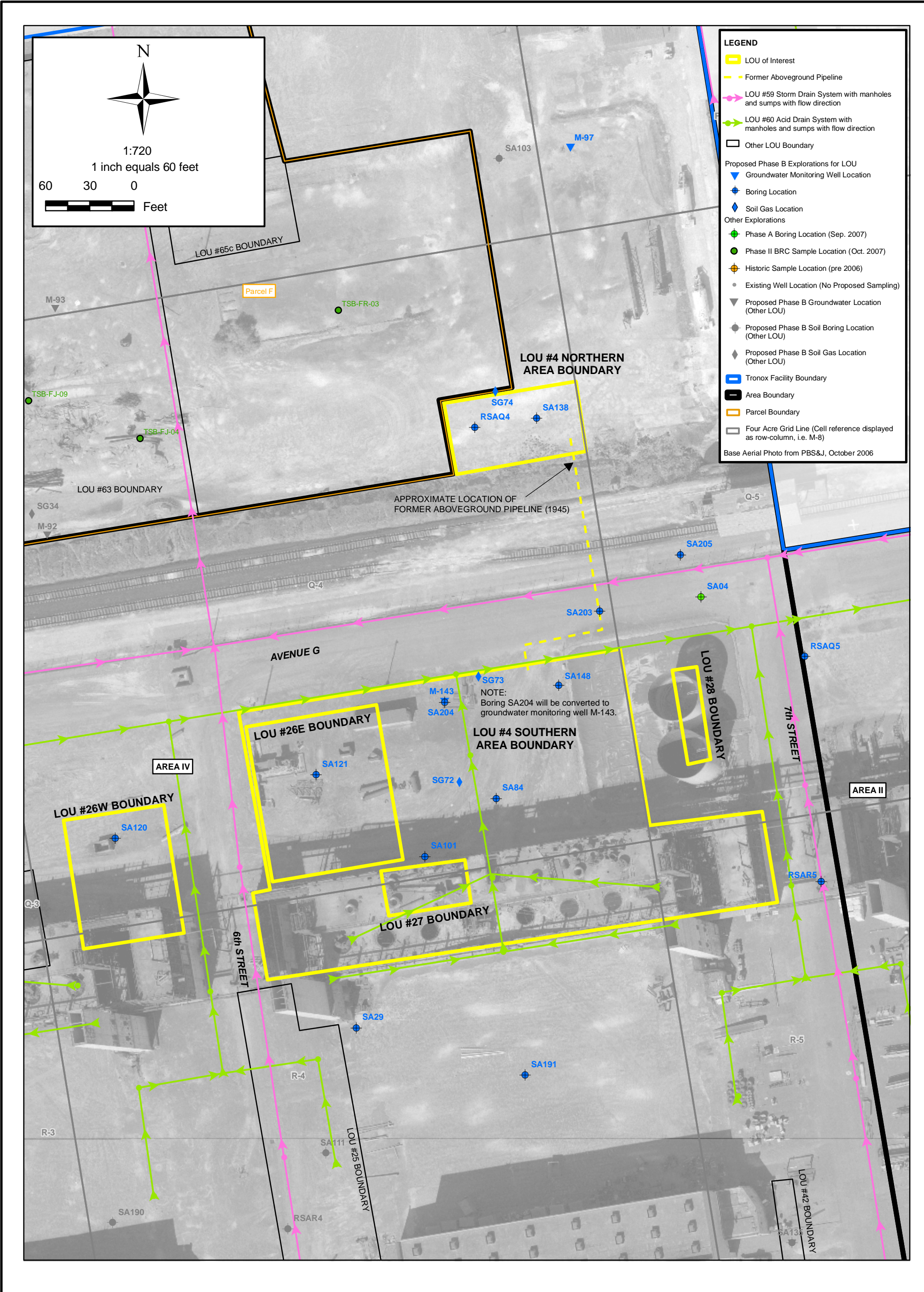
**References:**

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2. ENSR, 1997, Phase II Environmental Conditions Assessment, Kerr-McGee Chemical LLC, Henderson, Nevada.
3. ENSR, 2007a, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
4. ENSR, 2007b, Quarterly Performance Report for Remediation Systems, Tronox LLC, Henderson, Nevada, July-September 2007, November 2007.
5. Environmental Answers, Keith Bailey, Verbal Communication, April 9, 2008.

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6. Environmental Answers, Keith Bailey, Verbal Communication, February 5, 2008.
7. Kerr-McGee, 1996, Response to Letter of Understanding, Henderson, Nevada Facility, May (revised October 1996).
8. Kleinfelder, 1993, Environmental Conditions Assessment, Kerr-McGee Chemical Corporation, Henderson, Nevada Facility, April 15, 1993 (Final).
9. Tronox, Susan Crowley, Verbal Communication, January 15, 2008.
10. Tronox, Susan Crowley, Verbal Communication, January 17, 2008.
11. Tronox, Susan Crowley, Verbal Communication, February 5, 2008.
12. Hardesty Chemical Tank Farm General Layout: Map HAR-4, 1945.
13. Hardesty Chemical Preparation Plant Area: Map HAR-6, 1945.
14. ENSR, Sally Bilodeau, Site Reconnaissance, April, 16, 2008.

**LOU Figure**



SHEET NUMBER: X

FIGURE NUMBER: 1

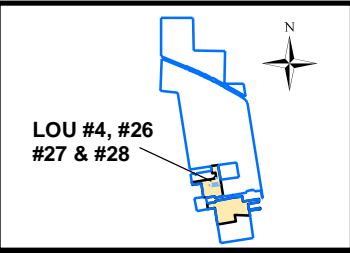
**SAMPLE LOCATIONS FOR LOU #4, #26, #27 & #28**  
**FORMER HARDESTY CHEMICAL CO. SITE,**  
**TRASH STORAGE AREA, PCB STORAGE AREA,**  
**& HAZARDOUS WASTE STORAGE AREA**  
 Phase B Area IV Source Area Investigation  
 Tronox Facility, Henderson, Nevada

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

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**Sampling and Analytical Plans for LOU 4:**

Table A – Soil Sampling and Analytical Plan for LOUs 4, 26, 27, and 28

Table B – Groundwater Sampling and Analytical Plan for LOUs 4, 26, 27, and 28





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)	VOCs <sup>2</sup> (EPA 8260B)	Wet Chemistry <sup>3</sup>	Total Cyanide (EPA 9012A)	OCPs <sup>4</sup> (8081A)	SVOCs <sup>5</sup> (EPA 8270C)	Radio-nuclides <sup>6</sup>	Dioxins/Furans <sup>7</sup>	PCBs <sup>8</sup> (EPA 1668)	Asbestos <sup>9</sup> EPA/540/R-97/028	Geo-technical Tests <sup>10</sup>	Location Description and Characterized Area Rationale
<b>Borings are organized by grid location as shown on Plate A - Starting point is on grid Q-4 and ending point on grid R-5.</b>																			
R-5	4, 59, 60	RSAR5	RSAR5-0.0	0.0															Boring located to evaluate LOU 4 (Former Hardesty Chemical Company Site), LOU 59 (Storm Sewer System), and LOU 60 (Acid Drain System) and for Unit 3 area-wide coverage.
R-5	4, 59, 60		RSAR5-0.5	0.5	X	X	X	X	X	X	X	X	X	X					
R-5	4, 59, 60		RSAR5-10	10	X	X	X	X	X	X	Hold	X	X						
R-5	4, 59, 60		RSAR5-20	20	X	X	X	X	X	X	Hold	X	X						
R-5	4, 59, 60		RSAR5-30	30	X	X	X	X	X	X	Hold	X	X						
R-5	4, 59, 60		RSAR5-40	40	X	X	X	X	X	X	X	X	X						
<b>Number of Borings:</b>		<b>14</b>																	
<b>Number of Samples:</b>					<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>0</b>	<b>27</b>	<b>62</b>	<b>67</b>	<b>14</b>	<b>1</b>	<b>14</b>	<b>0</b>	
<b>Notes:</b>																			
X Sample will be collected and analyzed. No sample collected under Phase B sampling program.																			
TPH-DRO/ORO Total petroleum hydrocarbons - Diesel-Range Organics/Oil-Range Organics.																			
1. If area is paved, samples will be collected at 0.5 feet below, or if an unpaved area is within a reasonable distance, the sample will be moved to the unpaved area.																			
2. Samples for VOC analysis will be preserved in the field using sodium bisulfate (or DI water) and methanol preservatives per EPA Method 5035.																			
3. Consists of wet chemistry parameters (including pH) listed on Table 1 of the Phase B Source Area Work Plan.																			
4. Organochlorine Pesticides (includes analysis for hexachlorobenzene).																			
5. Semi-volatile Organic Compounds																			
6. Radionuclides consists of alpha spec reporting for Thorium-230/232, Uranium 234/235, Uranium-238, and beta spec for Radium-226/228 (per NDEP).																			
7. Dioxins/furans: 90% will be tested by immunoassay, 10% analyzed by HRGC/HRMS in the laboratory.																			
8. Polychlorinated biphenyls																			
9. Soil samples for asbestos analyses will be collected from a depth of 0 to 2-inches bgs.																			
10. Geotechnical Tests consist of: moisture content (ASTM D-2216), grain size analysis (ASTM D-422 and C117-04), Soil Dry Bulk Density (ASTM D-2937), Grain Density (ASTM D-854, Soil-Water Filled Porosity (ASTM D-2216); Vertical Hydraulic Conductivity (ASTM D-5084/USEPA 9100).																			

Grid Location	Location Area	Monitoring Well No.	Sample ID Number	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)	Total Cyanide (EPA 9012A)	OCPs <sup>3</sup> (EPA 8081A)	SVOCs <sup>4</sup> (EPA 8270C)	Radio-nuclides <sup>5</sup>	Rationale
<b>Wells are organized by grid location as shown on Plate A - Starting point is on grid P-5 and ending point on grid R-4.</b>																
P-5	IV	M-97	M-97	35 - 45	MCcg1	yes	X	X	X	X	X		X	X	X	Located to serve as a downgradient stepout for LOUs 4, 26, 27, 28, 42, and 59; and for general Site coverage.
R-4	IV	M-143	M-143	TBD	TBD	new well	X	X	X	X	X		X	X	X	New well to be installed; located to evaluate LOUs 4, 25, 26, 27, 28, 42, and 60 for general Site coverage
<b>Number of Field Samples:</b>							2	2	2	2	2	0	2	2	2	
<b>Notes:</b>																
X Sample will be collected and analyzed.																
1 It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.																
2 VOCs = Volatile organic compounds (to include analysis for naphthalene).																
3 OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).																
4 SVOCs = Semi volatile organic compounds.																
5 Radionuclides consists of alpha spec reporting for Thorium-230/232, Uranium 234/235, Uranium-238, and beta spec for Radium-226/228 (per NDEP).																
(a) Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.																
TBD To be determined when well is constructed																
MCfg1 Muddy Creek Formation - first fine-grained facies																
MCcg1 Muddy Creek Formation - first coarse-grained facies																
MCfg2 Muddy Creek Formation - second fine-grained facies																

## **Soil and Groundwater Characterization Data**

LOU-specific analytes identified include:

- Wet chemistry analytes
- Metals
- Hexavalent chromium
- Organochlorine pesticides
- PCBs
- SVOCs
- Perchlorate
- TPH-DRO and ORO
- VOCs

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

**LOUs 4, 26, 27, and 28 Table 1 - Soil Characterization Data - Wet Chemistry**

**LOUs 4, 26, 27, and 28 Table 2 - Groundwater Characterization Data - Wet Chemistry**

LOUs 4, 26, 27, and 28 Table 3 - Soil Characterization Data - Dioxins and Dibenzofurans

**LOUs 4, 26, 27, and 28 Table 4 - Soil Characterization Data - Metals**

**LOUs 4, 26, 27, and 28 Table 5 - Groundwater Characterization Data - Metals**

**LOUs 4, 26, 27, and 28 Table 6 - Groundwater Characterization Data - Routine Monitoring**

**LOUs 4, 26, 27, and 28 Table 7 - Soil Characterization Data - Organochlorine Pesticides (OCPs)**

**LOUs 4, 26, 27, and 28 Table 8 - Groundwater Characterization Data - Organochlorine Pesticides (OCPs)**

LOUs 4, 26, 27, and 28 Table 9 - Soil Characterization Data - Organophosphorus Pesticides (OPPs)

LOUs 4, 26, 27, and 28 Table 10 - Groundwater Characterization Data - Organophosphorus Pesticides (OPPs)

**LOUs 4, 26, 27, and 28 Table 11 - Soil Characterization Data - PCBs**

**LOUs 4, 26, 27, and 28 Table 12 - Groundwater Characterization Data - PCBs**

**LOUs 4, 26, 27, and 28 Table 13 - Soil Characterization Data - Perchlorate**

**LOUs 4, 26, 27, and 28 Table 14 - Groundwater Characterization Data - Perchlorate**

LOUs 4, 26, 27, and 28 Table 15 - Soil Characterization Data - Radionuclides

LOUs 4, 26, 27, and 28 Table 16 - Groundwater Characterization Data - Radionuclides

**LOUs 4, 26, 27, and 28 Table 17 - Soil Characterization Data - SVOCs**

**LOUs 4, 26, 27, and 28 Table 18 - Groundwater Characterization Data - SVOCs**

**LOUs 4, 26, 27, and 28 Table 19 - Soil Characterization Data - TPH and Fuel Alcohols**

**LOUs 4, 26, 27, and 28 Table 20 - Soil Characteristic Data - VOCs**

**LOUs 4, 26, 27, and 28 Table 21 - Groundwater Characterization Data - VOCs**

LOUs 4, 26, 27, and 28 Table 22 - Soil Characterization Data - Long Asbestos Fibers in Respirable Soil Fraction

**LOUs 4, 26, 27, and 28 Table 23 - Hardesty Chemical Monitoring Well M-97 - Summary of Analytical Data**

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

**LOUs 4, 26, 27, and 28 Table 1  
Soil Characterization Data - Wet Chemistry**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	Ph A	Ph A	Ph A	
Boring No.		SA4	SA4	SA4	SA4	SA4	
Sample ID		SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40	
Sample Depth (ft)		0.5	10	20	30	40	
Sample Date		11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	
Wet Chemistry Parameter	PRG <sup>2</sup> mg/kg						Units
Percent moisture	--	9.0	6.0	8.5	12.3	5.9	percent
Alkalinity (as CaCO <sub>3</sub> )	--	476	437	595	278	77.5	mg/kg
Bicarbonate	--	1480	1630	1740	723	149	mg/kg
Total Alkalinity	--	1950	2070	2330	1000	227	mg/kg
Ammonia (as N)	--	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ	mg/kg
Cyanide	1.20E+04	R	R	R	R	R	mg/kg
MBAS	--	2.2 U	2.1 U	2.2 U	2.7 J	2.8 J	mg/kg
pH (solid)	--	10	7.8	9.8	9.4	8.4	none
Bromide	--	2.7 U	2.7 U	92.0	1.4 J	2.0 J	mg/kg
Chlorate	--	5.5 UJ	5.3 U	5.5 U	91.3 J-	119 J-	mg/kg
Chloride	--	2.8	4.4	172	46.5	71.2	mg/kg
Nitrate (as N)	--	0.53 J+	0.35 J+	1.0 J+	1.4 J+	1.5 J+	mg/kg
Nitrite	--	0.047 J	0.34	0.22 U	0.059 J	0.14 J	mg/kg
ortho-Phosphate	--	2.7 J	3.1 J	5.5 U	5.7 U	5.3 U	mg/kg
Sulfate	--	19.5	24.9	87.4	733	177	mg/kg
Total Organic Carbon	--	9550	7100	7500	1600	7800	mg/kg

**Notes:**

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

**LOUs 4, 26, 27, and 28 Table 2  
Groundwater Characterization Data - Wet Chemistry**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage  
Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Well ID		M-97	
Sample ID		M-97	
Sample Date		11/29/2006	
Wet Chemistry Parameters	MCL <sup>2</sup> ug/L		Units
Total Dissolved Solids	5.00E+05 j	<b>3750</b>	mg/L
Total Suspended Solids	--	<b>16.0 J</b>	mg/L
Alkalinity (as CaCO <sub>3</sub> )	--	5.0 U	mg/L
Bicarbonate	--	<b>90.0</b>	mg/L
Total Alkalinity	--	<b>90.0</b>	mg/L
Ammonia (as N)	--	50.0 U	ug/L
MBAS	--	<b>0.24</b>	mg/L
Cyanide	2.00E+02	R	ug/L
pH (liquid)	--	<b>7.3 J</b>	none
Specific Conductance	--	<b>2410</b>	umhos/cm
Bromide	--	25.0 U	mg/L
Chlorate	--	<b>277</b>	mg/L
Chloride	2.50E+05	<b>1190</b>	mg/L
Nitrate (as N)	1.00E+04	<b>8.4</b>	mg/L
Nitrite	1.00E+03	2.0 U	mg/L
ortho-Phosphate	--	5.0 U	mg/L
Sulfate	2.50E+05 j	<b>1150</b>	mg/L
Total Organic Carbon	--	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.

**LOUs 4, 26, 27, and 28 Table 3  
Soil Characterization Data - Dioxins and Dibenzofurans**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste  
Storage Area  
Tronox Facility - Henderson, Nevada

				<b>Sampling Program</b>	Ph A <sup>1</sup>
				<b>Boring No.</b>	SA4
				<b>Sample ID</b>	SA4-0.5
				<b>Sample Depth (ft)</b>	0.5
				<b>Sample Date</b>	11/14/2006
<b>chemical_name:</b>	<b>Method</b>	<b>Unit</b>	<b>PRG<sup>2</sup> mg/kg</b>		
Dioxin 8290 SCREEN Total TEQ-ENSR Calculated (a) ng/kg		ng/kg	--		<b>42.5</b>
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	--		<b>42.5</b>
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	--		<b>18.965</b>
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	--		<b>2.141</b>
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	--		<b>8.238</b>
1,2,3,4,7,8,9-Heptachlorodibenzofuran	SW 846 8290	ng/kg	--		
1,2,3,4,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--		<b>23.006</b>
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	--		<b>0.656</b>
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	--		<b>9.753</b>
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	--		<b>1.595</b>
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	--		<b>4.476</b>
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	--		<b>1.534</b>
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--		
1,2,3,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--		<b>37.501</b>
1,2,3,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--		
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--		<b>3.343</b>
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--		
2,3,4,6,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--		<b>4.497</b>
2,3,4,6,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--		
2,3,4,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--		<b>28.443</b>
2,3,4,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--		
2,3,7,8-Tetrachlorodibenzofuran	8290 Screen	ng/kg	--		<b>201.573</b>
2,3,7,8-Tetrachlorodibenzofuran	SW 846 8290	ng/kg	--		
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	1.00E+04 h,v		<b>4.487</b>
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	1.00E+04 h,v		
Octachlorodibenzofuran	8290 Screen	ng/kg	--		<b>38.680</b>
Octachlorodibenzofuran	SW 846 8290	ng/kg	--		



**LOUs 4, 26, 27, and 28 Table 3 (continued)**  
**Soil Characterization Data - Dioxins and Dibenzofurans**

Hardesty Chemical Company Site, Trash Storage Area,  
 PCB Storage Area, and Hazardous Waste Storage Area  
 Tronox Facility - Henderson, Nevada

<b>Sampling Program</b>				Ph A <sup>1</sup>
<b>Boring No.</b>				SA4
<b>Sample ID</b>				SA4-0.5
<b>Sample Depth (ft)</b>				0.5
<b>Sample Date</b>				11/14/2006
<b>chemical_name:</b>	<b>Method</b>	<b>Unit</b>	<b>PRG<sup>2</sup> mg/kg</b>	
Octachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	<b>2.582</b>
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.

(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. Midpoint of the range of 0.005 to 0.02 mg/kg for commercial/industrial soils.

**LOUs 4, 26, 27, and 28 Table 4  
Soil Characterization Data - Metals**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	Ph A	Ph A	Ph A	
Boring No.		SA4	SA4	SA4	SA4	SA4	
Sample ID		SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40	
Sample Depth (ft)		0.5	10	20	30	40	
Sample Date		11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006	
Metals	MSSL <sup>2</sup> mg/kg						Units
Aluminum	1.00E+05	7490	6040	6640	4260	5630	mg/kg
Antimony	4.50E+02	0.17 J-	0.14 J-	0.17 J-	0.12 J-	0.15 J-	mg/kg
Arsenic	2.80E+02	13.4	11.3	5.3	6.1	8.6	mg/kg
Barium	1.00E+05	155 J+	151 J+	176 J+	79.7 J+	152 J+	mg/kg
Beryllium	2.20E+03	0.51	0.36	0.49	0.31	0.39	mg/kg
Boron	1.00E+05	4.5 UJ	4.7 UJ	5.0 UJ	4.8 UJ	6.9 UJ	mg/kg
Cadmium	5.60E+02	0.087	0.088	0.080	0.053 J	0.082	mg/kg
Calcium	--	21100	25300	38800	9480	26600	mg/kg
Chromium (Total)	7.10E+01	11.2	7.2	10.7	7.3	19.1	mg/kg
Chromium-hexavalent	5.00E+02	0.12 J	0.21 U	1.7	0.23 U	0.54	mg/kg
Cobalt	2.10E+03	6.3 J-	3.8 J-	5.9 J-	3.7 J-	4.1 J-	mg/kg
Copper	4.20E+04	12.9 J-	8.4 J-	11.8 J-	9.1 J-	10.4 J-	mg/kg
Iron	1.00E+05	13300	8350	11500	6470	11200	mg/kg
Lead	8.00E+02	14.5	6.3	7.0	6.3	6.3	mg/kg
Magnesium	--	7570 J-	5530 J-	10500 J-	5110 J-	6050 J-	mg/kg
Manganese	3.50E+04	254 J	176 J	295 J	157 J	186 J	mg/kg
Molybdenum	5.70E+03	0.45 J	0.42 J	0.51 J	0.46 J	1.7	mg/kg
Nickel	2.30E+04	13.2 J-	9.3 J-	12.2 J-	8.5 J-	11.1 J-	mg/kg
Platinum	--	0.033 J	0.012 J	0.017 J	0.011 U	0.014 J	mg/kg
Potassium	--	2080 J-	2480 J-	1300 J-	1100 J-	1590 J-	mg/kg
Selenium	5.70E+03	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	mg/kg
Silver	5.70E+03	0.13 J	0.11 J	0.13 J	0.061 J	0.11 J	mg/kg
Sodium	--	1520 J-	823 J-	556 J-	360 J-	609 J-	mg/kg
Strontium	1.00E+05	131 J+	187 J+	260 J+	175 J+	304 J+	mg/kg
Thallium	--	0.077 U	0.074 U	0.076 U	0.08 U	0.074 U	mg/kg
Tin	--	0.52	0.42	0.47	0.39	0.63	mg/kg
Titanium	--	586	429	507	330	517	mg/kg
Tungsten	--	0.34 UJ	0.23 UJ	0.37 UJ	0.32 UJ	0.46 UJ	mg/kg
Uranium	--	0.89	0.85	2.0	0.94	1.6	mg/kg
Vanadium	5.70E+03	35.4 J-	22.2 J-	34.2 J-	22.8 J-	30.6 J-	mg/kg
Zinc	1.00E+05	29.4 J-	20.1 J-	23.9 J-	17.3 J-	22.7 J-	mg/kg
Mercury	3.41E+02 (t)	0.014 J-	0.014 J-	0.0073 UJ	0.0076 UJ	0.0071 UJ	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).
- (t) Value for mercury and compounds.

**LOUs 4, 26, 27, and 28 Table 5  
Groundwater Characterization Data - Metals**

Hardesty Chemical Company Site, Trash Storage Area, PCB  
Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Well ID:		M-97	
Sample ID		M-97-Z	
Sample Date		05/11/2007	
Metals	MCL <sup>2</sup> ug/L		Unit
Aluminum	5.00E+01 j	197 U	ug/L
Antimony	6.00E+00	12.5 U	ug/L
Arsenic	1.00E+01	181	ug/L
Barium	2.00E+03	33.8 J	ug/L
Beryllium	4.00E+00	2.2 U	ug/L
Boron	7.30E+03 c	4710	ug/L
Cadmium	5.00E+00	1.4 U	ug/L
Calcium	--	277000	ug/L
Chromium (Total)	1.00E+02	70.0 U	ug/L
Chromium-hexavalent	1.09E+02 c	60.5 J	ug/L
Cobalt	7.30E+02 c	7.8 U	ug/L
Copper	1.30E+03 p	6.3 U	ug/L
Iron	3.00E+02 j	235 UJ	ug/L
Lead	1.50E+01 u	12.3 U	ug/L
Magnesium	1.50E+05 a	182000	ug/L
Manganese	5.00E+01 j	8.5 U	ug/L
Molybdenum	1.82E+02 c	17.2 J	ug/L
Nickel	7.30E+02 c	12.9 U	ug/L
Platinum	--	2.5 U	ug/L
Potassium	--	15900	ug/L
Selenium	5.00E+01	25.0 U	ug/L
Silver	1.00E+02 j	5.1 U	ug/L
Sodium	--	598000	ug/L
Strontium	2.19E+04 c	7070	ug/L
Thallium	2.00E+00	8.0 U	ug/L
Tin	2.19E+04 c	5.0 U	ug/L
Titanium	1.46E+05 c	9.8 U	ug/L
Tungsten	--	12.5 U	ug/L
Uranium	3.00E+01	36.1	ug/L
Vanadium	3.65E+01 c	40.0 UJ	ug/L
Zinc	5.00E+03 j	25.0 U	ug/L
Mercury	2.00E+00	0.093 U	ug/L

**Notes:**

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. U.S. EPA Maximum Contaminant Level (MCL) values unless note
  - (j) Secondary Drinking Water Regulation value.
  - (c) Equal to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tapwater (October, 2004).
  - (p) The national primary drinking water regulations (b) lists a treatment technology action level of 1.3 mg/l as the MCL for
  - (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.

**LOUs 4, 26, 27, and 28 Table 6  
Summary of Analytical Data for LOU #4**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

**Analysis of water from M-97**

Water Sample	Date	Conductivity (µS/cm) EPA 120.1	TPH-d (mg/l) EPA 8015M	Volatile organic compounds (µg/l) EPA 8240			SVOCs (µg/l) EPA 8270		Arsenic (µg/l) EPA 6010 ICP	pH EPA 150.1
				Acetone	Chloroform	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, µmho/cm)	Cr-total (ppm)	ClO <sub>4</sub> (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
- 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
- ClO<sub>4</sub> = 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 LLC Company  
MW Montgomery Watson
- ND = Not determined
- PQL = Practical Quantitation Limit
- µS/cm = micro Siemens per centimeter
- mg/l = milligrams per liter
- µg/l = micrograms per liter
- ppm = parts per million
- µmho/cm = micro Mhos per centimeter
- < = not detected above the designated reporting limit.

**Analytic Data for M-97 on 4/9/1997 from ENSR, 1997 Phase II ECA.**

**Well Data From:** Kerr-McGee Chemical LLC Company, Mother-hen Database.

**\*\* Analytes and detection limits for VOC's that were non-detect (µg/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		

**LOUs 4, 26, 27, and 28 Table 6 (continued)  
Summary of Analytical Data for LOU #4**

Hardesty Chemical Company Site, Trash Storage Area,  
PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

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

<u>Analyte</u>	<u>PQL</u>	<u>Analyte</u>	<u>PQL</u>	<u>Analyte</u>	<u>PQL</u>
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

**LOUs 4, 26, 27, and 28 Table 7  
Groundwater Characterization Data - Routine Monitoring<sup>1</sup>**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Well ID	Date	Depth to water (ft)	Perchlorate mg/L	Qual	MCL <sup>2</sup> ug/L	Total Chromium mg/L	Qual	MCL <sup>2</sup> ug/L	TDS mg/L	Qual	MCL <sup>2</sup> ug/L	Nitrate (as N) mg/L	Qual	MCL <sup>2</sup> ug/L	Chlorate mg/L	Qual	MCL <sup>2</sup> ug/L
M-92	2/3/2006	36.67	0.89	d	1.80E+01 a,m	<0.01	ud	1.00E+02			5.00E+05 j			1.00E+04			--
M-92	5/4/2006	36.65	0.62	d	1.80E+01 a,m	<0.01	ud	1.00E+02	1980		5.00E+05 j			1.00E+04			--
M-92	8/2/2006	36.95	0.567	d	1.80E+01 a,m	<0.01	ud	1.00E+02	1670		5.00E+05 j			1.00E+04			--
M-92	11/1/2006	36.96	0.676	d	1.80E+01 a,m	<0.01	ud	1.00E+02	1920		5.00E+05 j			1.00E+04			--
M-92	1/31/2007	37.21	0.674		1.80E+01 a,m	<0.02	U	1.00E+02	1990		5.00E+05 j			1.00E+04			--
M-92	5/3/2007	37.24	0.695	J	1.80E+01 a,m	<0.02	U	1.00E+02	1920	J	5.00E+05 j			1.00E+04			--
M-92	8/1/2007	37.77	0.752		1.80E+01 a,m	<0.02	U	1.00E+02	1990		5.00E+05 j			1.00E+04			--
M-97	2/3/2006	39.83	60	d	1.80E+01 a,m	0.055	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-97	5/4/2006	39.89	61	d	1.80E+01 a,m	0.06	d	1.00E+02	3640		5.00E+05 j			1.00E+04			--
M-97	8/2/2006	40.10	62	d	1.80E+01 a,m	0.067	d	1.00E+02	3140		5.00E+05 j			1.00E+04			--
M-97	11/1/2006	40.07	80	d	1.80E+01 a,m	0.072	d	1.00E+02	3600		5.00E+05 j			1.00E+04			--
M-97	1/31/2007	40.37	77.7		1.80E+01 a,m	0.066		1.00E+02	3660		5.00E+05 j			1.00E+04			--
M-97	5/3/2007	40.43	76.8	J	1.80E+01 a,m	0.063		1.00E+02	3770	J	5.00E+05 j			1.00E+04			--
M-97	8/1/2007	40.97	89.2		1.80E+01 a,m	0.61		1.00E+02	3730		5.00E+05 j			1.00E+04			--

**Notes:**

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

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

**Validation Qualifiers:**

J = the result is an estimated quantity

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

**LOUs 4, 26, 27, and 28 Table 8**  
**Soil Characterization Data - Organochlorine Pesticides (OCPs)**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area,  
and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Boring No.		SA4	
Sample ID		SA4-0.5	
Sample Depth (ft)		0.5	
Sample Date		11/14/2006	
Organochlorine Pesticides	MSSL <sup>2</sup> mg/kg		Unit
4,4'-DDD	1.10E+01	0.0019 U	mg/kg
4,4'-DDE	7.80E+00	0.0019 U	mg/kg
4,4'-DDT	7.80E+00	0.0019 U	mg/kg
Aldrin	1.10E-01	0.0019 U	mg/kg
Alpha-BHC	4.00E-01 (bbb)	0.0019 U	mg/kg
Alpha-chlordane	1.40E+00 (y)	0.0019 U	mg/kg
Beta-BHC	1.40E+00 (bbb)	<b>0.0036</b>	mg/kg
Delta-BHC	4.00E-01 (z)	0.0019 U	mg/kg
Dieldrin	1.20E-01	0.0019 U	mg/kg
Endosulfan I	4.10E+03 (aa)	0.0019 U	mg/kg
Endosulfan II	4.10E+03 (aa)	0.0019 U	mg/kg
Endosulfan Sulfate	4.10E+03 (aa)	0.0019 U	mg/kg
Endrin	2.10E+02	0.0019 U	mg/kg
Endrin Aldehyde	2.10E+02 (k)	0.0019 U	mg/kg
Endrin Ketone	2.10E+02 (k)	0.0019 U	mg/kg
Gamma-BHC (Lindane)	1.90E+00 (bbb)	0.0019 U	mg/kg
Gamma-Chlordane	1.40E+00 (y)	0.0019 U	mg/kg
Heptachlor	4.30E-01	0.0019 U	mg/kg
Heptachlor Epoxide	2.10E-01	0.0019 U	mg/kg
Methoxychlor	3.40E+03	<b>0.0048</b>	mg/kg
Tech-Chlordane	1.40E+00	0.011 U	mg/kg
Toxaphene	1.70E+00	0.055 U	mg/kg

**Notes:**

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

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

(bbb) BHC listed as HCH in the MSSL table.

(y) Value for chlordane (technical) used as surrogate for alpha-chlordane and gamma-chlordane based on structural similarities.

(z) Value for alpha-BHC used as surrogate for delta-BHC based on structural similarities.

(aa) Value for endosulfan used as surrogate for endosulfan I, endosulfan II and endosulfan sulfate based on structural similarities.

(k) Value for endrin used as surrogate for endrin aldehyde and endrin ketone due to structural similarities.

**LOUs 4, 26, 27, and 28 Table 9  
Groundwater Characterization Data - Organochlorine  
Pesticides (OCPs)**

Hardesty Chemical Company Site, Trash Storage Area, PCB  
Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

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

**Notes:**

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



**LOUs 4, 26, 27, and 28 Table 10  
Soil Characterization Data - Organophosphorus Pesticides (OPPs)**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area,  
and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

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

**LOUs 4, 26, 27, and 28 Table 11**  
**Groundwater Characterization Data - Organophosphorus Pesticides**  
**(OPPs)**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage  
Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Well ID		M-97	
Sample ID		M-97	
Sample Date		11/29/2006	
OPPs	MCL <sup>2</sup> ug/L		Unit
Azinphos-methyl	--	2.5 UJ	ug/L
Bolstar	--	1.0 U	ug/L
Chlorpyrifos	1.09E+02 c	1.0 U	ug/L
Coumaphos	--	1.0 U	ug/L
Demeton-O	1.46E+00 c,(cc)	1.0 U	ug/L
Demeton-S	1.46E+00 c,(cc)	1.0 U	ug/L
Diazinon	3.28E+01	1.0 U	ug/L
Dichlorvos	2.32E-01	1.0 U	ug/L
Dimethoate	7.30E+00	1.0 U	ug/L
Disulfoton	1.46E+00	0.50 U	ug/L
EPN	3.65E-01	1.2 U	ug/L
Ethoprop	--	0.50 U	ug/L
Ethyl Parathion	9.12E+00 c,(tt)	1.0 U	ug/L
Famphur	--	1.0 U	ug/L
Fensulfothion	--	2.5 U	ug/L
Fenthion	9.10E+00 c,(ff)	2.5 U	ug/L
Malathion	7.30E+02	1.2 U	ug/L
Merphos	1.09E+00	5.0 U	ug/L
Methyl parathion	9.12E+00	4.0 U	ug/L
Mevinphos	--	6.2 U	ug/L
Naled	7.30E+01	1.0 UJ	ug/L
Phorate	7.30E+00	1.2 U	ug/L
Ronnel	1.82E+03	10 U	ug/L
Stirphos	--	3.5 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.
  - (c) Equal to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tapwater (October, 2004).
  - (cc) Value for demeton used as surrogate for demeton-o and demeton-s based on structural similarities.
  - (tt) Value for parathion-methyl used as surrogate for parathion-ethyl due to structural similarities.
  - (ff) Value for methyl parathion used as surrogate for fenthion based on structural similarities.

**LOUs 4, 26, 27, and 28 Table 12  
Soil Characterization Data - PCBs**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

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

**Notes:**

1. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
  2. U.S. EPA, Region 6, Medium Specific Screening Levels (MSSLs) for Industrial - Outdoor Worker (March, 2008)
- (i) For PCBs, the individual Aroclors were compared to the TSCA action level of 10 mg/kg, for high occupancy, restricted (non-residential) use. (40 CFR Part 761; 63 FR 35383-35474, June 29, 1998).

**LOUs 4, 26, 27, and 28 Table 13  
Groundwater Characterization Data - PCBs**

Hardesty Chemical Company Site, Trash Storage Area, PCB  
Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

<b>Sampling Program</b>		Ph A <sup>1</sup>	
<b>Well ID</b>		M-97	
<b>Sample ID</b>		M-97	
<b>Sample Date</b>		11/29/2006	
<b>PCBs</b>	<b>MCL<sup>2</sup> ug/L</b>		<b>Unit</b>
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.

**LOUs 4, 26, 27, and 28 Table 14  
Soil Characterization Data - Perchlorate**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Boring ID	Sample ID	Sample Depth (ft)	Sample Date	Perchlorate ug/kg	MSSL <sup>1</sup> mg/kg	Sampling Program
SA4	SA4-0.5	0.5	11/14/2006	<b>3140</b>	7.95E+02	Ph A <sup>2</sup>
	SA4-10	10	11/14/2006	<b>496</b>	7.95E+02	Ph A
	SA4-20	20	11/14/2006	<b>3800</b>	7.95E+02	Ph A
	SA4-30	30	11/14/2006	<b>42800</b>	7.95E+02	Ph A
	SA4-40	40	11/14/2006	<b>73900</b>	7.95E+02	Ph A

**Notes:**

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

**LOUs 4, 26, 27, and 28 Table 15  
Groundwater Characterization Data - Perchlorate**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste  
Storage Area  
Tronox Facility - Henderson, Nevada

Well ID Number	Sample ID	Sample Date	Perchlorate	Units	MCL <sup>1</sup> ug/L	Sampling Program
M-97	M-97	11/29/2006	74500	ug/L	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)].

**LOUs 4, 26, 27, and 28 Table 16  
Soil Characterization Data - Radionuclides**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

				<b>Ra-226</b>	<b>Ra-228</b>	<b>Th-228</b>	<b>Th-230</b>	<b>Th-232</b>	<b>U-233/234</b>	<b>U-235/236</b>	<b>U-238</b>	
				(gamma)	(gamma)	(TH MOD)	(TH MOD)	(TH MOD)	(U MOD)	(U MOD)	(U MOD)	
				pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	
			<b>PRG<sup>1</sup></b>	2.60E-02	1.50E-01	2.55E-01	2.02E+01	1.90E+01	3.24E+01	3.98E-01	1.80E+00	
<b>Boring ID Number</b>	<b>Sample ID</b>	<b>Sample Depth (ft)</b>	<b>Date</b>									<b>Sampling Program</b>
SA4	SA4-0.5	0.5	11/14/2006	<b>1.1 J</b>	<b>1.83</b>							Ph A <sup>2</sup>
	SA4-10	10	11/14/2006	<b>1.13 J</b>	<b>1.81</b>							Ph A
	SA4-20	20	11/14/2006	<b>1.19 J</b>	<b>1.53</b>	<b>0.511 JB</b>	<b>0.875 J</b>	<b>0.706 J</b>	<b>1.35</b>	<b>0.0181 J</b>	<b>0.833</b>	Ph A
	SA4-30	30	11/14/2006	<b>1.45 J</b>	<b>1.91</b>							Ph A
	SA4-40	40	11/14/2006	<b>1.6 J</b>	<b>1.9</b>							Ph A

**Notes:**

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

**LOUs 4, 26, 27, and 28 Table 17  
Groundwater Characterization Data - Radionuclides**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

			<b>Ra-226</b>	<b>Ra-228</b>	<b>Th-228</b>	<b>Th-230</b>	<b>Th-232</b>	<b>U-233/234</b>	<b>U-235/236</b>	<b>U-238</b>	
			pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	
		<b>TW PRG 1,2</b>	8.16E-04	4.58E-02	1.59E-01	5.23E-01	4.71E-01	6.74E-01	6.63E-01	5.47E-01	
<b>Well ID Number</b>	<b>Sample ID</b>	<b>Date</b>									<b>Sampling Program</b>
M-97	M-97-Z	05/11/2007	<b>0.380 J</b>	<b>0.788 B</b>							Ph A <sup>3</sup>

**Notes:**

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



**LOUs 4, 26, 27, and 28 Table 18  
Soil Characterization Data - SVOCs**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>	Ph A	Ph A	Ph A	Ph A
Boring No.			SA4	SA4	SA4	SA4	SA4
Sample ID			SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40
Sample Depth (ft)			0.5	10	20	30	40
Sample Date			11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006
SVOCs	Analytical Method	MSSL2 mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
1,4-Dioxane	non-SIM	1.70E+02	360 U	350 U	360 U	380 U	350 U
2-Methylnaphthalene	non-SIM	2.10E+02 (jj)	360 U	350 U	360 U	380 U	350 U
2-Methylnaphthalene	SIM	2.10E+02 (jj)	7.3 U				
Acenaphthene	non-SIM	3.30E+04	360 U	350 U	360 U	380 U	350 U
Acenaphthene	SIM	3.30E+04	7.3 U				
Acenaphthylene	non-SIM	3.30E+04 (pp)	360 U	350 U	360 U	380 U	350 U
Acenaphthylene	SIM	3.30E+04 (pp)	7.3 U				
Anthracene	non-SIM	1.00E+05	360 U	350 U	360 U	380 U	350 U
Anthracene	SIM	1.00E+05	7.3 U				
Benz(a)anthracene	non-SIM	2.30E+00	360 U	350 U	360 U	380 U	350 U
Benz(a)anthracene	SIM	2.30E+00	7.3 U				
Benzo(a)pyrene	non-SIM	2.30E-01	360 U	350 U	360 U	380 U	350 U
Benzo(a)pyrene	SIM	2.30E-01	7.3 U				
Benzo(b)fluoranthene	non-SIM	2.30E+00	360 U	350 U	360 U	380 U	350 U
Benzo(b)fluoranthene	SIM	2.30E+00	7.3 U				
Benzo(g,h,i)perylene	non-SIM	3.20E+04 (w)	360 U	350 U	360 U	380 U	350 U
Benzo(g,h,i)perylene	SIM	3.20E+04 (w)	7.3 U				
Benzo(k)fluoranthene	non-SIM	2.30E+01	360 U	350 U	360 U	380 U	350 U
Benzo(k)fluoranthene	SIM	2.30E+01	7.3 U				
bis(2-Ethylhexyl)phthalate	non-SIM	1.40E+02	360 U	350 U	360 U	380 U	350 U
Butyl benzyl phthalate	non-SIM	2.40E+02	360 U	350 U	360 U	380 U	350 U
Chrysene	non-SIM	2.30E+02	360 U	350 U	360 U	380 U	350 U
Chrysene	SIM	2.30E+02	7.3 U				
Dibenz(a,h)anthracene	non-SIM	2.30E-01	360 U	350 U	360 U	380 U	350 U
Dibenz(a,h)anthracene	SIM	2.30E-01	7.3 U				
Diethyl phthalate	non-SIM	1.00E+05	360 U	350 U	360 U	380 U	350 U
Dimethyl phthalate	non-SIM	1.00E+05	360 U	350 U	360 U	380 U	350 U
Di-N-Butyl phthalate	non-SIM	6.80E+04	360 U	350 U	360 U	380 U	350 U
Di-N-Octyl phthalate	non-SIM	--	360 U	350 U	360 U	380 U	350 U
Fluoranthene	non-SIM	2.40E+04	360 U	350 U	360 U	380 U	350 U
Fluoranthene	SIM	2.40E+04	7.3 U				
Fluorene	non-SIM	2.60E+04	360 U	350 U	360 U	380 U	350 U
Fluorene	SIM	2.60E+04	7.3 U				
Hexachlorobenzene	non-SIM	1.20E+00	360 U	350 U	360 U	380 U	350 U
Hexachlorobenzene	SIM	1.20E+00	<b>8.8</b>				
Indeno(1,2,3-cd)pyrene	non-SIM	2.30E+00	360 U	350 U	360 U	380 U	350 U
Indeno(1,2,3-cd)pyrene	SIM	2.30E+00	7.3 U				
Naphthalene	non-SIM	2.10E+02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Naphthalene	non-SIM	2.10E+02	360 U	350 U	360 U	380 U	350 U
Naphthalene	SIM	2.10E+02	7.3 U				
Nitrobenzene	non-SIM	1.10E+02	360 U	350 U	360 U	380 U	350 U

**LOUs 4, 26, 27, and 28 Table 18 (continued)  
Soil Characterization Data - SVOCs**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>	Ph A	Ph A	Ph A	Ph A
Boring No.			SA4	SA4	SA4	SA4	SA4
Sample ID			SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40
Sample Depth (ft)			0.5	10	20	30	40
Sample Date			11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006
SVOCs	Analytical Method	MSSL <sup>2</sup> mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Octachlorostyrene	non-SIM	--	360 U	350 U	360 U	380 U	350 U
Phenanthrene	non-SIM	1.00E+05 (n)	360 U	350 U	360 U	380 U	350 U
Phenanthrene	SIM	1.00E+05 (n)	7.3 U				
Pyrene	non-SIM	3.20E+04	360 U	350 U	360 U	380 U	350 U
Pyrene	SIM	3.20E+04	7.3 U				
Pyridine	non-SIM	6.80E+02	1800 U	1700 U	1700 U	1800 U	1700 U

**Notes:**

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

**LOUs 4, 26, 27, and 28 Table 19  
Groundwater Characterization Data - SVOCs**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage  
Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>
		Well No.	M-97
		Sample ID	M-97
		Sample Date	11/29/2006
SVOCs	Analytical Method	MCL <sup>2</sup> ug/L	ug/L
1,4-Dioxane	non-SIM	6.11E+00 c	10 U
2-Methylnaphthalene	non-SIM	6.20E+00 c,(jj)	10 U
2-Methylnaphthalene	SIM	6.20E+00 c,(jj)	
Acenaphthene	non-SIM	3.65E+02 c	10 U
Acenaphthene	SIM	3.65E+02 c	
Acenaphthylene	non-SIM	3.65E+02 c,(pp)	10 U
Acenaphthylene	SIM	3.65E+02 c,(pp)	
Anthracene	non-SIM	1.83E+03 c	10 U
Anthracene	SIM	1.83E+03 c	
Benz(a)anthracene	non-SIM	9.21E-02 c	10 U
Benz(a)anthracene	SIM	9.21E-02 c	
Benzo(a)pyrene	non-SIM	2.00E-01	10 U
Benzo(a)pyrene	SIM	2.00E-01	
Benzo(b)fluoranthene	non-SIM	9.21E-02 c	10 U
Benzo(b)fluoranthene	SIM	9.21E-02 c	
Benzo(g,h,i)perylene	non-SIM	1.83E+02 c,(w)	10 U
Benzo(g,h,i)perylene	SIM	1.83E+02 c,(w)	
Benzo(k)fluoranthene	non-SIM	9.21E-01 c	10 U
Benzo(k)fluoranthene	SIM	9.21E-01 c	
bis(2-Ethylhexyl)phthalate	non-SIM	6.00E+00	<b>1.5 J</b>
Butyl benzyl phthalate	non-SIM	7.30E+03 c	10 U
Chrysene	non-SIM	9.21E+00 c	10 U
Chrysene	SIM	9.21E+00 c	
Dibenz(a,h)anthracene	non-SIM	9.21E-03 c	10 U
Dibenz(a,h)anthracene	SIM	9.21E-03 c	
Diethyl phthalate	non-SIM	2.92E+04 c	10 U
Dimethyl phthalate	non-SIM	3.65E+05 c	10 U
Di-N-Butyl phthalate	non-SIM	3.65E+03 c	10 U
Di-N-Octyl phthalate	non-SIM	1.46E+03 c	10 U
Fluoranthene	non-SIM	1.46E+03 c	10 U
Fluoranthene	SIM	1.46E+03 c	
Fluorene	non-SIM	2.43E+02 c	10 U
Fluorene	SIM	2.43E+02 c	
Hexachlorobenzene	non-SIM	1.00E+00	10 U
Hexachlorobenzene	SIM	1.00E+00	
Indeno(1,2,3-cd)pyrene	non-SIM	9.21E-02 c	10 U
Indeno(1,2,3-cd)pyrene	SIM	9.21E-02 c	
Naphthalene	non-SIM	6.20E+00 c	5.0 U
Naphthalene	non-SIM	6.20E+00 c	10 U
Naphthalene	SIM	6.20E+00 c	
Nitrobenzene	non-SIM	3.40E+00 c	10 U

**LOUs 4, 26, 27, and 28 Table 19 (continued)  
Groundwater Characterization Data - SVOCs**

Hardesty Chemical Company Site, Trash Storage Area,  
PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>
Well No.			M-97
Sample ID			M-97
Sample Date			11/29/2006
SVOCs	Analytical Method	MCL <sup>2</sup> ug/L	ug/L
Octachlorostyrene	non-SIM	-- c	10 U
Phenanthrene	non-SIM	1.80E+03 (n)	10 U
Phenanthrene	SIM	1.80E+03 (n)	
Pyrene	non-SIM	1.83E+02 c	10 U
Pyrene	SIM	1.83E+02 c	
Pyridine	non-SIM	3.65E+01 c	20 U

**Notes:**

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

**LOUs 4, 26, 27, and 28 Table 20  
Soil Characteristic Data - TPH and Fuel Alcohols**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

				Fuel Alcohols			Total Petroleum Hydrocarbons			
				Ethanol mg/kg	Ethylene glyco mg/kg	Methanol mg/kg	TPH - ORO mg/kg	TPH - DRO mg/kg	TPH - GRO mg/kg	
			<b>MSSL<sup>1</sup> mg/kg</b>	--	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
SA4	SA4-0.5	0.5	11/14/2006				<b>43</b>	27 U	0.11 U	Ph A <sup>2</sup>
	SA4-10	10.0	11/14/2006				27 U	27 U	0.11 U	Ph A
	SA4-20	20.0	11/14/2006				27 U	27 U	0.11 U	Ph A
	SA4-30	30.0	11/14/2006				29 U	29 U	0.11 U	Ph A
	SA4-40	40.0	11/14/2006				27 U	27 U	0.11 UJ	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.
- (vv) Nevada Administrative Code 445A.2272. Contamination of soil: Establishment of action levels. NAC 445A.2272.1.b.

**LOUs 4, 26, 27, and 28 Table 21  
Soil Characterization Data - VOCs**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

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

**LOUs 4, 26, 27, and 28 Table 21 (continued)**  
**Soil Characterization Data - VOCs**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	Ph A	Ph A	Ph A
Boring No.		SA4	SA4	SA4	SA4	SA4
Sample ID		SA4-0.5	SA4-10	SA4-20	SA4-30	SA4-40
Sample Depth (ft)		0.5	10	20	30	40
Sample Date		11/14/2006	11/14/2006	11/14/2006	11/14/2006	11/14/2006
VOCs	MSSL <sup>2</sup> mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Dichlorodifluoromethane	3.40E+02	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ
Ethyl t-butyl ether	7.90E+01 (kk)	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Ethylbenzene	2.30E+02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Ethylene dibromide	7.00E-02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Hexachlorobutadiene	2.50E+01	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
isopropyl ether	--	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Isopropylbenzene	5.80E+02 (zz)	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Methyl tert butyl ether	7.90E+01	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Methylene chloride	2.20E+01	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ
N-Butylbenzene	2.40E+02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
N-Propylbenzene	2.40E+02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
sec-Butylbenzene	2.20E+02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Styrene	1.70E+03	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
t-Butyl alcohol	--	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ
tert-Butylbenzene	3.90E+02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Tetrachloroethene	1.70E+00	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Toluene	5.20E+02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
trans-1,2-Dichloroethylene	2.00E+02	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
trans-1,3-Dichloropropene	1.75E+00 (gg)	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Trichloroethene	1.00E-01	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Trichlorofluoromethane	1.40E+03	5.5 UJ	5.3 UJ	5.5 UJ	5.7 UJ	5.3 UJ
Vinylchloride	8.60E-01	5.5 U	5.3 U	5.5 U	5.7 U	5.3 U
Xylene (Total)	2.10E+02	11 U	11 U	11 U	11 U	11 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).
- (gg) Value for 1,3-dichloropropene used as surrogate for 1,1-dichloropropene, cis-1,3-dichloropropene and trans-1,3-dichloropropene based on structural similarities.
- (hh) Value for 1,2,4-trichlorobenzene used as surrogate for 1,2,3-trichlorobenzene based on structural similarities.
- (ii) Value for 1,2-dichloropropane used as surrogate for 2,2-dichloropropane based on structural similarities.
- (nn) Value for methyl isobutyl ketone used as surrogate for 2-hexanone based on structural similarities.
- (ww) Value for 2-chlorotoluene used as surrogate for 4-chlorotoluene based on structural similarities.
- (qq) Value for bromodichloromethane used as surrogate for bromochloromethane due to structural similarities.
- (xx) Value for methylene bromide used as surrogate for dibromomethane based on structural similarities.
- (kk) Value for methyl tertbutyl ether (MTBE) used as surrogate for ethyl-tert-butyl ether (ETBE) based on structural similarities.
- (zz) Isopropyl benzene is listed as cumene (isopropylbenzene) in the MSSL table.

**LOUs 4, 26, 27, and 28 Table 22  
Groundwater Characteristic Data - VOCs**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous  
Waste Storage Area  
Tronox Facility - Henderson, Nevada

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



**LOUs 4, 26, 27, and 28 Table 22 (continued)  
Groundwater Characteristic Data - VOCs**

Hardesty Chemical Company Site, Trash Storage Area,  
PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>
Well ID		M-97
Sample ID		M-97
Sample Date		11/29/2006
VOCs	MCL <sup>2</sup> ug/L	ug/L
Hexachlorobutadiene	8.62E-01 c	5.0 U
isopropyl ether	--	5.0 U
Isopropylbenzene	6.58E+02 c,zz	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 c	5.0 U
N-Propylbenzene	2.43E+02 c	5.0 U
sec-Butylbenzene	2.43E+02 c	5.0 U
Styrene	1.00E+02	5.0 U
t-Butyl alcohol	--	10 UJ
tert-Butylbenzene	2.43E+02 c	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 UJ
Vinylchloride	2.00E+00	5.0 UJ
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.

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

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

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

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

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

(o) See footnote (b). Listed under synonym monochlorobenzene.

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

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

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

(uu) NDEP, 1998. Oxygenated Fuel Corrective Action Guidance. Draft. October, 12 1998. URL [[http://ndep.nv.gov/bca/mtbe\\_doc.htm](http://ndep.nv.gov/bca/mtbe_doc.htm)].

**LOUs 4, 26, 27, and 28 Table 23  
Soil Characterization Data - Long Asbestos Fibers in Respirable Soil Fraction**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

			<b>Long Amphibole Protocol Structures</b>	<b>Long Amphibole Protocol Structures</b>	<b>Long Chrysotile Protocol Structures</b>	<b>Long Chrysotile Protocol Structures</b>	<b>Sampling Program</b>
<b>No.</b>	<b>Sample ID</b>	<b>Sample Date</b>	s/gPM10	(Structures/sample)	s/gPM10	(Structures/sample)	
SA4	SA4	12/07/2006	2946000 U	0	<b>38300000</b>	<b>13</b>	Ph A <sup>1</sup>

**Notes:**

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

**LOUs 4, 26, 27, and 28 Table 24  
Summary of Historical Soil Analytical Data**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and  
Hazardous Waste Storage Area  
Tronox Facility - Henderson, Nevada

**P-2 Tank Excavation Area**

Sample Date:	10/20/1994		
Sample Matrix:	Soil		
Sample ID	EPA Method 8015-M	EPA Method 8080	
	TPH * (mg/kg)	PCBs ** (mg/kg)	Aroclor (mg/kg)
Sample # 1	390	< 1.0	NA
Sample # 2	540	< 1.0	NA
Sample # 3	620	< 1.0	NA
Method Blank	<10	< 1.0	NA
<b>Detection Limit</b>	10	1	NA
<b>MSSL<sup>1</sup> (mg/kg)</b>	--	8.26E-01	--
<b>PRG<sup>2</sup> (mg/kg)</b>	1.59E+00	--	--

**U-2 Storage Area, Excavation of P-2 tanks (Final)**

Sample Date:	11/22/1994
Sample Matrix:	Soil
Sample ID	TPH * (mg/kg)
U2-7	<10
Method Blank	<10
<b>Detection Limit</b>	10
<b>PRG<sup>2</sup> (mg/kg)</b>	1.59E+00

**Notes:**

TPH \* = Total Petroleum Hydrocarbons, Full Range, EPA Method 8015-  
mg/kg = milligrams per kilogram

< = not detected above the designated method reporting limit.

NA = Not Applicable, Not tested

Data from Kerr-McGee, 1996b, Response to LOU Comments

Sample Analysis by: Nevada Environmental Laboratory, Las Vegas

<b>** Analytes and detection limits for PCB's that were non-detect (mg/kg):</b>					
Analyte	PQL	MSSL <sup>1</sup> mg/kg	Analyte	PQL	MSSL <sup>1</sup> mg/kg
Aroclor 1016	1	2.40E+01	Aroclor 1248	1	8.30E-01
Aroclor 1221	1	8.30E-01	Aroclor 1254	1	8.30E-01
Aroclor 1232	1	8.30E-01	Aroclor 1260	1	8.30E-01
Aroclor 1242	1	8.30E-01			

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

2. MSSL not established, value displayed is U.S. EPA, Region 9, Preliminary Remediation  
Goals (PRGs) for industrial soil (October, 2004)

**LOUs 4, 26, 27, and 28 Table 25**  
**Notes for Phase A Data Tables**

Hardesty Chemical Company Site, Trash Storage Area, PCB Storage Area, and Hazardous Waste Storage Area  
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	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) & 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.
--	MSSL or PRG not established