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DEPARTMENT OF ECOLOGY
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January 21, 2021

Randy Reber
Creek Stone LLC
5591 Highway 28 E
Soap Lake, WA 98851
randy.reber@outlook.com

Re: No Further Action at a Property associated with the Asarco Tacoma Smelter Site:

- **Property Name:** Norberg Estates
- **Property Address:** XXX Cincinnati Street, Steilacoom, Pierce County, WA 98388
- **Facility/Site ID:** 16096
- **Cleanup Site ID:** 15320
- **VCP Project No.:** SW1738

Dear Randy Reber:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of a Property associated with the Asarco Tacoma Smelter Site (**Asarco Site**). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA),[1] chapter 70A.305 Revised Code of Washington (RCW).[2]

Issues Presented and Opinion

Ecology has determined that no further remedial action is necessary at the Property to clean up contamination associated with the Asarco Site.

Ecology has determined that further remedial action is still necessary elsewhere at the Asarco Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70A.305 RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340 (collectively "substantive requirements of MTCA"). The analysis is provided below.

[1] https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html
[2] https://app.leg.wa.gov/rcw/default.aspx?cite=70A.305

Description of the Property and the Asarco Site

This opinion applies only to the Property and the Asarco Site described below. This opinion does not apply to any other sites that may affect the Property. Any such sites, if known, are identified separately below.

1. Description of the Property.

The Property includes the following tax parcels in Pierce County that were affected by the Asarco Site and addressed by your cleanup:

- 2510000231 (3.93 acres)
- 2510000410 (1.17 acres)

Enclosure A includes a legal description of the Property and details of the Property as currently known to Ecology.

2. Description of the Asarco Site.

The Asarco Site is defined by the nature and extent of contamination associated with the following releases:

- Arsenic into the Soil.
- Lead into the Soil.

Those releases have affected more than one parcel of real property, including the parcels identified above.

Enclosure B includes a detailed description and diagram of the Asarco Site, as currently known to Ecology.

3. Identification of Other Sites that may affect the Property.

A parcel of real property can be affected by multiple sites. At this time, we have no information that the Property is affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Landau Associates (Landau), *Cleanup Report Norberg Estates Steilacoom, Washington*, December 9, 2020.
2. Associated Earth Sciences Inc. (AES), *Soil Management Plan, Norberg Estates – Phase 2*, December 18, 2018.

3. AES, *Soil Environmental Screening Steilacoom 5 Acre Property Cincinnati Street and Galloway Street Steilacoom*, *Washington 98388.* June 25, 2018.

4. Town of Steilacoom, *Mitigated Determination of Non-Significance*, February 16, 2018.

These documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining these records may be found on Ecology's public records requests web page.[3] Some site documents may be available on Ecology's Cleanup Site Search web page.[4]

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

1. Cleanup of the Property located within the Asarco Site.

Ecology has concluded that **no further remedial action** is necessary at the Property to clean up contamination associated with the Asarco Site. That conclusion is based on the following analysis:

a. Characterization of the Asarco Site.

The Site is described in **Enclosure B**.

Norberg Estates property (Property) is approximately 5.1 acres and is located in a residential area of Steilacoom, Washington (Figure 1). The Property is situated on two Pierce County parcels. Galloway Street borders the Property to the east, Stevens Street to the west, single-family residences to the south, and Steilacoom Road to the north. The Property is currently undeveloped. Previously, the Property was densely forested, but it was stripped of vegetation during the remedial action. A dilapidated wooden shed occupied the southwestern part of the Property. For more information about the Property, refer to Enclosure A.

Figure 1. Vicinity map

Creek Stone LLC (Creek Stone) plans to redevelop this Property into 19 single-family residential houses.

[3] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[4] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=15320

As part of the planned redevelopment, Creek Stone contracted AES to characterize the soil for the Tacoma Smelter Plume (TSP) contamination on the Property. On June 5, 2018, AES collected 30 discrete soil samples from 24 locations on the Property (Figure 2).

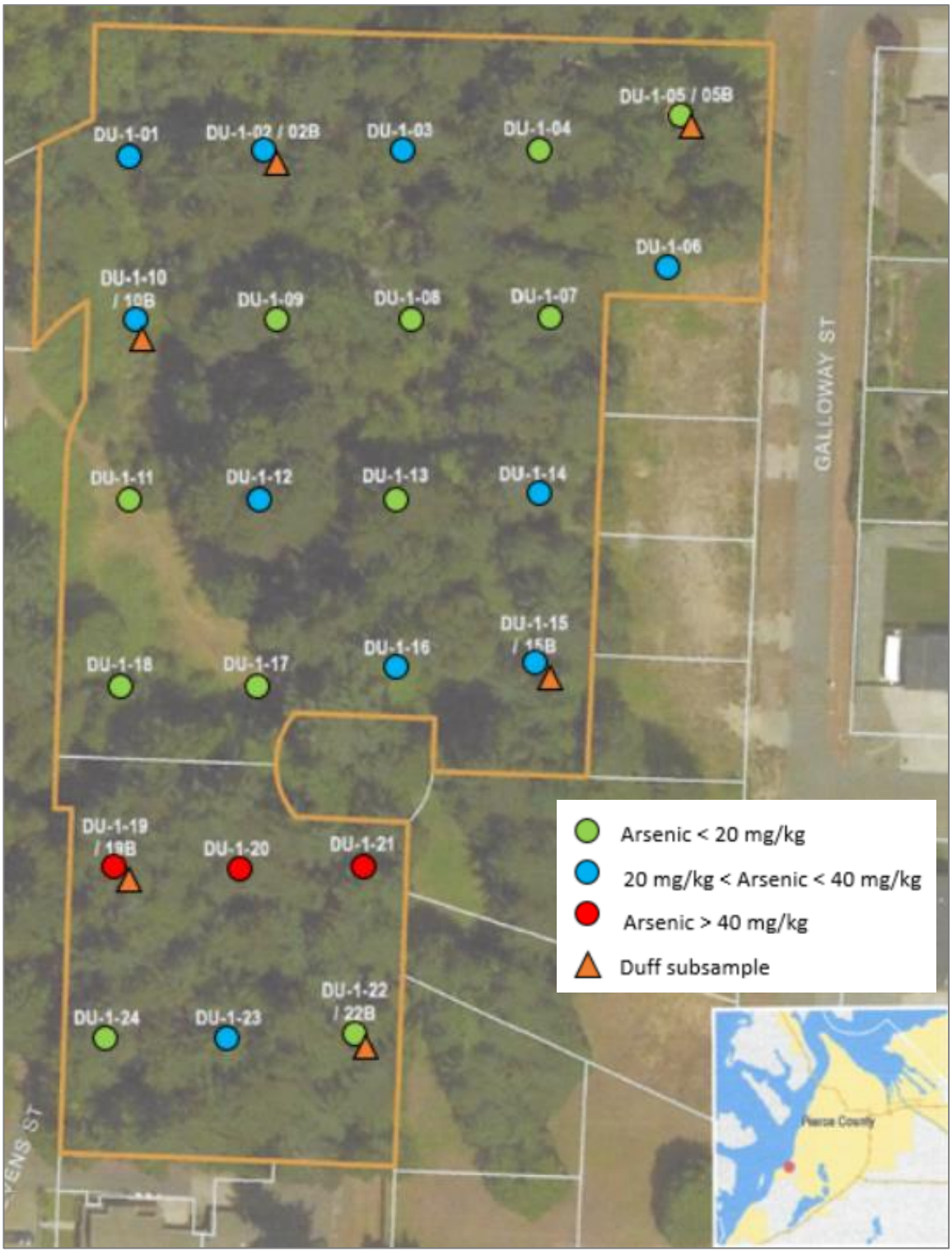

Figure 2. Approximate Locations of 2018 Soil Samples

AES collected 24 samples from 0 to 6 inches below ground surface (bgs) and six samples from 6 to 12 inches bgs from the Property. They also collected one, six-point composite duff sample. AES submitted the soil and duff samples to Friedman & Bruya Inc. analytical laboratory in Seattle, Washington for arsenic and lead analysis with EPA Method 6020B.

For a summary of sampling results, refer to Table 1. For the comprehensive results of the characterization sampling on the Property, refer to Enclosure C.

Table 1. Summary of 2018 Soil Characterization Sampling

Depth Interval (inches)	Arsenic (mg/kg)		Lead (mg/kg)	
	Average	Maximum	Average	Maximum
0-6	**22.5**	**58.9**	30.1	83.7
6-12	14.56	**28.4**	22.1	57
Duff	**23.4**		65.9	
MTCA Method A Cleanup Level	20	40	250	500

Values in **bold** represent concentrations above the MTCA Method A Cleanup Level; values in **bold red** represent concentrations twice the MTCA Method A cleanup level

Results of Soil Sampling

Samples collected at 0 to 6 inches bgs: Arsenic exceeded the MTCA Method A cleanup level of 20 milligrams per kilogram (mg/kg) in 13 samples. Three samples also exceeded the maximum allowable concentration for a single soil sample for arsenic (40 mg/kg). Arsenic concentrations ranged from 3.3 mg/kg to 58.9 mg/kg. The average arsenic concentration was 22.5 mg/kg. None of the samples exceeded the MTCA Method A cleanup level of 250 mg/kg for lead. Lead concentrations ranged from 2.87 mg/kg to 83.7 mg/kg. The average lead concentration was 30.1 mg/kg.

Samples collected at 6 to 12 inches bgs: Two samples exceeded the cleanup level of 20 mg/kg for arsenic, but none exceeded the maximum allowable concentration for a single soil sample for arsenic (40 mg/kg). The arsenic concentrations ranged from 2.07 mg/kg to 28.4 mg/kg. The average arsenic concentration was 14.56 mg/kg. None of the lead concentrations in this depth interval exceeded the cleanup level of 250 mg/kg for lead. Lead concentrations ranged from 2.41 mg/kg to 57 mg/kg. The average lead concentration was 22.1 mg/kg.

Duff: Lead concentration was below the cleanup level of 250 mg/kg. Arsenic exceeded the cleanup level of 20 mg/kg. The concentrations of arsenic and lead in the duff layer were 23.4 mg/kg and 65.9 mg/kg, respectively.

b. Establishment of Cleanup Standards for the Asarco Site.

Ecology has determined the cleanup levels and points of compliance established for the Asarco Site meet the substantive requirements of MTCA.

As part of the Interim Action Plan for the Asarco Site (June 2012) (IAP), Ecology completed a terrestrial ecological evaluation for properties with only Tacoma Smelter Plume contamination. Ecology determined the MTCA Method A cleanup levels for both arsenic and lead were protective of both human health and the environment. The MTCA Method A cleanup levels for soil are as follows:

- Arsenic is 20 mg/kg.
- Lead is 250 mg/kg.

The IAP determined the following cleanup levels were protective of human health and the environment for properties within the Asarco Site:

- Average arsenic concentration detected in the soil and duff less than 20 mg/kg
- Average lead concentration detected in the soil and duff less than 250 mg/kg

AND

- No single soil sample has arsenic concentration above 40 mg/kg
- No single soil sample has lead concentration above 500 mg/kg

c. Selection of Cleanup for the Property.

Ecology has determined the cleanup selected for the Property meets the substantive requirements of MTCA and the IAP. The cleanup meets the minimum cleanup requirements and does not exacerbate conditions or preclude reasonable cleanup alternatives elsewhere at the Asarco Site.

Ecology proposed four model remedies in the IAP:

- Excavation and removal.
- Mixing.
- Capping in place.
- Consolidation and capping.

Creek Stone did not request an opinion from Ecology on the proposed cleanup; however, they consulted with Ecology prior to selecting one of the model remedies outlined above. The selected cleanup approach on the Property consisted of soil mixing.

d. Cleanup of the Property.

Creek Stone conducted soil cleanup on the Property in conjunction with its development.

The contractor removed all the trees, other vegetation, and tree stumps from the Property. Prior to their disposal, the contractor inspected the root balls to ensure the removal of the contaminated soil. They hauled all the vegetation for landfill disposal as a regular yard waste.

Stockpile Sampling: Creek Stone retained Landau to oversee cleanup and conduct confirmational sampling on the Property. Landau inspected the Property prior to cleanup and did not find evidence of any significant duff. The duff might have decomposed into the soil or the upper soil layer was mischaracterized as duff during the 2018 sampling event. After the removal and disposal of the vegetation from the Property, the contractor excavated the upper 12 inches of soil and stockpiled it into four stockpiles on the Property (stockpiles A-D).

The Soil Management Plan (AES, December 18, 2018) suggested excavating and removing the duff off the Property prior to soil mixing to satisfy the requirements of the TSP Model Remedies Guidance. Since Landau did not find any duff on the Property, the contractor handled all the soil on the Property the same way – excavated it and placed in stockpiles.

After the contractor mixed the soil in the stockpiles with deeper, cleaner soil, Landau collected 20, six-point composite samples from the four stockpiles (Figure 3). Stockpile analytical results indicated concentrations of arsenic above the cleanup level of 20 mg/kg. The contractor mixed the soil in all the stockpiles again. On June 5, 2020, Landau collected 24, six-point composite samples from the remixed stockpiles.

After the second round of mixing, arsenic concentrations were below the cleanup level in three of the stockpiles (B, C, and D), but exceeded the cleanup level of 20 mg/kg in stockpile A. The contractor mixed stockpile A again. Landau collected additional six-point composite samples from the remixed stockpile. One sample at the eastern end of the stockpile A was above the cleanup level of 20 mg/kg for arsenic.

The contractor remixed that portion of the stockpile with deeper, cleaner soil and Landau collected a six-point composite sample from the remixed area. The comprehensive results of the stockpile sampling are included in Enclosure C. Summary of the final confirmational stockpile sampling is shown in Table 2.

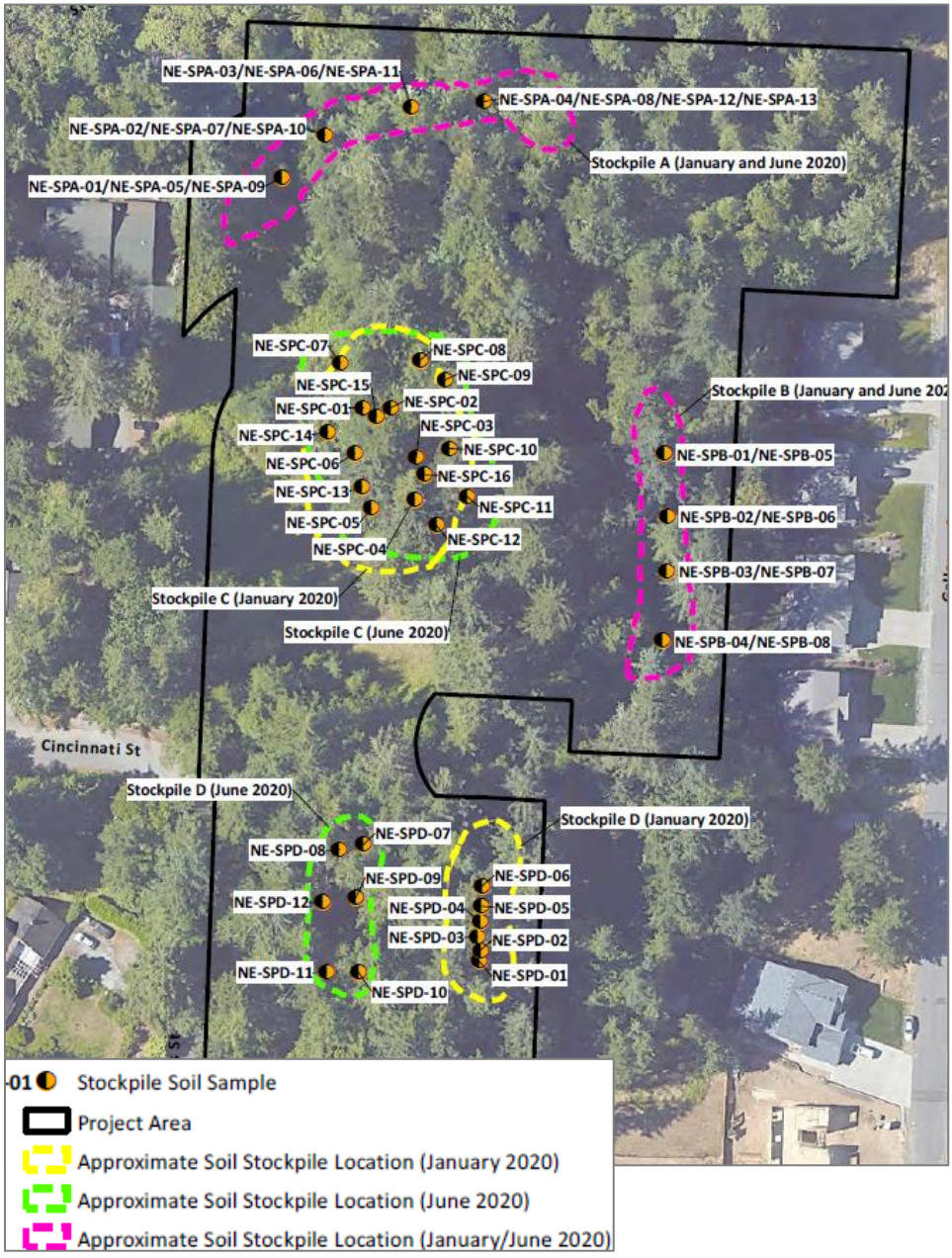

Figure3. Locations of Soil Stockpiles and Stockpile Samples

The size of each final stockpile and the number of six-point composite samples are shown below:

- Stockpile A – 525 cubic yards, 4 final composite samples collected.
- Stockpile B – 540 cubic yards, 4 final composite samples collected.
- Stockpile C – 7,200 cubic yards, 10 final composite samples collected.
- Stockpile D – 1,700 cubic yards, 6 final composite samples collected.

The size of each final stockpile and the number of six-point composite samples are shown below:

- Stockpile A – 525 cubic yards, 4 final composite samples collected.
- Stockpile B – 540 cubic yards, 4 final composite samples collected.
- Stockpile C – 7,200 cubic yards, 10 final composite samples collected.
- Stockpile D – 1,700 cubic yards, 6 final composite samples collected.

Table 2. Final Stockpile Samples

Stockpile	Sample ID	Sample Date	Arsenic (mg/kg)	Lead (mg/kg)
A	NE-SPA-09	6/16/2020	15	25
	NE-SPA-10	6/16/2020	15	25
	NE-SPA-11	6/16/2020	14	23
	NE-SPA-13	6/24/2020	13	24
B	NE-SPB-05	6/5/2020	20	28
	NE-SPB-06	6/5/2020	20	30
	NE-SPB-07	6/5/2020	17	27
	NE-SPB-08	6/5/2020	15	25
C	NE-SPC-07	6/5/2020	16	27
	NE-SPC-08	6/5/2020	12	20
	NE-SPC-09	6/5/2020	12	20
	NE-SPC-10	6/5/2020	16	28
	NE-SPC-11	6/5/2020	15	25
	NE-SPC-12	6/5/2020	15	25
	NE-SPC-13	6/5/2020	13	23
	NE-SPC-14	6/5/2020	13	23
	NE-SPC-15	6/5/2020	16	27
	NE-SPC-16	6/5/2020	14	24
D	NE-SPD-07	6/5/2020	9.4	13
	NE-SPD-08	6/5/2020	14	23
	NE-SPD-09	6/5/2020	15	24
	NE-SPD-10	6/5/2020	14	25
	NE-SPD-11	6/5/2020	15	23
	NE-SPD-12	6/5/2020	18	25
MTCA Method A Cleanup Level:			20	250

The results of the final stockpile sampling indicated that arsenic and lead were below their respective cleanup levels of 20 mg/kg and 250 mg/kg, respectively. Arsenic concentrations in the composite samples ranged from 9.4 mg/kg to 20 mg/kg and lead concentrations ranged from 13 mg/kg to 30 mg/kg.

Cleanup Progress Sampling: Following the excavation and stockpiling of the excavated soil, Landau collected samples from 0 to 6 inches bgs in five areas with the highest arsenic concentrations to ensure that arsenic and lead were below their respective cleanup levels at the excavation level (Figure 4). The five areas sampled included the two areas where arsenic exceeded the cleanup level of 20 mg/kg in the 6 to 12 inches bgs depth interval.

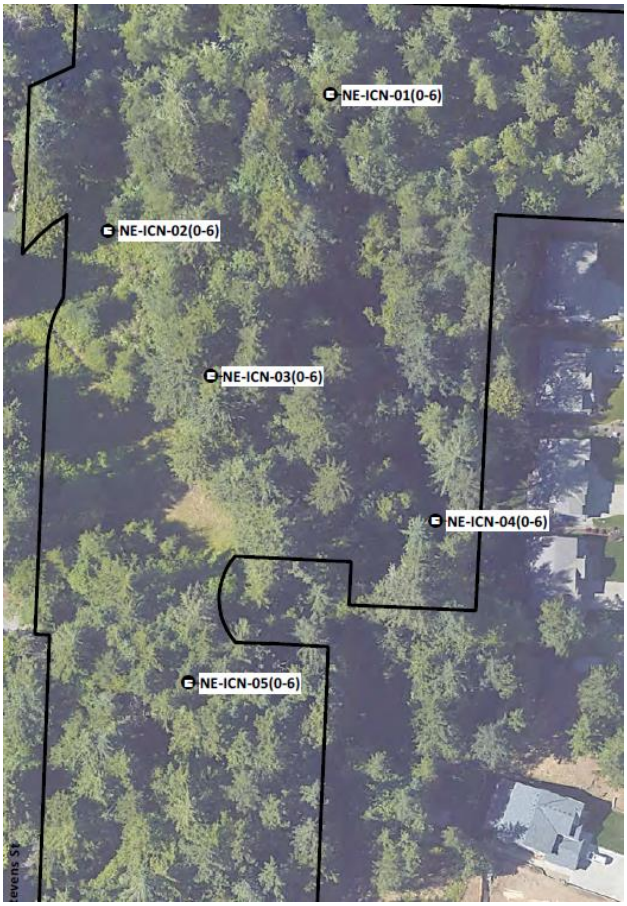

Figure 4. Approximate Locations of Cleanup Progress Samples

The results of the cleanup progress sampling showed that arsenic and lead were below their respective cleanup levels. Arsenic concentrations ranged from 1.9 mg/kg to 5.4 mg/kg. Lead concentrations ranged from 1.9 mg/kg to 8.4 mg/kg.

Confirmational Sampling: After confirming the final stockpile samples and the samples collected at the bottom of the excavated areas were below cleanup levels, the contractor conducted final grading on the Property. Following the grading, Landau collected final confirmational samples from the Property. They collected 32 discrete samples from 0 to 6 inches bgs (Figure 5).

Landau submitted all the samples collected on the Property to Eurofins TestAmerica analytical laboratory in Seattle, Washington for arsenic and lead analysis with EPA Method 6010D.

Arsenic and lead were below their respective cleanup levels of 20 mg/kg and 250 mg/kg. Arsenic concentrations ranged from 2.2 mg/kg to 18 mg/kg. Lead concentrations ranged from 3.7 mg/kg to 31 mg/kg. The comprehensive results of the confirmational sampling are included in Enclosure C.

The results of the confirmational soil sampling showed that no further cleanup actions were needed for the Property.

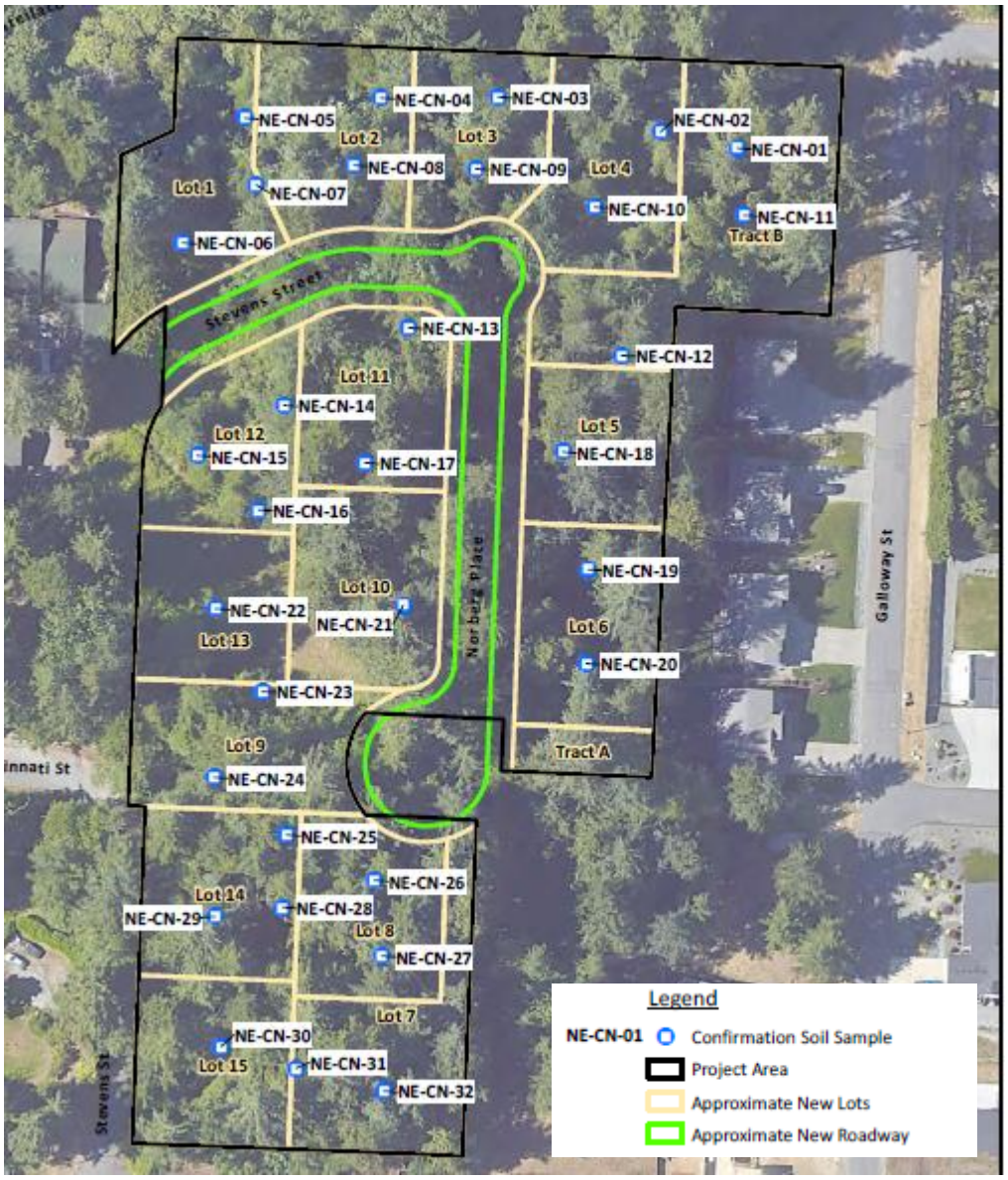

Figure 5. Approximate Locations of the Confirmational Samples

2. Cleanup of the Asarco Site as a Whole.

Ecology has concluded that **further remedial action** under MTCA is still necessary elsewhere at the **Asarco Site**. In other words, while your cleanup constitutes the final action for the Property, it is only an **"interim action"** for the Asarco Site as a whole.

Listing of the Asarco Site

Based on this opinion, Ecology will update the status of remedial action at the Asarco Site on our database of hazardous waste sites. However, because further remedial action is still necessary elsewhere at the Asarco Site, we will not remove the Asarco Site from our lists of hazardous waste sites. Furthermore, the Property will remain listed as part of the Asarco Site because the cleanup of the Property does not change the boundaries of the Asarco Site.

Limitations of the Opinion

1. **Opinion does not Settle Liability with the State.**

   Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Property. This opinion **does not**:

   - Change the boundaries of the Asarco Site.
   - Resolve or alter a person's liability to the state.
   - Protect liable persons from contribution claims by third parties.

   To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

2. **Opinion does not Constitute a Determination of Substantial Equivalence.**

   To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination.
   See RCW 70A.305.080 and WAC 173-340-545.

3. **State is Immune from Liability.**

   The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion.
   See RCW 70A.305.170(6).

Termination of Agreement

Thank you for cleaning up your Property under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (SW1738).

For more information about the VCP and the cleanup process, please visit our Voluntary Cleanup Program web site.[5] If you have any questions about this opinion, please contact me by phone at (360) 999-9593 or at eva.barber@ecy.wa.gov.

Sincerely,

Eva L. Barber
Technical Assistance Coordinator
Toxics Cleanup Program
Southwest Regional Office

EB/tm

Enclosures: A – Legal Description and General Description of the Property
B – Site Description of Asarco Tacoma Smelter Site
C – Results of the Soil Characterization and Confirmational Sampling

cc by email: Sierra Mott, Landau Associates, smott@landauinc.com
Paul Loveless, City of Steilacoom, paul.loveless@ci.steilacoom.wa.us
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Ecology Fiscal Office – VCP Budget Analyst
Ecology Site File

[5] https://www.ecy.wa.gov/vcp

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Enclosure A

Legal Description and General Description of the Property

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Legal Property Description

Parcel 2510000231: Section 31 Township 20 Range 02 Quarter 44 BILLS ADD L 1 THRU 4 B 5 TOG/W VAC ORD 1457 LESS ANY POR OF NORBERG ESTATES PAD PHASE 1 OUT OF 023-0 SEG 2014-0097 JP 08/16/13 JP

Parcel 2510000410: Section 31 Township 20 Range 02 Quarter 44 BILLS ADD L 2 B 9 TOG/W VAC ORD 1457 ABUTT DC00211318 11/15/11 KG

General Property Description

The Property is approximately 5.1 acres and is located in a residential area of Steilacoom, Washington on two Pierce County parcels. The Property is bordered to the east by Galloway Street, west by Stevens Street, to the south by single-family residences, and to the north by Steilacoom Road. The Property is currently undeveloped. Previously, the Property was densely forested, but it was stripped of vegetation during the remedial action. A dilapidated wooden shed occupied the southwestern part of the Property.

The Property is located in an area of mildly sloping topography approximately 1,000 feet southeast of Puget Sound. The elevation of the Property is approximately 205 to 220 feet above mean sea level. The topography drops off sharply towards the northwest, approaching Puget Sound. The Property is generally underlain by recessional outwash Steilacoom Gravel deposits (Schuster et al. 2015). The upper soil layer corresponding to the recessional outwash deposits is mapped as Indianola loamy sand, 0 to 5 percent slopes (USDA NRCS; accessed November 22, 2020). The elevation of the groundwater beneath the Property is estimated to be near 5 feet above mean sea level, which is more than 200 feet bgs.

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Enclosure B

Site Description of Asarco Tacoma Smelter Site

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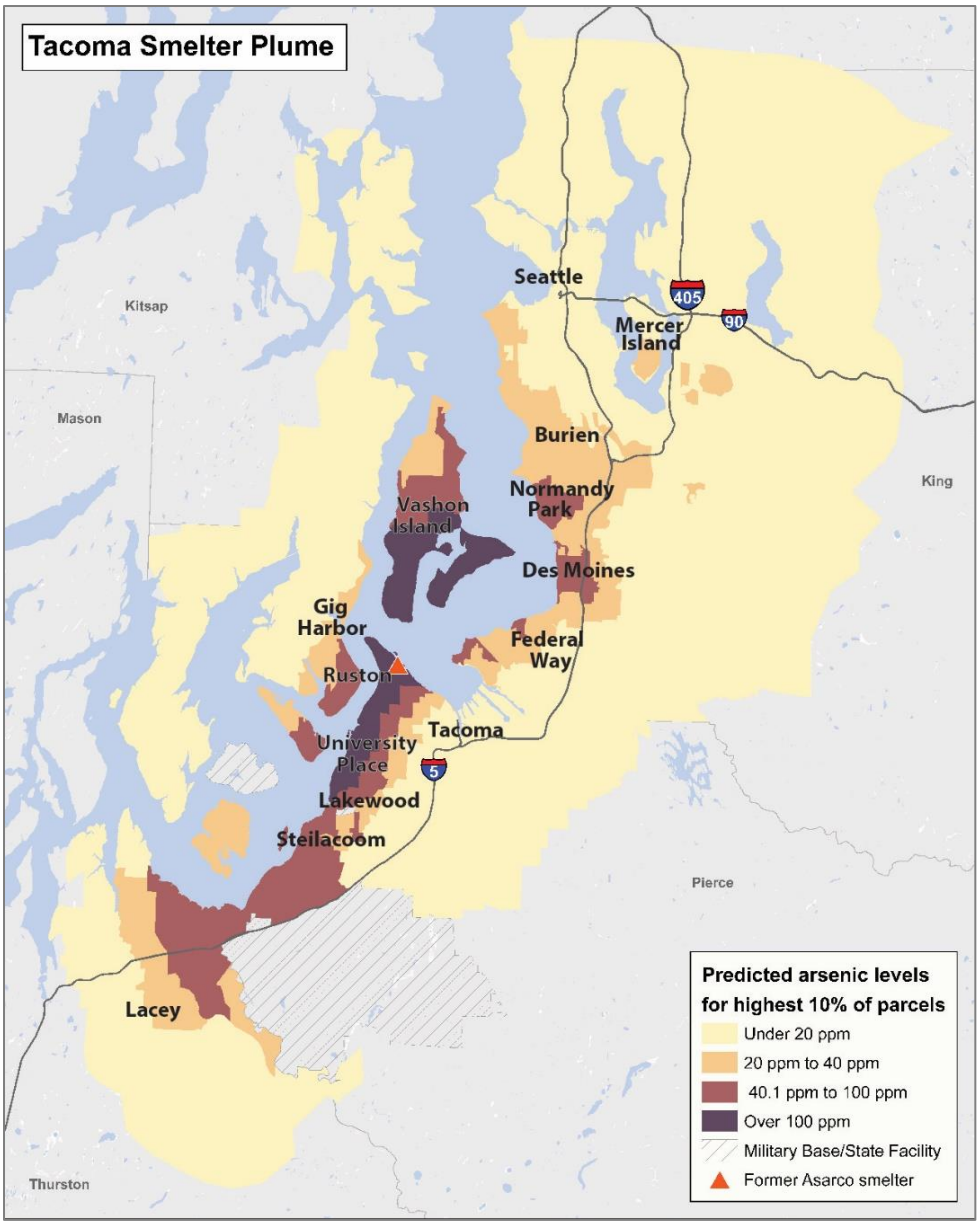
Asarco Tacoma Smelter Site



An interactive color map can be found at: https://dirtalert.info/. For almost 100 years, the Asarco Company operated a copper smelter in Tacoma. Air pollution from the smelter settled on the surface soil over a vast region—more than 1,000 square miles of the Puget Sound basin. Elevated levels of contamination are found as far south as the Nisqually Ridge and as far north as Seattle (West Seattle). Additionally, elevated levels of contamination are found as far west as the Kitsap Peninsula and as far east as Kent and Bellevue. Arsenic, lead, cadmium, and other heavy metals are still in the soil as a result of this pollution. The area has elevated levels of arsenic, lead, and cadmium in the soil due to air emissions from the Asarco smelter.

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Enclosure C

Results of the Soil Characterization and Confirmational Sampling

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Soil Confirmational, Stockpile, Progress Cleanup, and Characterization Samples

Confirmational Samples

Sample ID	Sample Date	Sample Depth (inches bgs)	Arsenic (mg/kg)	Lead (mg/kg)
NE-CN-16(0-6)	11/4/2020	0-6	2.2	3.7
NE-CN-17(0-6)	11/4/2020	0-6	2.5	3.8
NE-CN-29(0-6)	11/4/2020	0-6	4.0	7.8
NE-CN-21(0-6)	11/4/2020	0-6	5.6	9.7
NE-CN-28(0-6)	11/4/2020	0-6	8.0	16
NE-CN-27(0-6)	11/4/2020	0-6	13	16
NE-CN-24(0-6)	11/4/2020	0-6	10	18
NE-CN-26(0-6)	11/4/2020	0-6	10	19
NE-CN-07(0-6)	11/4/2020	0-6	11	19
NE-CN-12(0-6)	11/4/2020	0-6	11	21
NE-CN-18(0-6)	11/4/2020	0-6	12	21
NE-CN-13(0-6)	11/4/2020	0-6	13	22
NE-CN-22(0-6)	11/4/2020	0-6	14	23
NE-CN-20(0-6)	11/4/2020	0-6	15	23
NE-CN-05(0-6)	11/4/2020	0-6	14	24
NE-CN-25(0-6)	11/4/2020	0-6	14	24
NE-CN-19(0-6)	11/4/2020	0-6	16	24
NE-CN-08(0-6)	11/4/2020	0-6	14	25
NE-CN-30(0-6)	11/4/2020	0-6	14	25
NE-CN-06(0-6)	11/4/2020	0-6	15	25
NE-CN-02(0-6)	11/4/2020	0-6	16	25
NE-CN-04(0-6)	11/4/2020	0-6	14	26
NE-CN-09(0-6)	11/4/2020	0-6	14	26
NE-CN-31(0-6)	11/4/2020	0-6	14	26
NE-CN-03(0-6)	11/4/2020	0-6	15	26
NE-CN-15(0-6)	11/4/2020	0-6	14	27
NE-CN-01(0-6)	11/4/2020	0-6	15	27
NE-CN-10(0-6)	11/4/2020	0-6	15	27
NE-CN-23(0-6)	11/4/2020	0-6	16	28
NE-CN-11(0-6)	11/4/2020	0-6	16	29
NE-CN-14(0-6)	11/4/2020	0-6	17	29
NE-CN-32(0-6)	11/4/2020	0-6	18	31

Stockpile Samples

Sample ID	Sample Date	Sample Type	Arsenic (mg/kg)	Lead (mg/kg)
NE-SPA-01	1/22/2020	composite	**23**	30
NE-SPA-02	1/22/2020	composite	17	26
NE-SPA-03	1/22/2020	composite	19	29
NE-SPA-04	1/22/2020	composite	19	34
NE-SPA-05	6/5/2020	composite	15	25
NE-SPA-06	6/5/2020	composite	15	25
NE-SPA-07	6/5/2020	composite	**22**	29
NE-SPA-08	6/5/2020	composite	**22**	29
NE-SPA-09	6/16/2020	composite	15	25
NE-SPA-10	6/16/2020	composite	15	25
NE-SPA-11	6/16/2020	composite	14	23
NE-SPA-12	6/16/2020	composite	**21**	33
NE-SPA-13	6/24/2020	composite	13 J	24
NE-SPB-01	1/22/2020	composite	13	22
NE-SPB-02	1/22/2020	composite	**21**	31
NE-SPB-03	1/22/2020	composite	18	20
NE-SPB-04	1/22/2020	composite	**25**	37
NE-SPB-05	6/5/2020	composite	20	28
NE-SPB-06	6/5/2020	composite	20	30
NE-SPB-07	6/5/2020	composite	17	27
NE-SPB-08	6/5/2020	composite	15	25
NE-SPC-01	1/22/2020	composite	**27**	37
NE-SPC-02	1/22/2020	composite	**22**	32
NE-SPC-03	1/22/2020	composite	**21**	41
NE-SPC-04	1/22/2020	composite	**22**	55
NE-SPC-05	1/22/2020	composite	17	33
NE-SPC-06	1/22/2020	composite	**21**	40 J
NE-SPC-07	6/5/2020	composite	16	27
NE-SPC-08	6/5/2020	composite	12	20
NE-SPC-09	6/5/2020	composite	12	20
NE-SPC-10	6/5/2020	composite	16	28
NE-SPC-11	6/5/2020	composite	15	25
NE-SPC-12	6/5/2020	composite	15	25
NE-SPC-13	6/5/2020	composite	13	23
NE-SPC-14	6/5/2020	composite	13	23
NE-SPC-15	6/5/2020	composite	16	27
NE-SPC-16	6/5/2020	composite	14	24

Stockpile Samples

Sample ID	Sample Date	Sample Type	Arsenic (mg/kg)	Lead (mg/kg)
NE-SPD-01	1/22/2020	composite	19	32
NE-SPD-02	1/22/2020	composite	20	36
NE-SPD-03	1/22/2020	composite	**29**	41
NE-SPD-04	1/22/2020	composite	20	31
NE-SPD-05	1/22/2020	composite	**23**	36
NE-SPD-06	1/22/2020	composite	**21**	38
NE-SPD-07	6/5/2020	composite	9.4	13
NE-SPD-08	6/5/2020	composite	14	23
NE-SPD-09	6/5/2020	composite	15	24
NE-SPD-10	6/5/2020	composite	14	25
NE-SPD-11	6/5/2020	composite	15	23
NE-SPD-12	6/5/2020	composite	18	25

Shaded areas indicate final stockpile samples; **bold** values indicated concentrations above the MTCA Method A Cleanup Level

Progress Cleanup Samples - Bottom of Excavated areas

Sample ID	Sample Date	Sample Depth (inches bgs)	Arsenic (mg/kg)	Lead (mg/kg)
NE-ICN-01 (0-6)	1/22/2020	0-6	2.4	2.4
NE-ICN-02 (0-6)	1/22/2020	0-6	4.7	8.4
NE-ICN-03 (0-6)	1/22/2020	0-6	2.4	2
NE-ICN-04 (0-6)	1/22/2020	0-6	1.9	1.9
NE-ICN-05 (0-6)	1/22/2020	0-6	5.4	2.7

Characterization Samples by AES

Sample ID	Sample Date	Depth (inches)	Arsenic (mg/kg)	Lead (mg/kg)
DU-1-05b	6/5/2018	6-12	2.07	2.41
DU-1-05	6/5/2018	0-6	3.3	2.87
DU-1-22	6/5/2018	0-6	3.36	3.44
DU-1-22b	6/5/2018	6-12	4.89	6.59
DU-1-13	6/5/2018	0-6	7.95	11.2
DU-1-09	6/5/2018	0-6	8.04	5.35
DU-1-08	6/5/2018	0-6	9.85	4.58
DU-1-11	6/5/2018	0-6	10.3	17.4
DU-1-24	6/5/2018	0-6	11.4	7.13
DU-1-02b	6/5/2018	6-12	11.7	4.57
DU-1-04	6/5/2018	0-6	12.1	11.4
DU-1-18	6/5/2018	0-6	15.4	17.5
DU-1-19b	6/5/2018	6-12	18.4	14.6
DU-1-07	6/5/2018	0-6	19.2	19.4
DU-1-17	6/5/2018	0-6	20	34.6
DU-1-10b	6/5/2018	6-12	**21.9**	47
DU-1-10	6/5/2018	0-6	**23**	36
DUFF	6/5/2018	surface	**23.4**	65.9
DU-1-01	6/5/2018	0-6	**24.3**	40.5
DU-1-23	6/5/2018	0-6	**25.3**	56.7
DU-1-16	6/5/2018	0-6	**27.2**	39.7
DU-1-03	6/5/2018	0-6	**27.4**	39.8
DU-1-06	6/5/2018	0-6	**28.3**	28.2
DU-1-15b	6/5/2018	6-12	**28.4**	57
DU-1-15	6/5/2018	0-6	**28.8**	57.3
DU-1-14	6/5/2018	0-6	**29**	34.9
DU-1-12	6/5/2018	0-6	**29.7**	45.9
DU-1-02	6/5/2018	0-6	**31**	23.4
DU-1-19	6/5/2018	0-6	**40.8**	34.4
DU-1-21	6/5/2018	0-6	**46.3**	66.5
DU-1-20	6/5/2018	0-6	**58.9**	83.7

Bold values indicated concentrations above the MTCA Method A Cleanup Level; **bold red** values indicate concentrations twice the cleanup level