

**Summary of Available Data for LOU 22 and LOU 23  
Pond WC-West and WC-East & Associated Piping  
Tronox Facility – Henderson, Nevada**

- Name of Facility:** **Pond WC-West – LOU 22, WC-East – LOU 23, and Associated Piping**
- Goal of Closure:**
- Continuation of current use – regulatory closure not presently requested.
- Site Investigation Area:**
- Pond WC-West
- Size [Ref. 3]:
    - Approximately 440 feet by 280 feet (2.8-acres).
    - Surface area of 123,200 sq. ft. (2.8-acres).
    - Capacity of 12,515,200 gallons.
  - Location: Approximately 40 feet east of GW-11 Pond.
- Pond WC-East
- Size [Ref. 3]:
    - Approximately 450 feet by 285 feet (2.9-acres).
    - Surface area of 128,250 sq. ft. (2.9-acres).
    - Capacity of 19,658,500 gallons.
  - Location: Approximately 500 feet east of GW-11 Pond.
- Associated Piping
- Size: Approximately 3,000 linear feet.
  - Location: Piping extends from the southeast corner of Pond WC-East along 11<sup>th</sup> Street to Unit 5 Building [Ref. 5]. Additional piping associated with the treatment area south of the ponds extends into the southeast corner of WC-West [Ref. 5].
  - Current Status/Features: Ponds WC-West and WC-East, and the associated piping are currently active.
- Description:**
- Constructed in late 1988, both surface impoundments began operating in March 1989, and are currently in use [Ref. 3].
  - The surface impoundments are bounded by lined soil berms that are approximately 10 to 12 feet above the surrounding grade [Ref. 2].
  - Release prevention measures for WC-West consist of a double-liner system and for WC-East consist of a triple-liner system, detection systems, and control of discharge to the ponds [Ref. 3].
  - Historically, both ponds received composite liquid waste streams from Units 3, 5, and 6 and the steam plant [Ref. 3].

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- Currently (as of January 2008), both ponds regularly receive composite liquid waste streams from Units 6, the distillation plant, the steam plant, and the boron/boron trichloride production area (currently north of Unit 4) [Ref. 5].
- Liquid from the Pond WC-East is pumped to the recompression unit (located in the southwest corner of the leach plant); after undergoing distillation, the concentrated brine is discharged into the Pond WC-West [Ref. 4].
- Liquid from Pond WC-West is also processed through the vapor recompression units to reclaim water for cooling and process use [Ref. 3].
- On occasion, process waste water from Pond C-1 and the boron processes were pumped directly to Pond WC-West [Ref. 4].
- A pump unit servicing Pond WC-West and Pond WC-East is located between the two ponds on the southern berm [Ref. 3]. Very small amounts of hypochlorite were used to keep the pipelines clear [Ref. 5]. This pump is currently (as of February 2008) not active [Ref. 5].

Associated Piping

- Waste water enters both WC-West and WC-East on the southeastern corner of via aboveground pipelines [Ref. 5].

Process Waste Streams Associated with LOUs 22 and 23	Known or Potential Constituents Associated with LOUs 22 and 23
Concentrated brine from the vapor recompression units that included [Ref. 3]: <ul style="list-style-type: none"> <li>- Process water softeners</li> <li>- Steam generation blow down</li> <li>- Cooling tower blow down from Units 3 and 5</li> <li>- Manganese dioxide product wash solution from Unit 6</li> <li>- Manganese dioxide cathode wash solution</li> <li>- Process seal water/filter flush</li> </ul>	<ul style="list-style-type: none"> <li>• Metals (magnesium, manganese from cathode scale, manganese dioxide, boron)</li> <li>• Hexavalent chromium</li> <li>• Perchlorate</li> <li>• Chlorate</li> <li>• Wet chemistry analytes</li> <li>• Sodium hexametaphosphate</li> </ul>
Fluids from the pump unit	<ul style="list-style-type: none"> <li>• Hypochlorite [Ref. 5]</li> <li>• TPH</li> </ul>

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<b>Process Waste Streams Associated with LOUs 22 and 23</b>	<b>Known or Potential Constituents Associated with LOUs 22 and 23</b>
Process waste water from Pond C-1 [Ref. 3 and 4]: <ul style="list-style-type: none"> <li>- Steam Plant Boiler Blow-Down</li> <li>- Boiler Plant Wash-Down</li> <li>- Manganese Dioxide Cathode Wash</li> <li>- Main Cooling Tower Blow-Down and Filter Wash</li> <li>- Boron Neutralization Solutions</li> <li>- Hot process water softener solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Manganese</li> <li>• Hexavalent chromium</li> <li>• Wet chemistry analytes</li> </ul>
<b>Process Waste Streams Associated with the Boron/Boron Trichloride Plant North of Unit 4 (Current Location) and Unit 5 (Former Location)</b>	
Neutralized solution from boron and boron trichloride process [Ref. 4].	<ul style="list-style-type: none"> <li>• Metals (boron)</li> <li>• Wet chemistry analytes</li> </ul>

**Overlapping or Adjacent LOUs:**

The following LOUs overlap or are adjacent to LOU 22 and 23:

Overlapping LOUs

- LOU 1 (Trade Effluent Settling Ponds) – Overlaps the entire area of LOUs 22 and 23.

Adjacent LOUs

- LOU 32 (Groundwater Remediation Unit) – Located south (upgradient) and west (crossgradient) of LOUs 22 and 23.

With the exception of LOU 1 (see discussion below), known or potential chemical classes associated with LOU 32 are consistent with those listed for LOUs 22 and 23; therefore, no additional chemical classes have been added to the analytical plan for LOUs 22 and 23. For detailed information on LOUs listed above, please refer to the specific LOU data package.

**LOUs Potentially Affecting Soils in LOUs 22 and 23:**

- LOU 1 – Trade Effluent (TE) Settling Ponds: The TE Settling Ponds received process waste streams from the acid neutralization plant as well as solid waste/materials. Waste streams from the acid neutralization plant were discharged to LOU 1 and may have potentially affected the area beneath and/or around LOUs 22 and 23. As a result, the analytical plan for samples collected for LOUs 22 and 23 will include analyses for VOCs, SVOCs, and OCPs.

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- LOU 20 – Pond C-1: Pond C-1 received non-hazardous industrial liquid waste products from Unit 4, Unit 5, and the Steam Plant. On occasion, process waste water from Pond C-1 and the boron processes were pumped directly to the Pond WC-West (LOU 22). Known or potential chemical classes associated with LOU 20 are consistent with those listed for LOUs 22 and 23; therefore, no additional chemical classes have been added to the analytical plan for LOUs 22 and 23.

For further information please refer to the LOU 1 and LOU 20 data packages.

**Known or Potential Chemical Classes:**

- Metals
- Hexavalent chromium
- Perchlorate
- Wet chemistry analytes
- TPH
- VOCs (associated with LOU 1)
- SVOCs (associated with LOU 1)
- Organochlorine pesticides (associated with LOU 1)

**Known or Potential Release Mechanisms:**

- No known releases documented for these LOUs.
- Potential infiltration to subsurface soil and groundwater could have occurred from potential leaks in the liner.
- A five- by 10-foot area of soil (located adjacent to the east corner of a pump unit) that is on the southern berm of Pond WC-West and Pond WC-East was observed to be white and crusty [Ref. 3].

**Results of Historical Sampling:**

- Soil samples were collected prior to construction from the area beneath the ponds and tested for the eight RCRA metals, by EP Toxicity, and for the presence of six organic compounds [Ref. 3]. (Sample locations were not documented in Ref. 3.)
- Upgradient and downgradient monitoring wells (M-83, M-84, M-99, M-100, and M-101) are tested for total chromium, perchlorate, and total dissolved solids as part of periodic or routine groundwater monitoring program [Ref. 2].
- Analytical results are summarized: LOU 22 & 23 Table 6 and Table 24 (see attached).

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**Summary of Phase A SAI:**

Soil

- Phase A Investigation boring SA23 is approximately 90 feet north (downgradient) and was specifically sampled to evaluate this LOU [Ref. 1].

Groundwater

- Phase A Investigation well M-100 is approximately 75 feet to the north (downgradient) and was specifically sampled to evaluate this LOU [Ref. 1].

Chemical classes detected in Phase A soil boring SA23:

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

As a result of the Phase A data, the Phase B analytical plan for samples collected from LOUs 22 and 23 will be expanded to include analyses for dioxins/furans, radionuclides, and asbestos.

- Analytical results for soil and groundwater from the Phase A sampling event are summarized: LOU 22 & 23 Tables 1 through 5 and 7 through 23 (see attached) [Ref. 1].

**Are Phase A Sample Locations in “Worst Case” Areas?**

Ponds

- Not completely. Since the ponds are currently active, direct assessment through the ponds was not possible.

Associated Piping

- No

**Is Phase B Investigation Recommended?**

- Yes – the soil with white encrustations next to the pump unit and locations along the associated pipelines will be evaluated. Soil adjacent to the pipeline between Unit 5 (in Area III) and LOUs 22 and 23 will also be evaluated.
- No Phase B soil assessment is proposed directly through LOUs 22 and 23 since both ponds are currently active and the integrity of the impoundment liners and leak detection systems needs to be maintained.
- Soil samples will be collected at locations upgradient, downgradient, and cross-gradient to LOUs 22 and 23 as part of the evaluation of LOU 1. Since known or potential

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chemical classes for LOUs 22 and 23 are consistent with those listed in LOU 1, these sample locations are also applicable to LOUs 22 and 23.

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

The Phase B investigation of LOUs 22 and 23 consists of collecting soil samples from 13 locations:

- One (1) soil boring (SA127) will be drilled to evaluate the white encrustations that occur in soil adjacent to the pump unit between LOUs 22 and 23.
- Five (5) boring locations will be drilled along the pipeline leading from Unit 5 to LOUs 22 and 23. These borings are SA36 (in Area III), SA162 (in Area III), SA157 (in Area III), RSAL7, and RSAK7.
- In association with the evaluation of LOU 1 (TE Settling Ponds), soil samples will be collected from seven (7) locations that are near LOUs 22 and 23:
  - Four (4) soil borings will be drilled south (upgradient) of LOUs 22 and 23. These borings are RSAJ5, RSAJ6, SA76, and RSAJ7.
  - One (1) boring (RSAI7) will be drilled north (downgradient) of LOU 23.
  - Two (2) borings (RSAJ8 and SA79) will be drilled east (cross-gradient) from LOU 23.
- All 13 borings along with the analytical program to evaluate soil samples from LOUs 22 and 23 are listed on **Table A – Soil Sampling and Analytical Plan for LOUs 22 and 23.**
- Soil sample locations consist of both judgmental and randomly-placed locations:
- Judgmental sample locations:
  - Are designed to evaluate soil for known or potential chemical classes associated with LOUs 22 and 23.
  - Four (4) of the 13 sample locations are judgmental locations and include soil borings SA36 (Area III), SA127, SA157 (Area III), and SA162 (Area III).
- Random sample grid locations:
  - Are designed to assess whether unknown constituents associated with LOU 1 (and by their overlapping occurrence, LOUs 22 and 23) are present.

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- Seven of the 13 sample locations are randomly-placed locations and include RSAL7, RSAJ5, RSAJ6, RSAJ7, RSAK7, RSAI7, and RSAJ8.
- Proposed Phase B Constituents List for Soils:** Both Judgmental and Random sample locations will be analyzed for the following constituents:
- 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:**
- No monitoring wells are located within the boundaries of LOUs 22 and 23. However, four (4) monitoring wells in the vicinity of LOUs 22 and 23 will be sampled as part of the Phase B activities to evaluate local groundwater conditions and as part of the Site-wide evaluation of constituent trends in groundwater.
    - Two (2) monitoring wells (M-83 and M-84) located south (upgradient) of LOUs 22 and 23 will be sampled.
    - Two (2) monitoring wells located north (upgradient) of LOUs 22 and 23 will be sampled. These wells are M-100 and M-101.
    - All four wells along with the analytical program to evaluate groundwater samples associated with LOUs 22 & 23 are listed on **Table B – Groundwater Sampling and Analytical Plan for LOUs 22 and 23.**
- 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

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**Proposed Phase B Soil Gas  
Investigation/Rationale:**

- Two (2) soil gas sample will be collected to evaluate area conditions for the presence of vapor-phase VOCs in the vadose zone.
- SG24 will be located adjacent to soil boring RSAI5 and well M-99 to evaluate VOCs from a groundwater source and to provide areal coverage for the Site-wide investigation.
- SG92 will be located adjacent to soil boring RSAJ5 to evaluate VOCs from a groundwater source and to provide areal coverage for the Site-wide investigation.
- SG91 will be located adjacent to well M-100 to evaluate VOCs from a groundwater source and to provide areal coverage for the Site-wide investigation.

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:**

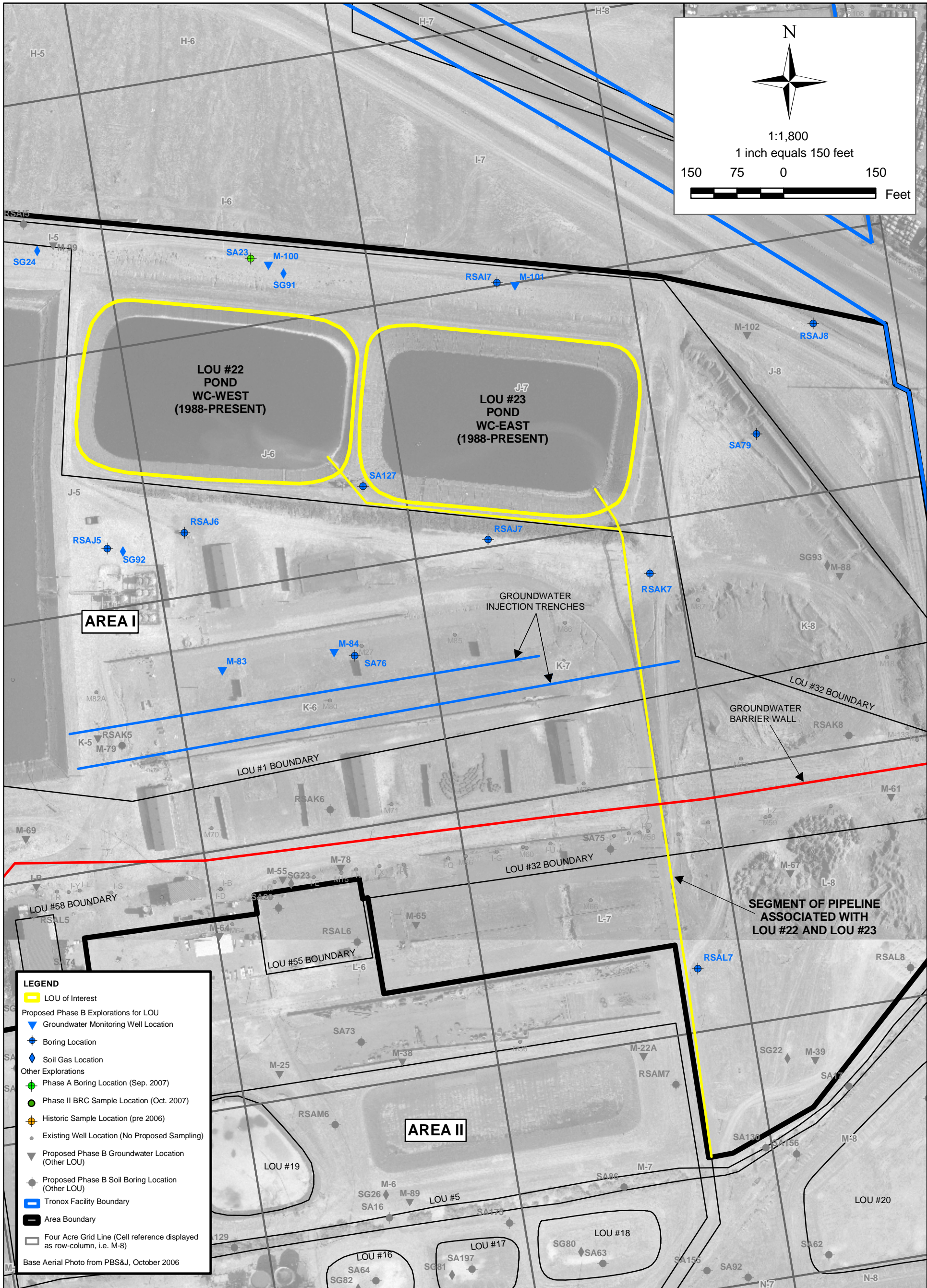
1. ENSR, 2007a, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.
2. ENSR, 2007b, Quarterly Performance Report for Remediation Systems, Tronox LLC, Henderson, Nevada, July-September 2007, November 2007.
3. Kleinfelder, 1993, Environmental Conditions Assessment, Kerr-McGee Chemical Corporation, Henderson, Nevada Facility, April 15, 1993 (Final).
4. Tronox, Susan Crowley, verbal communication, January 18, 2008.
5. Tronox, Susan Crowley, verbal communication, February 25, 2008.



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**LOU Map**





**LEGEND**

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

Base Aerial Photo from PBS&J, October 2006

SHEET NUMBER: X

FIGURE NUMBER: 1

**SAMPLE LOCATIONS FOR LOU #22 AND #23 PONDS WC-WEST AND WC-EAST**

Phase B Source Area Investigation  
Tronox Facility  
Henderson, Nevada

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

**ENSR | AECOM**

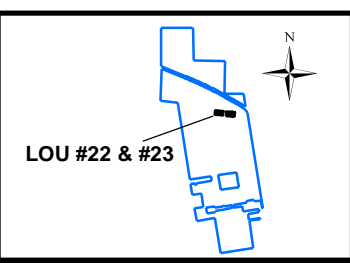
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**Sampling and Analytical Plans for LOUs 22 and 23:**

- Table A – Soil Analytical Plan for LOUs 22 and 23
- Table B – Groundwater Analytical Plan for LOUs 22 and 23

**Table A**  
**Soil Sampling and Analytical Plan for LOUs 22 and 23**  
Phase B Source Area Investigation Work Plan  
Tronox Facility - Henderson, Nevada

Grid Location	LOU Number	Phase B Boring No.	Sample ID Number	Sample Depths (ft, bgs)	Perchlorate (EPA 314.0)	Metals (EPA 6020)	Hex Cr (EPA 7199)	TPH-DRO/ORO (EPA 8015B)	TPH-GRO (EPA 8015B)	VOCs <sup>1</sup> (EPA 8260B)	Wet Chemistry <sup>2</sup>	OCPs <sup>3</sup> (8081A)	SVOCs <sup>4</sup> (EPA 8270C)	Radio-nuclides <sup>5</sup>	Dioxins/Furans <sup>6</sup>	Formaldehyde Titrant (EPA 8315A)	Asbestos EPA/540/R-97/028	Location Description and Characterized Area Rationale	
<b>Borings are organized by grid location as shown on Plate A - Starting point is on the northwestern most grid in Area 1 (I-7) and ending with the southeastern most grid (L-7).</b>																			
I-7	1, 22, 23, 32	RSAI7	RSIAI7-0.0	0.0													X	Boring located to evaluate LOU 1 (former Trade Effluent Settling Ponds), LOUs 22 & 23 (Ponds WC-West & WC-East), and LOU 32 (Chromium and Perchlorate Groundwater Remediation Unit).	
I-7	1, 22, 23, 32		RSIAI7-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
I-7	1, 22, 23, 32		RSIAI7-10	10	X	X	X	X		X	X	Hold	X	X					
I-7	1, 22, 23, 32		RSIAI7-20	20	X	X	X	X		X	X		X	X					
I-7	1, 22, 23, 32		RSIAI7-30	30	X	X	X	X		X	X		X	X					
J-5	1, 22, 23, 32	RSAJ5	RSAJ5-0.0	0.0													X	Boring located east of GW-11 Pond (LOU 32-Chromium and Perchlorate Groundwater Remediation Unit) to evaluate LOU 1 (former Trade Effluent Pond area), as an upgradient boring to evaluate LOU 22 (Pond WC-West and associated piping), and for general site coverage.	
J-5	1, 22, 23, 32		RSAJ5-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
J-5	1, 22, 23, 32		RSAJ5-10	10	X	X	X	X		X	X	Hold	X	X					
J-5	1, 22, 23, 32		RSAJ5-20	20	X	X	X	X		X	X		X	X					
J-5	1, 22, 23, 32		RSAJ5-25	25	X	X	X	X		X	X		X	X					
J-6	1, 22, 23, 32	RSAJ6	RSAJ6-0.0	0.0													X	Boring located east of GW-11 Pond (LOU 32-Chromium and Perchlorate Groundwater Remediation Unit) to evaluate LOU 1 (former Trade Effluent Pond area), as an upgradient boring to evaluate LOU 22 (Pond WC-West and associated piping), and for general site coverage.	
J-6	1, 22, 23, 32		RSAJ6-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
J-6	1, 22, 23, 32		RSAJ6-10	10	X	X	X	X		X	X	Hold	X	X					
J-6	1, 22, 23, 32		RSAJ6-20	20	X	X	X	X		X	X		X	X					
J-6	1, 22, 23, 32		RSAJ6-30	30	X	X	X	X		X	X		X	X					
J-6	22, 23	SA127	SA127-0.0	0.0													X	Boring located to evaluate white crusty surface soil east of the pump house between LOU 22 and LOU 23 (Ponds WC-West and WC-East).	
J-6	22, 23		SA127-0.5	0.5	X	X	X	X		X	X		X	X	X				
J-6	22, 23		SA127-10	10	X	X	X	X		X	X		X	X					
J-7	1, 22, 23, 32	RSAJ7	RSAJ7-0.0	0.0													X	Boring located east of GW-11 Pond (LOU 32-Chromium and Perchlorate Groundwater Remediation Unit) to evaluate LOU 1 (former Trade Effluent Pond area), as an upgradient boring to evaluate LOU 23 (Pond WC-East and associated piping), and for general site coverage.	
J-7	1, 22, 23, 32		RSAJ7-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
J-7	1, 22, 23, 32		RSAJ7-10	10	X	X	X	X		X	X	Hold	X	X					
J-7	1, 22, 23, 32		RSAJ7-20	20	X	X	X	X		X	X		X	X					
J-7	1, 22, 23, 32		RSAJ7-30	30	X	X	X	X		X	X		X	X					
J-8	1, 32	SA79	SA79-0.0	0.0													X	Boring located south of Warm Springs Road near Timet boundary to evaluate LOU 1 (former Trade Effluent Settling Pond area).	
J-8	1, 32		SA79-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
J-8	1, 32		SA79-10	10	X	X	X	X		X	X	Hold	X	X					
J-8	1, 32		SA79-20	20	X	X	X	X		X	X		X	X					
J-8	1, 32		SA79-25	25	X	X	X	X		X	X		X	X					
J-8	1, 22, 23, 32	RSAJ8	RSAJ8-0.0	0.0													X	Boring located south (downgradient) of Warm Springs Road near Timet boundary to evaluate LOU 1 (former Trade Effluent Settling Pond area) and for general site coverage.	
J-8	1, 22, 23, 32		RSAJ8-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
J-8	1, 22, 23, 32		RSAJ8-10	10	X	X	X	X		X	X	Hold	X	X					
J-8	1, 22, 23, 32		RSAJ8-20	20	X	X	X	X		X	X		X	X					
J-8	1, 22, 23, 32		RSAJ8-30	30	X	X	X	X		X	X		X	X					
K-6	1, 32	SA76	SA76-0.0	0.0													X	Boring located north of groundwater recharge trenches to evaluate LOU 1 (former Trade Effluent Settling Ponds) and LOU 32 (Chromium and Perchlorate Groundwater Remediation Unit).	
K-6	1, 32		SA76-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
K-6	1, 32		SA76-10	10	X	X	X	X		X	X	Hold	X	X					
K-6	1, 32		SA76-20	20	X	X	X	X		X	X		X	X					
K-6	1, 32		SA76-25	25	X	X	X	X		X	X		X	X					
K-7	1, 22, 23, 32	RSAK7	RSKA7-0.0	0.0													X	Boring located to evaluate LOU 1 (former Trade Effluent Settling Ponds) and LOU 32 (Chromium and Perchlorate Groundwater Remediation Unit), and to evaluate pipeline associated with LOU 22 & LOU 23.	
K-7	1, 22, 23, 32		RSKA7-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
K-7	1, 22, 23, 32		RSKA7-10	10	X	X	X	X		X	X	Hold	X	X					
K-7	1, 22, 23, 32		RSKA7-20	20	X	X	X	X		X	X		X	X					
K-7	1, 22, 23, 32		RSKA7-24	24	X	X	X	X		X	X		X	X					
L-7	22, 23	RSAL7	RSAL7-0.0	0.0													X	Boring located to serve as a step out to the northeast for LOU 57 (AP Plant and Associated Pipelines), and to evaluate pipeline associated with LOU 23 (Pond WC-East), and for general site coverage.	
L-7	22, 23		RSAL7-0.5	0.5	X	X	X	X		X	X	X	X	X	X				
L-7	22, 23		RSAL7-10	10	X	X	X	X		X	X	Hold	X	X					
<b>Number of Borings:</b>			<b>10</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	<b>10</b>		
<b>Number of Samples:</b>			--	--	<b>36</b>	<b>36</b>	<b>36</b>	<b>32</b>	<b>0</b>	<b>32</b>	<b>36</b>	<b>9</b>	<b>32</b>	<b>36</b>	<b>10</b>	<b>0</b>	<b>10</b>		

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

**Table B**  
**Groundwater Sampling and Analysis Plan for LOU 22 and 23**  
Phase B Source Area Investigation Area I Work Plan  
Tronox Facility - Henderson, Nevada

Grid Location	Location Area	Monitoring Well No.	Screen Interval (ft bgs)	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Hex Cr (EPA 7199)	Metals	VOCs1 (EPA 8260)	Wet Chemistry2	OCPs3 (EPA 8081A)	SVOCs4 (EPA 8270C)	Radio-nuclides5	Rationale
<b>Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area 1 (K-6) and ending with the southeastern-most grid covering Area I (I-7).</b>													
K-6	1	M-83	10.8 - 40.3	no	X	X	X	X	X	X	X	X	Located to evaluate LOU 32 and the Groundwater Injection Trench area; as an upgradient stepout for LOU 1, LOUs 22 and 23; and for general site coverage.
K-6	1	M-84	11.8 - 34.1	no	X	X	X	X	X	X	X	X	Located to evaluate LOU 32 and the Groundwater Injection Trench area; as an upgradient stepout for LOU 1 and LOUs 22 and 23; and for general site coverage.
I-6	1	M-100	19 - 29	yes	X	X	X	X	X	X	X	X	Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general site coverage.
I-7	1	M-101	17 - 27	no	X	X	X	X	X	X	X	X	Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general site coverage.
Number of Field Samples:					4	4	4	4	4	4	4	4	
<b>Notes:</b>													
X Sample will be collected and analyzed.													
1 Volatile organic compounds- samples for VOC analysis will be preserved in the field using sodium bisulfate(or DI water) and methanol preservatives per EPA method 5035													
2 Includes wet chemistry parameters listed on table 1. of the Phase B Source Area Work Plan.													
3 Organochlorine pesticides(includes analysis for hexachlorobenzene).													
4 Semi-volatile organic compounds													
5 Radionuclides consists of alpha spec reporting for Thorium-230/232, Uranium 234/235, Uranium-238, and beta spec for Radium-226/228 (per NDEP)													

**Summary of Available Data for LOU 22 and LOU 23  
Pond WC-West and WC-East & Associated Piping  
Tronox Facility – Henderson, Nevada**

**Soil and Groundwater Characterization Data**

**Summary of Available Data for LOU 22 and LOU 23  
Pond WC-West and WC-East & Associated Piping  
Tronox Facility – Henderson, Nevada**

LOU-specific analytes identified include:

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

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

**LOU 22 and 23 Table 1 - Soil Characterization Data - Wet Chemistry**

**LOU 22 and 23 Table 2 - Groundwater Characterization Data - Wet Chemistry**

**LOU 22 and 23 Table 3 - Soil Characterization Data - Dioxins and Dibenzofurans**

**LOU 22 and 23 Table 4 - Soil Characterization Data - Metals**

**LOU 22 and 23 Table 5 - Groundwater Characterization Data - Metals**

LOU 22 and 23 Table 6 - Groundwater Characterization Data - Routine Monitoring

**LOU 22 and 23 Table 7 - Soil Characterization Data - Organochlorine Pesticides (OCP)**

**LOU 22 and 23 Table 8 - Groundwater Characterization Data - Organochlorine Pesticides (OCP)**

LOU 22 and 23 Table 9 - Soil Characterization Data - Organophosphorus Pesticides (OPPs)

LOU 22 and 23 Table 10 - Groundwater Characterization Data - Organophosphorus Pesticides (OPPs)

LOU 22 and 23 Table 11 - Soil Characterization Data - PCBs

LOU 22 and 23 Table 12 - Groundwater Characterization Data - PCBs

**LOU 22 and 23 Table 13 - Soil Characterization Data - Perchlorate**

**LOU 22 and 23 Table 14 - Groundwater Characterization Data - Perchlorate**

**LOU 22 and 23 Table 15 - Soil Characterization Data - Radionuclides**

**LOU 22 Table 16 - Groundwater Characterization Data - Radionuclides**

**LOU 22 and 23 Table 17 - Soil Characterization Data - SVOC**

**LOU 22 and 23 Table 18 - Groundwater Characterization Data - SVOC**

**LOU 22 and 23 Table 19 - Soil Characterization Data - VOCs**

**LOU 22 and 23 Table 20 - Groundwater Characterization Data - VOCs**

**LOU 22 and 23 Table 21 - Soil Characterization Data - Long Asbestos Fibers in Respirable Soil Fraction**

LOU 22 and 23 Table 22 - Soil Characterization Data - Organochlorine Herbicide

LOU 22 and 23 Table 23 - Groundwater Characterization Data - Organochlorine Herbicide

LOU 22 and 23 Table 24 - Summary of Soil Analytical Data

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

**LOU 22 & LOU 23 Table 1  
Soil Characterization Data - Wet Chemistry**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

<b>Sampling Program</b>	Ph A <sup>1</sup>	Ph A	Ph A	Ph A		
<b>Boring No.</b>	SA23	SA23	SA23	SA23		
<b>Sample ID</b>	SA23-0.5	SA23-10	SA23-20	SA23-20D		
<b>Sample Depth (ft)</b>	0.5	10	20	20		
<b>Sample Date</b>	11/09/2006	11/09/2006	11/09/2006	11/09/2006		
<b>Wet Chemistry Parameter</b>	<b>PRG<sup>2</sup> mg/kg</b>				<b>Units</b>	
Percent moisture	--	<b>14.0</b>	<b>16.7</b>	<b>16.9</b>	<b>13.5</b>	percent
Alkalinity (as CaCO <sub>3</sub> )	--	<b>223 J+</b>	<b>570 J+</b>	60.1 UJ	57.8 UJ	mg/kg
Bicarbonate	--	<b>347 J+</b>	<b>697 J+</b>	<b>583 J+</b>	<b>426 J+</b>	mg/kg
Total Alkalinity	--	<b>570 J+</b>	<b>1270 J+</b>	<b>595 J+</b>	<b>426 J+</b>	mg/kg
Ammonia (as N)	--	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ	mg/kg
Cyanide	1.20E+04	0.58 UJ	0.60 UJ	0.60 UJ	0.58 UJ	mg/kg
MBAS	--	2.8 U	2.3 U	3.3 U	2.9 U	mg/kg
pH (solid)	--	<b>9.9</b>	<b>8.1</b>	<b>8.1</b>	<b>9.6</b>	none
Bromide	--	2.9 U	<b>2.6 J</b>	3.0 U	2.9 U	mg/kg
Chlorate	--	<b>5.2 J</b>	6.0 U	<b>101</b>	<b>101</b>	mg/kg
Chloride	--	<b>4.2</b>	<b>41.6</b>	<b>204</b>	<b>100</b>	mg/kg
Nitrate (as N)	--	<b>0.21 J+</b>	<b>2.4 J+</b>	<b>11.3</b>	<b>6.8</b>	mg/kg
Nitrite	--	0.23 U	2.4 U	<b>3.1</b>	<b>1.9</b>	mg/kg
ortho-Phosphate	--	<b>5.7 J</b>	6 U	6.0 U	5.8 U	mg/kg
Sulfate	--	<b>6.8</b>	<b>77.6</b>	<b>7410</b>	<b>5380</b>	mg/kg
Total Organic Carbon	--	<b>5020</b>	<b>11700</b>	<b>1350</b>	<b>2520</b>	mg/kg

**Notes:**

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



**LOU 22 & LOU 23 Table 2  
Groundwater Characterization Data - Wet Chemistry**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	
Well ID		M100	M100D	
Sample ID		M100	M100D	
Sample Date		12/04/2006	12/04/2006	
Wet Chemistry Parameters	MCL <sup>2</sup> ug/L			Units
Total Dissolved Solids	5.00E+05 j	<b>1670</b>	<b>1630</b>	mg/L
Total Suspended Solids	--	<b>12.0 J</b>	<b>7.0 J</b>	mg/L
Alkalinity (as CaCO3)	--	5.0 U	5.0 U	mg/L
Bicarbonate	--	<b>126</b>	<b>136</b>	mg/L
Total Alkalinity	--	<b>126</b>	<b>136</b>	mg/L
Ammonia (as N)	--	<b>3620</b>	<b>3770</b>	ug/L
MBAS	--	<b>0.41</b>	<b>0.34</b>	mg/L
Cyanide	2.00E+02	R	R	ug/L
pH (liquid)	--	<b>7.5 J</b>	<b>7.6 J</b>	none
Specific Conductance	--	<b>1360 J+</b>	<b>1410 J+</b>	umhos/cm
Bromide	--	<b>0.22 J</b>	<b>0.23 J</b>	mg/L
Chlorate	--	<b>85.0</b>	<b>108</b>	mg/L
Chloride	2.50E+05	<b>165</b>	<b>168</b>	mg/L
Nitrate (as N)	1.00E+04	<b>12.8</b>	<b>12.9</b>	mg/L
Nitrite	1.00E+03	<b>1.9</b>	<b>2.2</b>	mg/L
ortho-Phosphate	--	5.0 U	5.0 U	mg/L
Sulfate	2.50E+05 j	<b>3520</b>	<b>3530</b>	mg/L
Total Organic Carbon	--	50.0 U	50.0 U	mg/L

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

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

**LOU 22 & LOU 23 Table 3**  
**Soil Characterization Data - Dioxins and Dibenzofurans**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

				Ph A <sup>1</sup>
Sampling Program				
Boring No.				SA23
Sample ID				SA23-0.5
Sample Depth (ft)				0.5
Sample Date				11/09/2006
chemical_name:	Method	Unit	PRG <sup>2</sup> mg/kg	
Dioxin 8290 SCREEN Total TEQ-ENSR Calculated (a) ng/kg		ng/kg	--	409
Dioxin SW 846 8290 Total TEQ-ENSR Calculated (a) ng/kg		ng/kg	--	330
Dioxin 8290 SCREEN Total TEQ-ENSR Calculated (b) ng/kg		ng/kg	--	409
Dioxin SW 846 8290 Total TEQ-ENSR Calculated (b) ng/kg		ng/kg	--	330
1,2,3,4,6,7,8-Heptachlorodibenzofuran	8290 Screen	ng/kg	--	2499.060
1,2,3,4,6,7,8-Heptachlorodibenzofuran	SW 846 8290	ng/kg	--	1955.868 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	208.977
1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	208.977
1,2,3,4,7,8,9-Heptachlorodibenzofuran	8290 Screen	ng/kg	--	1015.630
1,2,3,4,7,8,9-Heptachlorodibenzofuran	SW 846 8290	ng/kg	--	845.761 J
1,2,3,4,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	1021.396
1,2,3,4,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--	756.882 J
1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	18.367
1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	18.367
1,2,3,6,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	685.128
1,2,3,6,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--	489.535 J
1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	51.669
1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	51.669
1,2,3,7,8,9-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	71.553
1,2,3,7,8,9-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--	71.553
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	55.546
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	55.546
1,2,3,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--	457.566
1,2,3,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--	457.566
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	28.207
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--	28.207
2,3,4,6,7,8-Hexachlorodibenzofuran	8290 Screen	ng/kg	--	332.361
2,3,4,6,7,8-Hexachlorodibenzofuran	SW 846 8290	ng/kg	--	266.934 J
2,3,4,7,8-Pentachlorodibenzofuran	8290 Screen	ng/kg	--	199.983
2,3,4,7,8-Pentachlorodibenzofuran	SW 846 8290	ng/kg	--	199.983
2,3,7,8-Tetrachlorodibenzofuran	8290 Screen	ng/kg	--	389.197
2,3,7,8-Tetrachlorodibenzofuran	SW 846 8290	ng/kg	--	199.366 J
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	1.00E+04 h,v	5.753
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	1.00E+04 h,v	5.753
Octachlorodibenzofuran	8290 Screen	ng/kg	--	6299.878
Octachlorodibenzofuran	SW 846 8290	ng/kg	--	5039.988 J
Octachlorodibenzo-p-Dioxin	8290 Screen	ng/kg	--	213.695

**LOU 22 Table 3 (continued)**  
**Soil Characterization Data - Dioxins and Dibenzofurans**

Pond WC-1 (west) and Associated Piping  
Tronox Facility - Henderson, Nevada

				<b>Sampling Program</b>	Ph A <sup>1</sup>
				<b>Boring No.</b>	SA23
				<b>Sample ID</b>	SA23-0.5
				<b>Sample Depth (ft)</b>	0.5
				<b>Sample Date</b>	11/09/2006
<b>chemical_name:</b>	<b>Method</b>	<b>Unit</b>	<b>PRG<sup>2</sup></b>	<b>mg/kg</b>	
Octachlorodibenzo-p-Dioxin	SW 846 8290	ng/kg	--		<b>213.695 J</b>
Tetrachlorinated Dibenzofurans, (Total)	SW 846 8290	ng/kg	--		<b>2262.272 J</b>
Total HpCDD	SW 846 8290	ng/kg	--		<b>328.279</b>
Total HpCDF	SW 846 8290	ng/kg	--		<b>4149.869 J</b>
Total HxCDD	SW 846 8290	ng/kg	--		<b>399.39</b>
Total HxCDF	SW 846 8290	ng/kg	--		<b>3588.757 J</b>
Total PeCDD	SW 846 8290	ng/kg	--		<b>291.05</b>
Total PeCDF	SW 846 8290	ng/kg	--		<b>4381.88</b>
Total TCDD	SW 846 8290	ng/kg	--		<b>212.030</b>

**Notes:**

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

**LOU 22 & LOU 23 Table 4  
Soil Characterization Data - Metals**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	Ph A	Ph A	
Boring No.		SA23	SA23	SA23	SA23	
Sample ID		SA23-0.5	SA23-10	SA23-20	SA23-20D	
Sample Depth (ft)		0.5	10	30	20	
Sample Date		11/09/2006	11/09/2006	11/09/2006	11/09/2006	
Metals	PRG <sup>2</sup> mg/kg					Units
Aluminum	9.21E+05 (oo)	<b>6850</b>	<b>7040</b>	<b>7080</b>	<b>6920</b>	mg/kg
Antimony	4.09E+02	<b>0.13 J-</b>	<b>0.11 J-</b>	<b>0.076 J-</b>	<b>0.086 J-</b>	mg/kg
Arsenic	1.59E+00	<b>2.6</b>	<b>3.0</b>	<b>14.0</b>	<b>12.9</b>	mg/kg
Barium	6.66E+04	<b>181 J</b>	<b>192 J</b>	<b>47.3 J</b>	<b>47.9 J</b>	mg/kg
Beryllium	1.94E+03	<b>0.46</b>	<b>0.47</b>	<b>0.43</b>	<b>0.42</b>	mg/kg
Boron	2.00E+05 (oo)	4.5 UJ	4.2 UJ	<b>18.3 J-</b>	<b>17.5 J-</b>	mg/kg
Cadmium	4.50E+02	<b>0.14</b>	<b>0.056 J</b>	<b>0.069</b>	<b>0.070</b>	mg/kg
Calcium	--	<b>17500</b>	<b>24300</b>	<b>64700</b>	<b>55600</b>	mg/kg
Chromium (Total)	4.48E+02	<b>8.5 J-</b>	<b>8.0 J-</b>	<b>11.0 J-</b>	<b>10.6 J-</b>	mg/kg
Chromium-hexavalent	6.40E+01	0.23 U	0.24 U	<b>0.16 J</b>	<b>0.18 J</b>	mg/kg
Cobalt	1.92E+03	<b>7.1 J-</b>	<b>7.5 J-</b>	<b>3.2 J-</b>	<b>3.8 J-</b>	mg/kg
Copper	4.09E+04	<b>15.2 J</b>	<b>13.7 J</b>	<b>7.2 J</b>	<b>7.1 J</b>	mg/kg
Iron	3.00E+05 (oo)	<b>11500</b>	<b>11300</b>	<b>7520</b>	<b>7700</b>	mg/kg
Lead	8.00E+02	<b>9.2</b>	<b>6.7</b>	<b>4.4</b>	<b>4.8</b>	mg/kg
Magnesium	--	<b>6660 J-</b>	<b>8870 J-</b>	<b>9050 J-</b>	<b>7970 J-</b>	mg/kg
Manganese	1.95E+04	<b>439</b>	<b>323</b>	<b>131</b>	<b>183</b>	mg/kg
Molybdenum	5.11E+03	<b>0.54 J</b>	<b>0.41 J</b>	<b>0.39 J</b>	<b>0.43 J</b>	mg/kg
Nickel	2.04E+04	<b>14.1 J-</b>	<b>11.7 J-</b>	<b>9.4 J</b>	<b>9.8 J-</b>	mg/kg
Platinum	--	0.012 U	0.012 U	0.012 U	0.012 U	mg/kg
Potassium	--	<b>1870</b>	<b>1180</b>	<b>2150</b>	<b>2020</b>	mg/kg
Selenium	5.11E+03	0.13 U	0.13 U	0.13 U	0.13 U	mg/kg
Silver	5.11E+03	<b>0.12 J</b>	<b>0.10 J</b>	<b>0.092 J</b>	<b>0.092 J</b>	mg/kg
Sodium	--	<b>1120 J-</b>	<b>2790 J-</b>	<b>907 J-</b>	<b>852 J-</b>	mg/kg
Strontium	6.12E+05 (oo)	<b>126 J</b>	<b>218 J</b>	<b>207 J</b>	<b>235 J</b>	mg/kg
Thallium	6.75E+01	<b>0.083 J</b>	0.084 U	<b>0.094 J</b>	<b>0.098 J</b>	mg/kg
Tin	6.12E+05 (oo)	<b>0.51</b>	<b>0.36</b>	<b>0.46</b>	<b>0.46</b>	mg/kg
Titanium	3.80E+06 (oo)	<b>410</b>	<b>371</b>	<b>328</b>	<b>336</b>	mg/kg
Tungsten	--	<b>0.36 J-</b>	<b>0.35 J-</b>	<b>0.29 J-</b>	<b>0.49 J-</b>	mg/kg
Uranium	2.04E+02	<b>0.73</b>	<b>0.94</b>	<b>2.8</b>	<b>2.8</b>	mg/kg
Vanadium	1.02E+03	<b>24.3 J-</b>	<b>25.7 J-</b>	<b>21.8 J-</b>	<b>22.1 J-</b>	mg/kg
Zinc	3.10E+05 (oo)	<b>30.5 J-</b>	<b>22.4 J-</b>	<b>20.4 J-</b>	<b>20.6 J-</b>	mg/kg
Mercury	3.10E+02 (t)	<b>0.020 J</b>	0.008 UJ	0.008 UJ	0.0077 UJ	mg/kg

**Notes:**

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

**LOU 22 & LOU 23 Table 5  
Groundwater Characterization Data - Metals**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Well ID:		M100	
Sample ID		M100-Z	
Sample Date		05/09/2007	
Metals	MCL <sup>2</sup> ug/L		Unit
Aluminum	5.00E+01 j	78.6 U	ug/L
Antimony	6.00E+00	5.0 U	ug/L
Arsenic	1.00E+01	<b>79.6</b>	ug/L
Barium	2.00E+03	23.6 U	ug/L
Beryllium	4.00E+00	0.88 U	ug/L
Boron	7.30E+03 c	<b>2580</b>	ug/L
Cadmium	5.00E+00	0.57 U	ug/L
Calcium	--	<b>133000</b>	ug/L
Chromium (Total)	1.00E+02	<b>237</b>	ug/L
Chromium-hexavalent	1.09E+02 c	<b>284</b>	ug/L
Cobalt	7.30E+02 c	3.1 U	ug/L
Copper	1.30E+03 p	3.0 U	ug/L
Iron	3.00E+02 j	94.0 UJ	ug/L
Lead	1.50E+01 u	4.9 U	ug/L
Magnesium	1.50E+05 a	<b>56900</b>	ug/L
Manganese	5.00E+01 j	24.4 U	ug/L
Molybdenum	1.82E+02 c	<b>10.0 J</b>	ug/L
Nickel	7.30E+02 c	5.2 U	ug/L
Platinum	--	1.0 U	ug/L
Potassium	--	<b>6780</b>	ug/L
Selenium	5.00E+01	10.0 U	ug/L
Silver	1.00E+02 j	2.0 U	ug/L
Sodium	--	<b>300000</b>	ug/L
Strontium	2.19E+04 c	<b>4400</b>	ug/L
Thallium	2.00E+00	3.2 U	ug/L
Tin	2.19E+04 c	2.0 U	ug/L
Titanium	1.46E+05 c	6.1 U	ug/L
Tungsten	--	<b>5.5 J</b>	ug/L
Uranium	3.00E+01	<b>25.1</b>	ug/L
Vanadium	3.65E+01 c	<b>163</b>	ug/L
Zinc	5.00E+03 j	25.7 U	ug/L
Mercury	2.00E+00	<b>0.14 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

**LOU 22 & LOU 23 Table 6  
Groundwater Characterization Data - Routine Monitoring**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Well ID	Date	Depth to water (feet)	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-83	1/11/2006	22.61	45	d	1.80E+01 a,m			1.00E+02			5.00E+05 j			1.00E+04			--
M-83	2/2/2006	22.95	38	d	1.80E+01 a,m	0.27	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-83	2/8/2006	22.95	22	d	1.80E+01 a,m	0.17	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-83	3/8/2006	22.43	26	d	1.80E+01 a,m			1.00E+02			5.00E+05 j			1.00E+04			--
M-83	4/12/2006	22.36	12.8	d	1.80E+01 a,m			1.00E+02			5.00E+05 j			1.00E+04			--
M-83	5/4/2006	22.54	30	d	1.80E+01 a,m	0.21	d	1.00E+02	1320		5.00E+05 j			1.00E+04			--
M-83	5/10/2006	22.54	13.4	d	1.80E+01 a,m	0.094	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-83	6/13/2006	22.79	241	d	1.80E+01 a,m			1.00E+02			5.00E+05 j			1.00E+04			--
M-83	7/13/2006	22.85	8.43	d	1.80E+01 a,m			1.00E+02			5.00E+05 j			1.00E+04			--
M-83	8/3/2006	22.75	7.68	d	1.80E+01 a,m	0.08	d	1.00E+02	890		5.00E+05 j			1.00E+04			--
M-83	8/9/2006	22.75	344	d	1.80E+01 a,m	2	d	1.00E+02	3340		5.00E+05 j			1.00E+04			--
M-83	9/13/2006	23.69	14.9	d	1.80E+01 a,m			1.00E+02	1370		5.00E+05 j			1.00E+04			--
M-83	10/12/2006	23.63	7.53	d	1.80E+01 a,m			1.00E+02	1360		5.00E+05 j			1.00E+04			--
M-83	11/2/2006	23.18	26.9	d	1.80E+01 a,m	0.17	d	1.00E+02	1600		5.00E+05 j			1.00E+04			--
M-83	11/9/2006	23.18	295	d	1.80E+01 a,m	1.5	d	1.00E+02	3620		5.00E+05 j			1.00E+04			--
M-83	12/12/2006	24.11	8.14	d	1.80E+01 a,m			1.00E+02	1280		5.00E+05 j			1.00E+04			--
M-83	1/10/2007	24.31	6.47		1.80E+01 a,m			1.00E+02	1160		5.00E+05 j			1.00E+04			--
M-83	2/1/2007	24.18	11.8		1.80E+01 a,m	0.1		1.00E+02	1310		5.00E+05 j			1.00E+04			--
M-83	2/8/2007	24.18	6.63		1.80E+01 a,m	0.063		1.00E+02	1390		5.00E+05 j			1.00E+04			--
M-83	3/15/2007	24.04	5.83		1.80E+01 a,m			1.00E+02	1430		5.00E+05 j			1.00E+04			--
M-83	4/12/2007	24.88	5.48		1.80E+01 a,m			1.00E+02	1090		5.00E+05 j			1.00E+04			--
M-83	5/3/2007	25.95	7.07	J	1.80E+01 a,m	0.034		1.00E+02	1040	J	5.00E+05 j			1.00E+04			--
M-83	5/10/2007	25.95	265		1.80E+01 a,m	1.5		1.00E+02	3150		5.00E+05 j			1.00E+04			--
M-83	6/14/2007	27.37	19		1.80E+01 a,m			1.00E+02	1270		5.00E+05 j			1.00E+04			--
M-83	7/13/2007	27.73	24.5		1.80E+01 a,m			1.00E+02	1160		5.00E+05 j			1.00E+04			--
M-83	8/3/2007	28.02	9.53		1.80E+01 a,m	0.093		1.00E+02	996		5.00E+05 j			1.00E+04			--
M-83	8/16/2007	28.02	15.7		1.80E+01 a,m	0.15		1.00E+02	1070		5.00E+05 j			1.00E+04			--
M-83	9/14/2007	28.62	28.2		1.80E+01 a,m			1.00E+02	1130		5.00E+05 j			1.00E+04			--
M-84	2/2/2006	22.57	6	d	1.80E+01 a,m	0.053	d	1.00E+02	1760		5.00E+05 j			1.00E+04			--
M-84	5/4/2006	21.99	17	d	1.80E+01 a,m	0.034	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-84	8/3/2006	22.11	1.71	d	1.80E+01 a,m	<0.01	ud	1.00E+02	1420		5.00E+05 j			1.00E+04			--
M-84	11/2/2006	22.50	1.1	d	1.80E+01 a,m	<0.01	ud	1.00E+02	1130		5.00E+05 j			1.00E+04			--
M-84	2/1/2007	23.40	5.32		1.80E+01 a,m	0.045		1.00E+02	978		5.00E+05 j			1.00E+04			--
M-84	5/3/2007	25.21	4.1	J	1.80E+01 a,m	0.042		1.00E+02	1250	J	5.00E+05 j			1.00E+04			--
M-84	8/2/2007	27.44	9.31		1.80E+01 a,m	0.08	J	1.00E+02	994		5.00E+05 j			1.00E+04			--
M-99	1/31/2006	28.03	980	d	1.80E+01 a,m	0.88	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-99	5/2/2006	27.85	1100	d	1.80E+01 a,m	0.88	d	1.00E+02	4140		5.00E+05 j			1.00E+04			--
M-99	8/1/2006	27.89	803	d	1.80E+01 a,m	0.92	d	1.00E+02	4650		5.00E+05 j			1.00E+04			--
M-99	10/31/2006	28.02	975	d	1.80E+01 a,m	1	d	1.00E+02	5980		5.00E+05 j			1.00E+04			--
M-99	1/30/2007	27.92	780		1.80E+01 a,m	1.1		1.00E+02	5750		5.00E+05 j			1.00E+04			--

**LOU 22 & LOU 23 Table 6 (continued)  
Groundwater Characterization Data - Routine Monitoring**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Well ID	Date	Depth to water (feet)	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-99	5/1/2007	28.32	756		1.80E+01 a,m	1.1		1.00E+02	5900		5.00E+05 j			1.00E+04			--
M-99	7/31/2007	29.25	905		1.80E+01 a,m	1.1		1.00E+02	5760		5.00E+05 j			1.00E+04			--
M-100	2/2/2006	26.00	110	d	1.80E+01 a,m	0.62	d	1.00E+02	2140		5.00E+05 j			1.00E+04			--
M-100	5/4/2006	25.98	71	d	1.80E+01 a,m	0.41	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-100	8/3/2006	26.02	63.2	d	1.80E+01 a,m	0.35	d	1.00E+02	1670		5.00E+05 j			1.00E+04			--
M-100	11/2/2006	26.27	54.8	d	1.80E+01 a,m	0.29	d	1.00E+02	1820		5.00E+05 j			1.00E+04			--
M-100	2/1/2007	26.21	43.2		1.80E+01 a,m	0.26		1.00E+02	1680		5.00E+05 j			1.00E+04			--
M-100	5/3/2007	26.77	12.9	J	1.80E+01 a,m	0.24		1.00E+02	546	J	5.00E+05 j			1.00E+04			--
M-100	8/2/2007	28.66	37.5		1.80E+01 a,m	0.19		1.00E+02	1540		5.00E+05 j			1.00E+04			--
M-101	2/2/2006	26.91	130	d	1.80E+01 a,m	0.29	d	1.00E+02			5.00E+05 j			1.00E+04			--
M-101	5/4/2006	28.41	92	d	1.80E+01 a,m	0.26	d	1.00E+02	3960		5.00E+05 j			1.00E+04			--
M-101	8/3/2006	28.54	71.5	d	1.80E+01 a,m	0.19	d	1.00E+02	3160		5.00E+05 j			1.00E+04			--
M-101	11/2/2006	28.42	70.6	d	1.80E+01 a,m	0.25	d	1.00E+02	3940		5.00E+05 j			1.00E+04			--
M-101	2/1/2007	28.55	97.8		1.80E+01 a,m	0.35		1.00E+02	3820		5.00E+05 j			1.00E+04			--
M-101	5/3/2007	28.62	100	J	1.80E+01 a,m	0.54		1.00E+02	3390	J	5.00E+05 j			1.00E+04			--
M-101	8/2/2007	30.37	103		1.80E+01 a,m	0.47		1.00E+02	3380		5.00E+05 j			1.00E+04			--

**Notes:**

< = less than the reporting limit

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

Qual = data qualifiers applied by laboratory or during data validation

TDS = Total Dissolved Solids

mg/l = milligram per liter

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

(m) Equal to the provisional action level derived by NDEP as referenced in "Defining a Perchlorate Drinking Water Standard". NDEP Bureau of Corrective Action. URL [[http://ndep.nv.gov/bca/perchlorate02\\_05.htm](http://ndep.nv.gov/bca/perchlorate02_05.htm)].

(j) Secondary Drinking Water Regulation value.

Laboratory Qualifiers:

d = the sample was diluted

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

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

Validation Qualifiers:

J = the result is an estimated quantity

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

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

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

**LOU 22 & LOU 23 Table 7**  
**Soil Characterization Data - Organochlorine Pesticides (OCP)**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Boring No.		SA23	
Sample ID		SA23-0.5	
Sample Depth (ft)		0.5	
Sample Date		11/09/2006	
Organochlorine Pesticides	PRG <sup>2</sup> mg/kg		Unit
4,4'-DDD	9.95E+00	0.0020 U	mg/kg
4,4'-DDE	7.02E+00	0.0020 U	mg/kg
4,4'-DDT	7.02E+00	0.0020 U	mg/kg
Aldrin	1.00E-01	0.0020 U	mg/kg
Alpha-BHC	3.59E-01 (bbb)	0.0020 U	mg/kg
Alpha-chlordane	6.47E+00 (y)	0.0020 U	mg/kg
Beta-BHC	1.26E+00 (bbb)	0.0020 U	mg/kg
Delta-BHC	3.59E-01 (z)	0.0020 U	mg/kg
Dieldrin	1.10E-01	0.0020 U	mg/kg
Endosulfan I	3.70E+03 (aa)	0.0020 U	mg/kg
Endosulfan II	3.70E+03 (aa)	0.0020 U	mg/kg
Endosulfan Sulfate	3.70E+03 (aa)	0.0020 U	mg/kg
Endrin	1.85E+02	0.0020 U	mg/kg
Endrin Aldehyde	1.85E+02 (k)	0.0020 U	mg/kg
Endrin Ketone	1.85E+02 (k)	0.0020 U	mg/kg
Gamma-BHC (Lindane)	1.74E+00 (bbb)	0.0020 U	mg/kg
Gamma-Chlordane	6.47E+00 (y)	0.0020 U	mg/kg
Heptachlor	3.83E-01	0.0020 U	mg/kg
Heptachlor Epoxide	1.89E-01	0.0020 U	mg/kg
Methoxychlor	3.08E+03	0.0038 U	mg/kg
Tech-Chlordane	6.47E+00	0.012 U	mg/kg
Toxaphene	1.57E+00	0.058 U	mg/kg

**Notes:**

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



**LOU 22 & LOU 23 Table 8  
Groundwater Characterization Data - Organochlorine Pesticides (OCP)**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	
Well ID		M100	M100D	
Sample ID		M100	M100D	
Sample Date		12/04/2006	12/04/2006	
Organochlorine Pesticides	MCL <sup>2</sup> ug/L			Unit
4,4'-DDD	2.80E-01 c	0.050 U	0.050 U	ug/L
4,4'-DDE	1.98E-01 c	0.050 U	0.050 U	ug/L
4,4'-DDT	1.98E-01 c	0.050 U	0.050 U	ug/L
Aldrin	4.00E-03 c	0.050 U	0.050 U	ug/L
Alpha-BHC	1.10E-02 c, (bbb)	<b>0.082</b>	<b>0.087</b>	ug/L
Alpha-chlordane	2.00E+00 (l)	0.050 U	0.050 U	ug/L
Beta-BHC	3.74E-02 c, (bbb)	0.050 U	0.050 U	ug/L
Delta-BHC	1.10E-02 c, (z)	0.050 U	0.050 U	ug/L
Dieldrin	4.20E-03 c, (z)	0.050 U	0.050 U	ug/L
Endosulfan I	2.19E+02 c, (aa)	0.050 U	0.050 U	ug/L
Endosulfan II	2.19E+02 c, (aa)	0.050 U	0.050 U	ug/L
Endosulfan Sulfate	2.19E+02 c, (aa)	0.050 U	0.050 U	ug/L
Endrin	2.00E+00	0.050 U	0.050 U	ug/L
Endrin Aldehyde	1.09E+01 c, (k)	0.050 U	0.050 U	ug/L
Endrin Ketone	1.09E+01 c, (k)	0.050 U	0.050 U	ug/L
Gamma-BHC (Lindane)	2.00E-01	0.050 U	0.050 U	ug/L
Gamma-Chlordane	2.00E+00 (l)	0.050 U	0.050 U	ug/L
Heptachlor	4.00E-01	0.050 U	0.050 U	ug/L
Heptachlor Epoxide	2.00E-01	0.050 U	0.050 U	ug/L
Methoxychlor	4.00E+01	0.10 U	0.10 U	ug/L
Tech-Chlordane	2.00E+00 (l)	0.50 U	0.50 U	ug/L
Toxaphene	3.00E+00	2.0 U	2.0 U	ug/L

**Notes:**

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

**LOU 22 & LOU 23 Table 9  
Soil Characterization Data - Organophosphorus Pesticides (OPPs)**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	
Boring No.		SA23	
Sample ID		SA23-0.5	
Sample Depth (ft)		0.5	
Sample Date		11/09/2006	
OPPs	PRG <sup>2</sup> mg/kg		Unit
Azinphos-methyl	--	0.015 U	mg/kg
Bolstar	--	0.015 U	mg/kg
Chlorpyrifos	1.85E+03	0.023 U	mg/kg
Coumaphos	--	0.015 U	mg/kg
Demeton-O	2.46E+01 (cc)	0.045 U	mg/kg
Demeton-S	2.46E+01 (cc)	0.017 U	mg/kg
Diazinon	5.54E+02	0.026 U	mg/kg
Dichlorvos	5.94E+00	0.027 U	mg/kg
Dimethoate	1.23E+02	0.026 U	mg/kg
Disulfoton	2.46E+01	0.056 U	mg/kg
EPN	6.16E+00	0.015 UJ	mg/kg
Ethoprop	--	0.017 U	mg/kg
Ethyl Parathion	1.54E+02 (tt)	0.021 UJ	mg/kg
Famphur	--	0.015 U	mg/kg
Fensulfothion	--	0.015 U	mg/kg
Fenthion	1.50E+02 (ff)	0.038 U	mg/kg
Malathion	1.23E+04	0.017 U	mg/kg
Merphos	1.85E+01	0.035 U	mg/kg
Methyl parathion	1.54E+02	0.023 U	mg/kg
Mevinphos	--	0.017 U	mg/kg
Naled	1.23E+03	0.038 UJ	mg/kg
Phorate	1.23E+02	0.023 U	mg/kg
Ronnel	3.08E+04	0.021 U	mg/kg
Stirphos	--	0.017 U	mg/kg
Sulfotep	3.08E+02	0.023 U	mg/kg
Thionazin	--	0.021 U	mg/kg
Tokuthion	--	0.023 U	mg/kg
Trichloronate	--	0.023 U	mg/kg

**Notes:**

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

**LOU 22 & LOU 23 Table 10  
Groundwater Characterization Data - Organophosphorus Pesticides (OPPs)**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	
Well ID		M100	M100D	
Sample ID		M100	M100D	
Sample Date		12/04/2006	12/04/2006	
OPPs	MCL <sup>2</sup> ug/L			Unit
Azinphos-methyl	--	2.5 U	2.5 U	ug/L
Bolstar	--	1.0 U	1.0 U	ug/L
Chlorpyrifos	1.09E+02 c	1.0 U	1.0 U	ug/L
Coumaphos	--	1.0 U	1.0 U	ug/L
Demeton-O	1.46E+00 c,(cc)	1.0 U	1.0 U	ug/L
Demeton-S	1.46E+00 c,(cc)	1.0 UJ	1.0 UJ	ug/L
Diazinon	3.28E+01	1.0 U	1.0 U	ug/L
Dichlorvos	2.32E-01	1.0 U	1.0 U	ug/L
Dimethoate	7.30E+00	1.0 U	1.0 U	ug/L
Disulfoton	1.46E+00	0.50 U	0.50 U	ug/L
EPN	3.65E-01	1.2 U	1.2 U	ug/L
Ethoprop	--	0.50 U	0.50 U	ug/L
Ethyl Parathion	9.12E+00 c,(tt)	1.0 U	1.0 U	ug/L
Famphur	--	1.0 U	1.0 U	ug/L
Fensulfothion	--	2.5 U	2.5 U	ug/L
Fenthion	9.10E+00 c,(ff)	2.5 U	2.5 U	ug/L
Malathion	7.30E+02	1.2 U	1.2 U	ug/L
Merphos	1.09E+00	5.0 U	5.0 U	ug/L
Methyl parathion	9.12E+00	4.0 U	4.0 U	ug/L
Mevinphos	--	6.2 U	6.2 U	ug/L
Naled	7.30E+01	1.0 UJ	1.0 UJ	ug/L
Phorate	7.30E+00	1.2 U	1.2 U	ug/L
Ronnel	1.82E+03	10 U	10 U	ug/L
Stirphos	--	3.5 U	3.5 U	ug/L
Sulfotep	1.82E+01	1.5 U	1.5 U	ug/L
Thionazin	--	1.0 U	1.0 U	ug/L
Tokuthion	--	1.6 U	1.6 U	ug/L
Trichloronate	--	0.50 U	0.50 U	ug/L

**Notes:**

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

(c) Equal to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tapwater (October, 2004).

(cc) Value for demeton used as surrogate for demeton-o and demeton-s based on structural similarities.

(tt) Value for parathion-methyl used as surrogate for parathion-ethyl due to structural similarities.

(ff) Value for methyl parathion used as surrogate for fenthion based on structural similarities.

**LOU 22 & LOU 23 Table 11  
Soil Characterization Data - PCBs**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	Ph A	Ph A	
Boring ID		SA23	SA23	SA23	SA23	
Sample ID		SA23-0.5	SA23-10	SA23-20	SA23-20D	
Sample Depth (ft)		0.5	10	20	20	
Sample Date		11/09/2006	11/09/2006	11/09/2006	11/09/2006	
PCBs	PRG <sup>2</sup> mg/kg					Unit
Aroclor-1016	1.00E+01 (i)	0.038 U	0.040 U	0.040 U	0.038 U	mg/kg
Aroclor-1221	1.00E+01 (i)	0.038 U	0.040 U	0.040 U	0.038 U	mg/kg
Aroclor-1232	1.00E+01 (i)	0.038 U	0.040 U	0.040 U	0.038 U	mg/kg
Aroclor-1242	1.00E+01 (i)	0.038 U	0.040 U	0.040 U	0.038 U	mg/kg
Aroclor-1248	1.00E+01 (i)	0.038 U	0.040 U	0.040 U	0.038 U	mg/kg
Aroclor-1254	1.00E+01 (i)	0.038 U	0.040 U	0.040 U	0.038 U	mg/kg
Aroclor-1260	1.00E+01 (i)	0.038 U	0.040 U	0.040 U	0.038 U	mg/kg

**Notes:**

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

**LOU 22 & LOU 23 Table 12  
Groundwater Characterization Data - PCBs**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	
Well ID		M100	M100D	
Sample ID		M100	M100D	
Sample Date		12/04/2006	12/04/2006	
PCBs	MCL <sup>2</sup> ug/L			Unit
Aroclor-1016	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1221	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1232	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1242	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1248	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1254	5.00E-01 (bb)	0.10 U	0.10 U	ug/L
Aroclor-1260	5.00E-01 (bb)	0.10 U	0.10 U	ug/L

**Notes:**

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

**LOU 22 & LOU 23 Table 13  
Soil Characterization Data - Perchlorate**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

<b>Boring ID</b>	<b>Sample ID</b>	<b>Sample Depth (ft)</b>	<b>Sample Date</b>	<b>Perchlorate ug/kg</b>	<b>PRG<sup>2</sup> mg/kg</b>	<b>Sampling Program</b>
SA23	SA23-0.5	0.5	11/09/2006	<b>2760</b>	1.00E+02	Ph A <sup>1</sup>
	SA23-10	10	11/09/2006	<b>1280</b>	1.00E+02	Ph A
	SA23-20	20	11/09/2006	<b>43200</b>	1.00E+02	Ph A
	SA23-20D	20	11/09/2006	<b>34300</b>	1.00E+02	Ph A

**Notes:**

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

**LOU 22 & LOU 23 Table 14  
Groundwater Characterization Data - Perchlorate**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Well ID Number	Sample ID	Sample Date	Perchlorate	Units	MCL <sup>2</sup> ug/L	Sampling Program
M100	M100	12/04/2006	<b>51400 J+</b>	ug/L	1.80E+01 a,(m)	Ph A <sup>1</sup>
M100D	M100D	12/04/2006	<b>50700 J+</b>	ug/L	1.80E+01 a,(m)	Ph A

**Notes:**

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

**LOU 22 & LOU 23 Table 15  
Soil Characterization Data - Radionuclides**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

				Ra-226 (gamma) pCi/g	Ra-228 (gamma) pCi/g	Th-228 (TH MOD) pCi/g	Th-230 (TH MOD) pCi/g	Th-232 (TH MOD) pCi/g	U-233/234 (U MOD) pCi/g	U-235/236 (U MOD) pCi/g	U-238 (U MOD) pCi/g	Sampling Program
			<b>PRG<sup>2</sup> mg/kg</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	
Boring ID Number	Sample ID	Sample Depth (ft)	Date									
SA 23	SA23-0.5	0.5	11/09/2006	<b>1.11 J+</b>	<b>2.06 J+</b>							Ph A <sup>1</sup>
	SA23-10	10	11/09/2006	<b>1.18 J+</b>	1.66 U							Ph A
	SA23-20	20	11/09/2006	<b>1.73 J+</b>	<b>1.59 J+</b>							Ph A
	SA23-20D	20	11/09/2006	<b>1.72 J+</b>	<b>1.34 J+</b>							Ph A

**Notes:**

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



**LOU 22 & LOU 23 Table 16  
Groundwater Characterization Data - Radionuclides**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
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-100	M100-Z	05/09/2007	0.151 U	0.240 UJ							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.ornl.gov/radionuclides/download.shtml>. August 4, 2004. Soil values are the outdoor worker values; water values are the tapwater values. For radionuclides with decay chains, the PRG for the decay chain was used.
3. ENSR, 2007, Phase A Source Area Investigation Results, Tronox Facility, Henderson, Nevada, September 2007.

**LOU 22 & LOU 23 Table 17  
Soil Characterization Data - SVOC**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>	Ph A	Ph A	Ph A
Boring No.			SA 23	SA 23	SA 23	SA 23
Sample ID			SA23-0.5	SA23-10	SA23-20	SA23-20D
Sample Depth (ft)			0.5	10	20	20
Sample Date			11/09/2006	11/09/2006	11/09/2006	11/09/2006
SVOC	Analytical Method	PRG <sup>2</sup> mg/kg	ug/kg	ug/kg	ug/kg	ug/kg
1,4-Dioxane	non-SIM	1.57E+02	380 U	400 U	400 U	380 U
2-Methylnaphthalene	non-SIM	1.88E+02 (jj)	380 U	400 U	400 U	380 U
2-Methylnaphthalene	SIM	1.88E+02 (jj)				
Acenaphthene	non-SIM	2.92E+04	380 U	400 U	400 U	380 U
Acenaphthene	SIM	2.92E+04				
Acenaphthylene	non-SIM	2.92E+04 (pp)	380 U	400 U	400 U	380 U
Acenaphthylene	SIM	2.92E+04 (pp)				
Anthracene	non-SIM	2.40E+05 (oo)	380 U	400 U	400 U	380 U
Anthracene	SIM	2.40E+05 (oo)				
Benz(a)anthracene	non-SIM	2.11E+00	380 U	400 U	400 U	380 U
Benz(a)anthracene	SIM	2.11E+00				
Benzo(a)pyrene	non-SIM	2.11E-01	380 U	400 U	400 U	380 U
Benzo(a)pyrene	SIM	2.11E-01				
Benzo(b)fluoranthene	non-SIM	2.11E+00	380 U	400 U	400 U	380 U
Benzo(b)fluoranthene	SIM	2.11E+00				
Benzo(g,h,i)perylene	non-SIM	2.91E+04 (w)	380 U	400 U	400 U	380 U
Benzo(g,h,i)perylene	SIM	2.91E+04 (w)				
Benzo(k)fluoranthene	non-SIM	2.11E+01	380 U	400 U	400 U	380 U
Benzo(k)fluoranthene	SIM	2.11E+01				
bis(2-Ethylhexyl)phthalate	non-SIM	1.23E+02	380 U	400 U	400 U	380 U
Butyl benzyl phthalate	non-SIM	1.23E+05 (oo)	380 U	400 U	400 U	380 U
Chrysene	non-SIM	2.11E+02	380 U	400 U	400 U	380 U
Chrysene	SIM	2.11E+02				
Dibenz(a,h)anthracene	non-SIM	2.11E-01	380 U	400 U	400 U	380 U
Dibenz(a,h)anthracene	SIM	2.11E-01				
Diethyl phthalate	non-SIM	4.92E+05 (oo)	380 U	400 U	400 U	380 U
Dimethyl phthalate	non-SIM	6.16E+06 (oo)	380 U	400 U	400 U	380 U
Di-N-Butyl phthalate	non-SIM	6.16E+04	380 U	400 U	400 U	380 U
Di-N-Octyl phthalate	non-SIM	2.46E+04	380 U	400 U	400 U	380 U
Fluoranthene	non-SIM	2.20E+04	380 U	400 U	400 U	380 U
Fluoranthene	SIM	2.20E+04				
Fluorene	non-SIM	2.63E+04	380 U	400 U	400 U	380 U
Fluorene	SIM	2.63E+04				
Hexachlorobenzene	non-SIM	1.08E+00	380 U	400 U	400 U	380 U
Hexachlorobenzene	SIM	1.08E+00				
Indeno(1,2,3-cd)pyrene	non-SIM	2.11E+00	380 U	400 U	400 U	380 U
Indeno(1,2,3-cd)pyrene	SIM	2.11E+00				
Naphthalene	non-SIM	1.88E+02	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Naphthalene	non-SIM	1.88E+02	380 U	400 U	400 U	380 U
Naphthalene	SIM	1.88E+02				
Nitrobenzene	non-SIM	1.03E+02	380 U	400 U	400 U	380 U

**LOU 22 Table 17 (continued)  
Soil Characterization Data - SVOC**

Pond WC-1 (west) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>	Ph A	Ph A	Ph A
Boring No.			SA 23	SA 23	SA 23	SA 23
Sample ID			SA23-0.5	SA23-10	SA23-20	SA23-20D
Sample Depth (ft)			0.5	10	20	20
Sample Date			11/09/2006	11/09/2006	11/09/2006	11/09/2006
SVOC	Analytical Method	PRG <sup>2</sup> mg/kg	ug/kg	ug/kg	ug/kg	ug/kg
Octachlorostyrene	non-SIM	--	380 U	400 U	400 U	380 U
Phenanthrene	non-SIM	2.40E+05 (n)	380 U	400 U	400 U	380 U
Phenanthrene	SIM	2.40E+05 (n)				
Pyrene	non-SIM	2.91E+04	380 U	400 U	400 U	380 U
Pyrene	SIM	2.91E+04				
Pyridine	non-SIM	6.16E+02	1900 U	1900 U	1900 U	1800 U

**Notes:**

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

**LOU 22 & LOU 23 Table 18  
Groundwater Characterization Data - SVOC**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>	Ph A
Well No.			M100	M100D
Sample ID			M100	M100D
Sample Date			12/04/2006	12/04/2006
SVOCs	Analytic Method	MCL <sup>2</sup> ug/L	ug/L	ug/L
1,4-Dioxane	non-SIM	6.11E+00 c	10 UJ	10 U
2-Methylnaphthalene	non-SIM	6.20E+00 c,(jj)	10 UJ	10 U
2-Methylnaphthalene	SIM	6.20E+00 c,(jj)		
Acenaphthene	non-SIM	3.65E+02 c	10 UJ	10 U
Acenaphthene	SIM	3.65E+02 c		
Acenaphthylene	non-SIM	3.65E+02 c,(pp)	10 UJ	10 U
Acenaphthylene	SIM	3.65E+02 c,(pp)		
Anthracene	non-SIM	1.83E+03 c	10 UJ	10 U
Anthracene	SIM	1.83E+03 c		
Benz(a)anthracene	non-SIM	9.21E-02 c	10 UJ	10 U
Benz(a)anthracene	SIM	9.21E-02 c		
Benzo(a)pyrene	non-SIM	2.00E-01	10 UJ	10 U
Benzo(a)pyrene	SIM	2.00E-01		
Benzo(b)fluoranthene	non-SIM	9.21E-02 c	10 UJ	10 U
Benzo(b)fluoranthene	SIM	9.21E-02 c		
Benzo(g,h,i)perylene	non-SIM	1.83E+02 c,(w)	10 UJ	10 U
Benzo(g,h,i)perylene	SIM	1.83E+02 c,(w)		
Benzo(k)fluoranthene	non-SIM	9.21E-01 c	10 UJ	10 U
Benzo(k)fluoranthene	SIM	9.21E-01 c		
bis(2-Ethylhexyl)phthalate	non-SIM	6.00E+00	10 UJ	10 U
Butyl benzyl phthalate	non-SIM	7.30E+03 c	10 UJ	10 U
Chrysene	non-SIM	9.21E+00 c	10 UJ	10 U
Chrysene	SIM	9.21E+00 c		
Dibenz(a,h)anthracene	non-SIM	9.21E-03 c	10 UJ	10 U
Dibenz(a,h)anthracene	SIM	9.21E-03 c		
Diethyl phthalate	non-SIM	2.92E+04 c	10 UJ	10 U
Dimethyl phthalate	non-SIM	3.65E+05 c	10 UJ	10 U
Di-N-Butyl phthalate	non-SIM	3.65E+03 c	10 UJ	10 U
Di-N-Octyl phthalate	non-SIM	1.46E+03 c	10 UJ	10 U
Fluoranthene	non-SIM	1.46E+03 c	10 UJ	10 U
Fluoranthene	SIM	1.46E+03 c		
Fluorene	non-SIM	2.43E+02 c	10 UJ	10 U
Fluorene	SIM	2.43E+02 c		
Hexachlorobenzene	non-SIM	1.00E+00	10 UJ	10 U
Hexachlorobenzene	SIM	1.00E+00		
Indeno(1,2,3-cd)pyrene	non-SIM	9.21E-02 c	10 UJ	10 U
Indeno(1,2,3-cd)pyrene	SIM	9.21E-02 c		
Naphthalene	non-SIM	6.20E+00 c	5.0 U	5.0 U
Naphthalene	non-SIM	6.20E+00 c	10 UJ	10 U
Naphthalene	SIM	6.20E+00 c		
Nitrobenzene	non-SIM	3.40E+00 c	10 UJ	10 U

**LOU 22 Table 18 (continued)  
Groundwater Characterization Data - SVOC**

Pond WC-1 (west) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program			Ph A <sup>1</sup>	Ph A
Well No.			M100	M100D
Sample ID			M100	M100D
Sample Date			12/04/2006	12/04/2006
SVOCs	Analytic Method	MCL <sup>2</sup> ug/L	ug/L	ug/L
Octachlorostyrene	non-SIM	-- c	10 UJ	10 U
Phenanthrene	non-SIM	1.80E+03 (n)	10 UJ	10 U
Phenanthrene	SIM	1.80E+03 (n)		
Pyrene	non-SIM	1.83E+02 c	10 UJ	10 U
Pyrene	SIM	1.83E+02 c		
Pyridine	non-SIM	3.65E+01 c	20 UJ	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

**LOU 22 & LOU 23 Table 19  
Soil Characterization Data - VOCs**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program	Ph A <sup>1</sup>	Ph A	Ph A	Ph A	
Boring No.	SA 23	SA 23	SA 23	SA 23	
Sample ID	SA23-0.5	SA23-10	SA23-20	SA23-20D	
Sample Depth (ft)	0.15	10	20	20	
Sample Date	11/09/2006	11/09/2006	11/09/2006	11/09/2006	
VOCs	PRG <sup>2</sup> mg/kg	ug/kg	ug/kg	ug/kg	ug/kg
Naphthalene	1.88E+02	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,1,1,2-Tetrachloroethane	7.28E+00	5.8 U	6.0 U	6.0 U	5.8 U
1,1,1-Trichloroethane	6.90E+03 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,1,2,2-Tetrachloroethane	9.29E-01	5.8 U	6.0 U	6.0 U	5.8 U
1,1,2-Trichloroethane	1.61E+00	5.8 U	6.0 U	6.0 U	5.8 U
1,1-Dichloroethane	1.74E+03	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,1-Dichloroethene	4.13E+02	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,1-Dichloropropene	1.76E+00 (gg)	5.8 U	6.0 U	6.0 U	5.8 U
1,2,3-Trichlorobenzene	2.16E+02 (hh)	5.8 UJ	<b>1.2 J</b>	6.0 UJ	5.8 UJ
1,2,3-Trichloropropane	7.60E-02 (yy)	5.8 U	6.0 U	6.0 U	5.8 U
1,2,4-Trichlorobenzene	2.16E+02	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,2,4-Trimethylbenzene	1.70E+02	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,2-Dibromo-3-chloropropane	2.02E+00	5.8 U	6.0 U	6.0 U	5.8 U
1,2-Dichlorobenzene	4.00E+03 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,2-Dichloroethane	6.03E-01	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,2-Dichloropropane	7.42E-01	5.8 U	6.0 U	6.0 U	5.8 U
1,3,5-Trimethylbenzene	6.97E+01	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,3-Dichlorobenzene	2.10E+03 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
1,3-Dichloropropane	3.61E+02	5.8 U	6.0 U	6.0 U	5.8 U
1,4-Dichlorobenzene	7.87E+00	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
2,2-Dichloropropane	7.42E-01 (ii)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
2-Butanone	1.13E+05	12 U	12 U	12 U	12 U
2-Chlorotoluene	5.60E+02	5.8 U	6.0 U	6.0 U	5.8 U
2-Hexanone	4.70E+04 (nn)	12 U	12 U	12 U	12 U
2-Methoxy-2-methyl-butane	--	5.8 U	6.0 U	6.0 U	5.8 U
4-Chlorotoluene	5.60E+02 (ww)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
4-Isopropyltoluene	--	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
4-Methyl-2-pentanone	4.70E+04	12 U	12 U	12 U	12 U
Acetone	5.43E+04	12 UJ	12 UJ	12.0 UJ	12 UJ
Benzene	1.41E+00	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Bromobenzene	9.22E+01	5.8 U	6.0 U	6.0 U	5.8 U
Bromochloromethane	1.83E+00 (qq)	5.8 U	6.0 U	6.0 U	5.8 U
Bromodichloromethane	1.83E+00	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Bromoform	2.18E+02	5.8 U	6.0 U	6.0 U	5.8 U
Bromomethane	1.31E+01	12 UJ	12 UJ	12 UJ	12 UJ
Carbon tetrachloride	5.49E-01	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Chlorobenzene	5.30E+02	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Chloroethane	6.49E+00	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Chloroform	4.70E-01	5.8 U	<b>7.8</b>	6.0 U	5.8 U
Chloromethane	1.56E+02	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
cis-1,2-Dichloroethene	1.46E+02	5.8 U	6.0 U	6.0 U	5.8 U

**LOU 22 Table 19 (completed)  
Soil Characterization Data - VOCs**

Pond WC-1 (west) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A	Ph A	Ph A
Boring No.		SA 23	SA 23	SA 23	SA 23
Sample ID		SA23-0.5	SA23-10	SA23-20	SA23-20D
Sample Depth (ft)		0.15	10	20	20
Sample Date		11/09/2006	11/09/2006	11/09/2006	11/09/2006
VOCs	PRG <sup>2</sup> mg/kg	ug/kg	ug/kg	ug/kg	ug/kg
cis-1,3-Dichloropropene	1.76E+00 (gg)	5.8 U	6.0 U	6.0 U	5.8 U
Dibromochloromethane	2.55E+00	5.8 U	6.0 U	6.0 U	5.8 U
Dibromomethane	2.34E+02 (xx)	5.8 U	6.0 U	6.0 U	5.8 U
Dichlorodifluoromethane	3.08E+02	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Ethyl t-butyl ether	3.64E+01 (kk)	5.8 U	6.0 U	6.0 U	5.8 U
Ethylbenzene	7.40E+03 (mm)	5.8 U	6.0 U	6.0 U	5.8 U
Ethylene dibromide	7.30E-02	5.8 U	6.0 U	6.0 U	5.8 U
Hexachlorobutadiene	2.21E+01	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
isopropyl ether	--	5.8 U	6.0 U	6.0 U	5.8 U
Isopropylbenzene	2.00E+03 (zz)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Methyl tert butyl ether	3.64E+01	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Methylene chloride	2.05E+01	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
N-Butylbenzene	2.19E+03 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
N-Propylbenzene	2.19E+03 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
sec-Butylbenzene	1.63E+03 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Styrene	1.80E+04 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
t-Butyl alcohol	--	15 UJ	16 UJ	16.0 UJ	18 UJ
tert-Butylbenzene	1.97E+03 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Tetrachloroethene	1.31E+00	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Toluene	2.20E+03 (mm)	5.8 U	6.0 U	6.0 U	5.8 U
trans-1,2-Dichloroethylene	--	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
trans-1,3-Dichloropropene	1.76E+00 (gg)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Trichloroethene	1.15E-01	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Trichlorofluoromethane	1.28E+03 (mm)	5.8 UJ	6.0 UJ	6.0 UJ	5.8 UJ
Vinylchloride	7.46E-01	5.8 U	6.0 U	6.0 U	5.8 U
Xylene (Total)	9.00E+02 (mm)	12 UJ	12 UJ	12 UJ	12 UJ

**Notes:**

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

**LOU 22 & LOU 23 Table 20  
Groundwater Characteristic Data - VOCs**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A
Well ID		M-100	M-100
Sample ID		M100	M100D
Sample Date		12/04/2006	12/04/2006
VOCs	PRG <sup>2</sup> mg/kg	ug/L	ug/L
Naphthalene	6.20E+00 c	5.0 U	5.0 U
1,1,1,2-Tetrachloroethane	4.32E-01 c	5.0 U	5.0 U
1,1,1-Trichloroethane	2.00E+02	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5.00E+00	5.0 U	5.0 U
1,1,2-Trichloroethane	5.00E+00	5.0 U	5.0 U
1,1-Dichloroethane	8.11E+02 c	5.0 U	5.0 U
1,1-Dichloroethene	7.00E+00	5.0 U	5.0 U
1,1-Dichloropropene	3.95E-01 c,gg	5.0 U	5.0 U
1,2,3-Trichlorobenzene	7.16E+00 c,hh	5.0 U	5.0 U
1,2,3-Trichloropropane	5.60E-03 c,yy	5.0 U	5.0 U
1,2,4-Trichlorobenzene	7.00E+01	5.0 U	5.0 U
1,2,4-Trimethylbenzene	1.23E+01	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane	2.00E-01	5.0 UJ	5.0 UJ
1,2-Dichlorobenzene	6.00E+02	<b>0.48 J</b>	<b>0.60 J</b>
1,2-Dichloroethane	5.00E+00	5.0 U	5.0 U
1,2-Dichloropropane	5.00E+00	5.0 U	5.0 U
1,3,5-Trimethylbenzene	1.23E+01 c	5.0 U	5.0 U
1,3-Dichlorobenzene	1.83E+02 c	<b>0.60 J</b>	<b>0.73 J</b>
1,3-Dichloropropane	1.22E+02 c	5.0 U	5.0 U
1,4-Dichlorobenzene	7.50E+01	<b>1.5 J</b>	<b>0.72 J</b>
2,2-Dichloropropane	1.65E-01 c,ii	5.0 U	5.0 U
2-Butanone	6.97E+03 c	10 U	10 U
2-Chlorotoluene	1.22E+02 c	5.0 U	5.0 U
2-Hexanone	2.00E+03 c,nn	10 U	10 U
2-Methoxy-2-methyl-butane	--	5.0 U	5.0 U
4-Chlorotoluene	1.22E+02 c,ww	5.0 U	5.0 U
4-Isopropyltoluene	--	5.0 U	5.0 U
4-Methyl-2-pentanone	1.99E+03 c	10 UJ	10 UJ
Acetone	5.48E+03 c	10 U	10 U
Benzene	5.00E+00	5.0 U	5.0 U
Bromobenzene	2.03E+01 c	5.0 U	5.0 U
Bromochloromethane	1.81E-01 c,qq	5.0 U	5.0 U
Bromodichloromethane	8.00E+01 r	5.0 U	5.0 U
Bromoform	8.00E+01 r	5.0 U	5.0 U
Bromomethane	8.66E+00 c	10 UJ	10 UJ
Carbon tetrachloride	5.00E+00	5.0 U	5.0 U
Chlorobenzene	1.00E+02 c,o	5.0 U	5.0 U
Chloroethane	4.64E+00	5.0 U	5.0 U
Chloroform	8.00E+01 r	<b>36</b>	<b>38</b>
Chloromethane	1.58E+02 c	5.0 U	5.0 U
cis-1,2-Dichloroethene	7.00E+01	5.0 U	5.0 U
cis-1,3-Dichloropropene	3.95E-01 c,gg	5.0 U	5.0 U



**LOU 22 Table 20 (continued)**  
**Groundwater Characteristic Data - VOCs**

Pond WC-1 (west) and Associated Piping  
Tronox Facility - Henderson, Nevada

Sampling Program		Ph A <sup>1</sup>	Ph A
Well ID		M-100	M-100
Sample ID		M100	M100D
Sample Date		12/04/2006	12/04/2006
VOCs	PRG <sup>2</sup> mg/kg	ug/L	ug/L
Dibromochloromethane	8.00E+01 r	5.0 U	5.0 U
Dibromomethane	6.08E+01 c,xx	5.0 U	5.0 U
Dichlorodifluoromethane	3.95E+02 c	5.0 U	5.0 U
Ethyl t-butyl ether	1.10E+01 c,kk	5.0 U	5.0 U
Ethylbenzene	7.00E+02	5.0 U	5.0 U
Ethylene dibromide	--	5.0 U	5.0 U
Hexachlorobutadiene	8.62E-01 c	5.0 U	5.0 U
isopropyl ether	--	5.0 U	5.0 U
Isopropylbenzene	6.58E+02 c,zz	5.0 U	5.0 U
Methyl tert butyl ether	2.00E+01 a,uu	5.0 U	5.0 U
Methylene chloride	5.00E+00	5.0 U	5.0 U
N-Butylbenzene	2.43E+02 c	5.0 U	5.0 U
N-Propylbenzene	2.43E+02 c	5.0 U	5.0 U
sec-Butylbenzene	2.43E+02 c	5.0 U	5.0 U
Styrene	1.00E+02	5.0 U	5.0 U
t-Butyl alcohol	--	10 UJ	10 UJ
tert-Butylbenzene	2.43E+02 c	5.0 U	5.0 U
Tetrachloroethene	5.00E+00	5.0 U	5.0 U
Toluene	1.00E+03	5.0 U	5.0 U
trans-1,2-Dichloroethylene	1.00E+02	5.0 U	5.0 U
trans-1,3-Dichloropropene	--	5.0 U	5.0 U
Trichloroethene	5.00E+00	5.0 U	5.0 U
Trichlorofluoromethane	--	5.0 U	5.0 U
Vinylchloride	2.00E+00	5.0 U	5.0 U
Xylene (Total)	1.00E+04	10 U	10 U

**Notes:**

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

**LOU 22 & LOU 23 Table 21**  
**Soil Characterization Data - Long Asbestos Fibers in Respirable Soil Fraction**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
 Tronox Facility - Henderson, Nevada

			<b>Long Amphibole Protocol Structures</b>	<b>Long Amphibole Protocol Structures (structures/samples)</b>	<b>Long Chrysotile Protocol Structures</b>	<b>Long Chrysotile Protocol Structures (structures/samples)</b>	<b>Sampling Program</b>
<b>No.</b>	<b>Sample ID</b>	<b>Sample Date</b>	s/gPM10		s/gPM10		
SA23	SA23	12/02/2006	2939000 U	0	<b>2940000</b>	<b>1</b>	Ph A <sup>1</sup>

**Notes:**

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

**LOU 22 & LOU 23 Table 22  
Soil Characterization Data - Organochlorine Herbicide**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

		<b>2,4,5-TP (Silvex)</b>	<b>PRG<sup>2</sup></b>	<b>Sampling Program</b>
Sample ID	Sample Date	ug/kg	mg/kg	
SA23-0.5	11/09/2006	23 U	4.92E+03	Ph A <sup>1</sup>

**Notes:**

U The analyte was not detected above the laboratory sample quantitation limit and the limit is approximate.

ug/kg Micrograms per kilogram.

Gray Grayed out values are non-detected values with the laboratory sample quantitation limits shown.

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

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

**LOU 22 & LOU 23 Table 23  
Groundwater Characterization Data - Organochlorine Herbicide**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

		<b>2,4,5-TP (Silvex)</b>	<b>MCL<sup>2</sup></b>	<b>Sampling Program</b>
Sample ID	Sample Date	ug/L	ug/L	
M100	12/04/2006	1.0 U	5.00E+01	Ph A <sup>1</sup>
M100D	12/04/2006	1.0 U	5.00E+01	Ph A

**Notes:**

U The analyte was not detected above the laboratory sample quantitation limit and the limit is approximate.

ug/kg Micrograms per kilogram.

Gray Grayed out values are non-detected values with the laboratory sample quantitation limits shown.

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

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

**LOU 22 & LOU 23 Table 24  
Summary of Soil Analytical Data<sup>1</sup>**

Pond WC-1 (West) & WC-2 (East) and Associated Piping  
Tronox Facility - Henderson, Nevada

**EP Toxicity Metals and pH Analysis**

Sample Description	Date Collected	Sample Depth	Metals EPA Method 6010 (mg/l). Preparation Method 1310								pH (Method 9045)
			As	Ba	Cd	Cr	Pb	Hg *	Se	Ag	
Hole 1	10-23-87	3-4	<0.3	0.16	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	7.0
Hole 1	10-23-87	5-6	<0.3	0.95	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	8.0
Hole 1	10-23-87	7-8	<0.3	0.48	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	8.2
Hole 1	10-23-87	9-10	<0.3	0.95	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.8
Hole 1	10-23-87	11-12	<0.3	0.66	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.9
Hole 1	10-23-87	13-14	<0.3	1.00	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.8
Hole 1	10-23-87	15-16	<0.3	0.90	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.5
Hole 2	10-23-87	1-2	<0.3	0.10	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	8.4
Hole 2	10-23-87	3-4	<0.3	0.65	<0.05	<0.05	<0.3	<0.0002	<0.3	<0.1	6.8

**Pesticide and Silvex Analysis**

Sample Description	Date Collected	Sample Depth (ft bgs)	EPA Method 608 (µg/l)								EPA Method 615 (µg/l)			
			Endrin	MCL <sup>2</sup>	Lindane	MCL <sup>2</sup>	Methoxy chor	MCL <sup>2</sup>	Toxaphene	MCL <sup>2</sup>	2,4-D	MCL <sup>2</sup>	2,4,5-TP Silvex	MCL <sup>2</sup>
Hole 1	10-23-87	1-2	<0.01	2.00E+00	<0.01	2.00E-01	<0.1	4.00E+01	<0.1	3.00E+00	<0.1	7.00E+01	<0.1	5.00E+01
Hole 2	10-23-87	Surface	<0.01	2.00E+00	<0.01	2.00E-01	<0.1	4.00E+01	<0.1	3.00E+00	<0.1	7.00E+01	<0.1	5.00E+01

**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 Maximum Contaminant Level (MCL) values unless noted

LOU = Letter of Understanding  
ft bgs = feet below ground surface  
As = Arsenic  
Ba = Barium  
Cd = Cadmium  
Cr = Chromium  
Pb = Lead

Hg \* = Mercury, EPA Method  
Se = Selenium  
Ag = Silver  
< = not detected above the designated method detection limit, with qualifier U-constituent was analyzed for but not detected.  
mg/l = milligrams per liter  
µg/l = micrograms per liter

## Notes for Phase A Data Tables

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