STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

April 18, 2013

Mr. Steve Shinners
YRC North American Transportation Inc.
10990 Roe Avenue
Overland Park, Kansas 66211-1213

Re: Further Action at the following Site:

- **Site Name:** USF Reddaway Tacoma (aka Estee Express Lines Terminal Facility)
- **Site Address:** 802 East 11th Street, Tacoma, Washington 98421-3023
- **Facility/Site No.:** 17920
- **Cleanup Site ID:** 2140
- **VCP Project No.:** SW1095

Dear Mr. Shinners:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the USF Reddaway Tacoma (aka Estee Express Lines Terminal Facility) facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following release:

- Total petroleum hydrocarbons (TPH) in the diesel-range (TPH-D) and in the oil-range (TPH-O) into the soil.

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

It should be noted that arsenic groundwater contamination above the applicable MTCA Method A Groundwater Cleanup Level (CUL) is present on the Site; however, sufficient evidence has been provided that indicates that contamination is part of an area-wide issue and does not originate from past or present activities on the Site. This opinion does not address arsenic in groundwater.

Basis for the Opinion

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

1. Weston Solutions, Inc. (Weston), **Phase I Environmental Site Assessment, USF Reddaway, TAC, Tacoma, WA 98421,** dated May 2008.

2. ATC Associates, Inc. (ATC), **Draft Phase I Environmental Site Assessment of USF Reddaway, 802 East 11th Street, Tacoma, Washington 98421, ATC Project No. 90.75061.0001,** dated January 20, 2009.

3. ATC, **Draft Phase II Environmental Site Assessment Report, USF Reddaway Truck Terminal Property, 802 East 11th Street, Tacoma, Washington 98421, ATC Project No. 90.75061.0002,** dated April 13, 2009.

4. Environmental Management Services (EMS), **Phase I Environmental Site Assessment, USF Reddaway Trucking Terminal, 802 East 11th Street, Tacoma, Washington,** dated May 27, 2009.

5. Camp, Dresser & McKee Inc. (CDM), **Subsurface Investigation Report, USF Reddaway Terminal Facility, 802 East 11th Street, Tacoma, Washington,** dated September 21, 2009.

6. CDM, **Arsenic Study, USF Reddaway Terminal Facility, 802 East 11th Street, Tacoma, Washington,** dated December 13, 2012.

7. CDM, **Site Investigation Report, USF Reddaway Terminal Facility, 802 East 11th Street, Tacoma, Washington, Voluntary Cleanup Program ID SW1095,** dated December 19, 2012.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

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

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. **Characterization of the Site.**

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**]

The Site is located at 802 East 11th Street in Tacoma, Washington on the Commencement Bay tide flats (see Figure 1). The Site is currently used as a commercial trucking terminal and conducts refueling operations from a 12,000-gallon diesel above-ground storage tank (AST). Surrounding properties are zoned industrial, and the Site is approximately 800 feet east of Commencement Bay and approximately 1600 feet west of the Puyallup River.

From May 2008 to May 2009, YRC North American Transportation, Inc., commissioned three Phase I Environmental Site Assessments (ESAs) to document the environmental condition of the Site prior to potential property transactions. The Weston, ATC, and EMS ESAs identified the previous activities of the former operator, the St. Paul & Tacoma Lumber Company, which operated on the property from the late 1800s to 1992.

From April 2009 to August 2009, three subsurface investigations were conducted at the Site based on the results of the ESAs. ATC, EMS, and CDM advanced a total of 32 borings, six of which were finished as groundwater monitoring wells. The investigations identified petroleum-contaminated soil (PCS) in the oil-range above the applicable MTCA Method A Cleanup Levels (CULs) for unrestricted land uses in the north-central portion of the USF Reddaway Terminal Complex driveway/parking area. The highest soil concentration of TPH-O was detected in the boring for monitoring well MW-1 at 2.5 feet below ground surface (bgs). The soil concentration was 4,900 milligrams per kilogram (mg/kg), and the MTCA Method A CUL for TPH-O is 2,000 mg/kg. No Site soil contamination above the applicable MTCA Method A CUL was found below 6.5 feet bgs.

Laboratory analytical results from the EMS 2009 Phase I ESA indicated volatile organic compounds (VOCs) could be present in the Site soil. The laboratory reporting limits (LRL) for several VOCs did not resolve down to the applicable MTCA Method A CULs. Later subsurface investigation analytical results indicated that these VOCs were not present at their applicable LRLs, which did resolve the LRLs down to below the applicable MTCA CULs.

In July 2009, CDM conducted their subsurface investigation; laboratory analytical results indicated TPH-O and TPH-D above their applicable MTCA Method A Groundwater CULs in grab groundwater samples from borings B-9 and B-10. The highest groundwater

contamination was found in the grab sample obtained from boring B-10; the TPH-O concentration was 21,000 micrograms per liter (µg/L) and the TPH-D concentration was <19,000 µg/L. The MTCA Method A Groundwater CULs for both TPH-O and TPH-D is 500 µg/L. In August 2009, groundwater analytical results from MW-6, which was co-located with B-10 (and MW-5, which was co-located with B-9), indicated that both TPH-O and TPH-D were not detected at the LRL. With the exception of arsenic, total metals were either not detected at the LRL or not detected above the applicable MTCA Method A CUL.

In October 2010, Ecology provided a Further Action Opinion Letter at the Site to YRC North American Transportation Inc. Ecology determined that further action was needed at the Site to delineate the northern boundary of the hydrocarbon contamination and to investigate for potential sources of arsenic in the Site soil. Ecology also found the groundwater monitoring history to be insufficient to establish compliance record; Ecology requested additional monitoring events.

In March 2011 and again in June 2011, CDM conducted additional Site investigation activities. A total of ten soil samples were collected and analyzed for TPH-O, TPH-D, and metals (see Figure 2). All constituents of concern were either not detected at the LRL or were below the applicable MTCA CULs. The analytical results indicated the PCS had been fully delineated.

In December 2012, CDM provided a Site Characterization Report to Ecology for review. The report provided four additional quarters of groundwater monitoring results. With the exception of total arsenic, the results indicated TPH-O, TPH-D, ethylene dibromide, total cadmium, total chromium, total lead, and total mercury groundwater concentrations were either not detected at the LRL or were below the applicable MTCA Method A CULs. Total arsenic was found in the Site groundwater above the MTCA Method A CUL in four monitoring wells. The highest arsenic concentration was 59 µg/L in MW-5; the MTCA Method A CUL is 5 µg/L. Available soil analytical data indicated there was no source of arsenic in the Site soils that could be attributed to causing elevated arsenic concentrations in the Site groundwater. The applicable MTCA Method B CUL for arsenic is the applicable Surface Water ARAR[1] – protection of human health – Marine – National Toxics Rule, 40 CFR 131 of 0.14 µg/L.

CDM also evaluated the groundwater for total dissolved solids (TDS) and found a high TDS concentration of 2,860 milligrams per liter, a result that is generally indicative of brackish water. CDM established the Site groundwater was most likely hydraulically connected to the marine surface water near the Site due to the brackish nature of the groundwater and proposed the MTCA Method B CULs would be appropriate to the Site.

In December 2012, CDM provided Ecology with an Arsenic Study conducted on 18 sites within 3.3 miles of the Site. CDM conducted an analysis of arsenic data contained in Ecology's Environmental Information Management System (EIM) database and Ecology project files. The EIM data set consisted of 575 soil sample results from sites across the

[1] Applicable or Relevant and Appropriate Requirements

Tacoma tide flat area. CDM's analysis found the minimum value for all 18 sites was 0.03 mg/kg, a maximum value of 523 mg/kg, and a mean value of 10.43 mg/kg. The median value for the study was 5 mg/kg, the MTCA Method A Soil CUL is 20 mg/kg. CDM found there was no apparent correlation between low or non-detect arsenic soil concentrations and elevated arsenic groundwater concentrations at this apparent non-source arsenic Site. Arsenic groundwater concentration maps for the last four quarters of monitoring events indicated arsenic-contaminated groundwater was coming onto the Site from the north. Based on their study analysis and lack of an identified on-Site source, CDM proposed that the arsenic groundwater contamination was not part of the Site but was part of a larger, yet unidentified Site. CDM requested Ecology to consider the elevated arsenic concentrations in groundwater on the Site to be indicative of a larger, area-wide issue and not the result of previous activities or current soil conditions on the Site. Ecology concurs with that assessment.

Based on a review of the available information and the comments above, Ecology has the following comments:

1. Ecology has determined the Site contamination has been fully delineated.

2. Ecology recommends a remedial work plan be provided to Ecology for review and approval (see additional comments in Section 4).

3. Please submit another round of groundwater sampling results from all wells for TPH-O and TPH-D using Northwest Total Petroleum Hydrocarbon for Diesel Range (NWTPH-Dx) analytical method without using the silica gel/acid (SGA) cleanup process. Previous groundwater analysis for these compounds used the SGA process to prepare the groundwater samples for analysis. The SGA process has the ability to remove degraded by-products that are part of the total petroleum mixture. Once removed, these by-products are unaccounted for in the analysis and are not taken into account in the total petroleum concentration result.

4. Please correct the wellhead elevation data submitted to EIM database. Elevation data was submitted based on an arbitrary datum. MTCA requires all elevation data to use the United States Geological Survey datum as a basis for all elevations[2].

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA.

No cleanup action has been formally proposed or conducted at the Site. PCS above the applicable MTCA Method A CULs remains on the Site from 2.5 feet to 6.5 feet bgs. Available data indicates the groundwater is not a suitable source of potable groundwater.

[2] WAC 173-340-840 General submittal requirements. The Washington State standard is the North American Vertical Datum of 1988 (NAVD88).

Conductivity and total dissolved solids results from non-impacted wells indicate the background groundwater is brackish and appears to be hydraulically connected to Commencement Bay. No contaminants of concern associated with the Site have been detected above their applicable MTCA Method A CUL for the past five-groundwater sampling events.
The Site qualifies to use the standard points of compliance. The standard points of compliance for protection of groundwater will be established in the soils throughout the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance is shall be established in the soils throughout the Site from the ground surface to 15 feet bgs.

The applicant has expressed a desire to apply a point of compliance for the protection surface water at the Site boundary instead of the protection of groundwater since the Site groundwater has been demonstrated to be an unlikely future potable water source and analytical results indicate residual PCS has not negatively impacted groundwater. Once a remedy has been selected, Ecology could consider that proposed cleanup standard.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site does not meet the substantive requirements of MTCA.

No cleanup action has been selected.

4. Cleanup.

Ecology has determined the cleanup you performed does not meet any cleanup standards at the Site.

No remedial cleanup actions have been conducted at the Site. PCS in excess of the applicable MTCA CULs remains in place beneath the pervious landscape islands and impervious asphalt and concrete pavement of the Site refueling and driveway areas. Permanent solutions[3] should be implemented to the maximum extent practicable. Permanent solutions (cleanup actions) are actions in which cleanup standards can be met without further action being required, such as monitoring or institutional controls.

The applicant has expressed a desire to manage the contamination in place under an

[3] To paraphrase paragraphs WAC 173-340-350(8) and WAC 173-340-360(e)&(f), to select the most practicable permanent solution from among those cleanup action alternatives that are protective of human health and the environment requires conducting a disproportionate cost analysis. This analysis compares costs and benefits of alternatives and selecting the alternative whose incremental costs are not disproportionate to the incremental benefits. The comparison is quantitative, but is often qualitative and requires best professional judgment. Should it be determined that a permanent cleanup action cannot be implemented, a Disproportionate Cost Analysis shall be applied. The analysis shall compare costs and benefits of the cleanup action alternatives evaluated in the Feasibility Study.

Environmental Covenant, which may be appropriate for this Site. **A Feasibility Study [refer to WAC 173-340-350(8)] and Disproportionate Cost Analysis [refer to WAC 173-340-360(3)(e) and (f)] (FS/DCA) should be prepared to identify potential cleanup alternatives for the Site and the estimated costs of those alternatives.** The FS/DCA should be submitted to Ecology for review and approval.

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 Site. This opinion **does not:**

- 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 70.105D.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 70.105D.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 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (360) 407-7404 or e-mail at erad461@ecy.wa.gov.

Sincerely,

Eugene Radcliff, L.G.
Site Manager
SWRO Toxics Cleanup Program

GER/ksc:Estes Express Lines Terminal Facility Site FA022613

Enclosures (7): A – Description and Diagrams of the Site
Figure 1 Vicinity Map
Figure 8 Areas of Oil-Range Petroleum Hydrocarbon Contamination in Soil
Figure 9 Arsenic Isoconcentration Contour Map, February 2011
Figure 10 Arsenic Isoconcentration Contour Map, May 2011
Figure 11 Arsenic Isoconcentration Contour Map, August 2011
Table 2 Soil Analytical Results
Table 4 Groundwater Analytical Results

By certified mail: (7012 1010 0003 0195 2877)

cc: Ms. Angela J. Maidment, Estes Express Lines
Ms. Jeanette Mullen, Camp, Dresser & McKee, Inc.
Mr. Rob Olsen, Site Hazard Assessment/UST Program, Tacoma-Pierce Co Health Dept
Scott Rose – Ecology
Dolores Mitchell – Ecology (without enclosures)

Enclosure A

Description and Diagrams of the Site

Site Description

Media of Concern: Soil

The USF Reddaway Tacoma Facility (aka Estee Express Lines Terminal Facility) (Site) is located at 802 East 11th Street, Tacoma, Pierce County, Washington (see Figure 1). The Site was used as a lumber mill from at least the late-1800s until the early 1990s. Sometime after 1990, the last lumber operation building was removed from the parcel and it was an undeveloped lot until 2002. In 2002, the property began truck terminal operations. During a property transfer investigation, metals and petroleum hydrocarbon contamination was identified on the property soil and in the groundwater. The release was attributed to the previous lumber mill operations. No soil cleanup activities have been known to have occurred on the Site.

The parcel on which the facility is located encompasses approximately 13.7 acres; approximately two-thirds of the parcel is covered by impervious surface and approximately one-third is covered by a semi-developed pervious surface. The Site is bordered on the east by Simpsons Landing, on the south by Granite Portside LLC, on the west by the Tacoma Railroad right-of-way, industrial properties, and Busti Street, and on the north by East 11th Street. The Pierce County Assessor-Treasurer Office[4] (PCATO) webpage notes the Site as being comprised of tax parcel number 8950001277.

That parcel tax description is as follows:

"Section 04 Township 20 Range 03 Quarter 11 TACOMA TIDELANDS: TACOMA TIDELANDS NE 4-20-03E LOT 5 OF DBLR 97-11-07-0310 DESC AS POR B 41A, 43 & 43A DESC AS FOLL COM AT INTER OF C/L OF E 11TH ST & ST PAUL AVE TH N 49 DEG 38 MIN 21 SEC E 701.63 FT TH S 27 DEG 34 MIN 39 SEC E 51.27 FT TO POB TH S 27 DEG 34 MIN 39 SEC E 261.06 FT TH SLY 119.15 FT ALG ARC OF 405.84 FT RAD CURVE CONCAVE TO W HAVING RAD BEAR S 70 DEG 38 MIN 19 SEC W THRU CENTRAL ANGLE OF 16 DEG 49 MIN 16 SEC TH S 02 DEG 32 MIN 25 SEC E 69.24 FT TH SLY 100.84 FT ALG ARC OF 395.27 FT RAD CURVE CONCAVE TO E THRU CENTRAL ANGLE OF 14 DEG 37 MIN 01 SEC TH S 16 DEG 50 MIN 39 SEC E 263.24 FT TO NELY R/W LI OF ST PAUL AVE TH S 63 DEG 09 MIN 15 SEC E 7.10 FT TH N 26 DEG 01 MIN 08 SEC E 757.12 FT TH S 35 DEG 08 MIN 52 SEC E 102.90 FT TH SELY 120.55 FT ALG ARC OF 572.37 FT RAD CURVE CONCAVE TO NE THRU CENTRAL ANGLE OF 12 DEG 04 MIN 01 SEC TH S 47 DEG 12 MIN 53 SEC E 42.30 FT TH SELY 116.28 FT ALG ARC OF 547.63 FT RAD CURVE CONCAVE TO SW THRU CENTRAL ANGLE OF 12 DEG 09 MIN 59 SEC TH N 33 DEG 06 MIN 32 SEC W 348.26 FT TH S 54 DEG 51 MIN 08 SEC W 1.25 FT TH N 34 DEG 59 MIN 22 SEC W 780.22 FT TH S 49 DEG 38 MIN 21 SEC W 727.28 FT TO POB APPROX 596,059 SQ FT (13.68 ACS) OUT OF 127-2 & 126-9 SEG J-0522 JU 2/23/98JU".

[4] http://epip.co.pierce.wa.us/CFApps/atr/epip/summary.cfm?parcel=8950001277

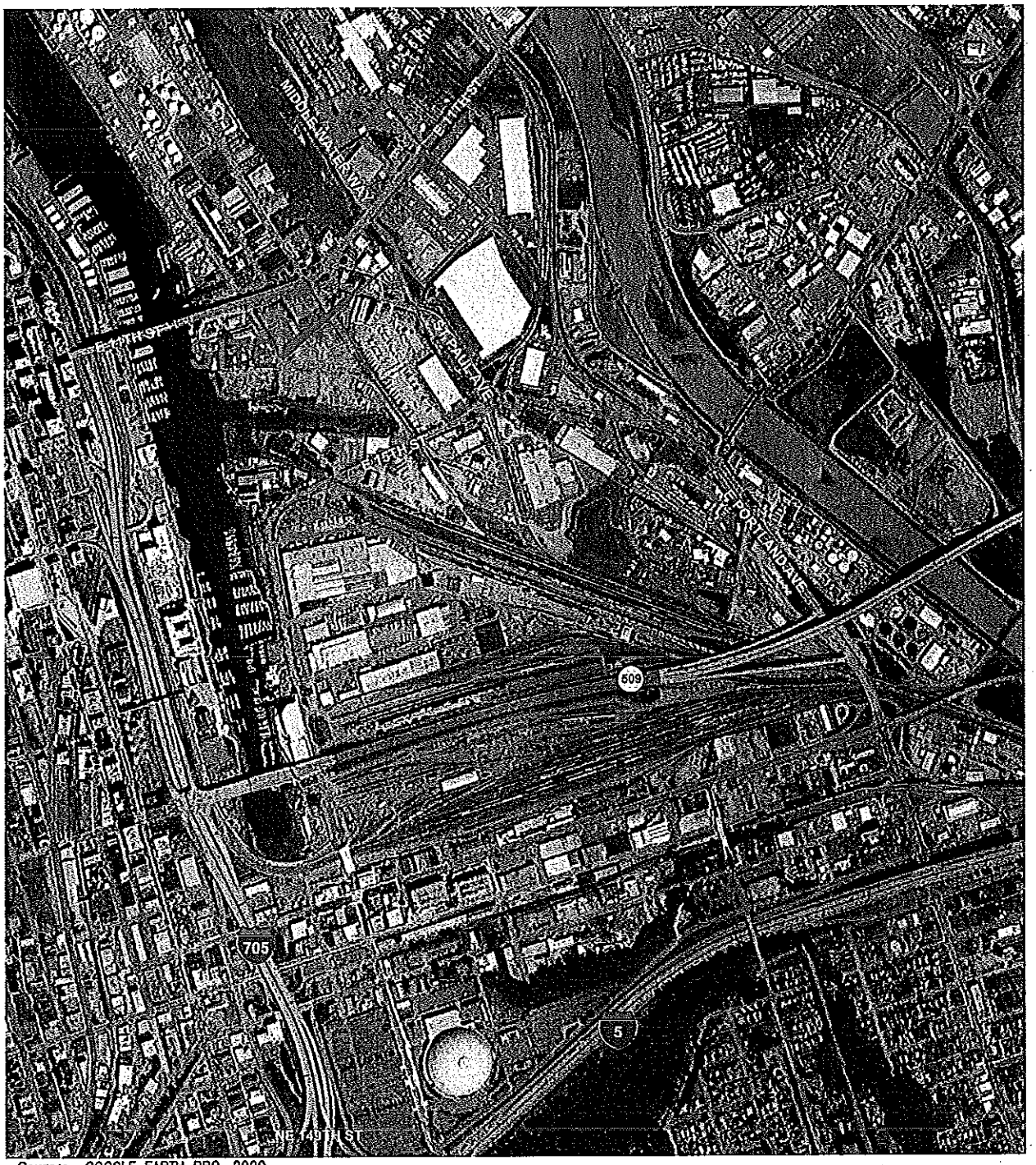
The latitude and longitude coordinates[5] of the Site are 47° 15' 19" North, 122° 25' 26" West.

The City of Tacoma[6] has zoned the Site as *Port Maritime and Industrial (PMI)* and it is part of the *Tacoma Tidelands* Plat. The PMI zone classification is incorporated into Tacoma's Manufacturing/Industrial Center and is located in a designated *Primary Growth Area*. The Land Use Code further designates the parcel: 6380-MINI WAREHOUSING. The Site is within known flood hazard, volcano hazard, landslide hazard, and seismic hazard areas. There is a known wetland on the Site.

The Site was formerly Commencement Bay tide flats prior to the 1890s. By 1896, the former tide flats and tidal marsh were filled in at the current Site and surrounding property locations with approximately 9 feet of silty sand and gravel fill and the area has been used for industrial purposes ever since. The original tide flat surface underlies the fill and is distinguished by a layer of organic grass and woody debris and overlies silts to a depth of about 23 feet below the ground surface (bgs) where dark grey sands are interpreted to be a deltaic sequence. Locally, the soil is described as brown gravel with sand down to 38 inches bgs and underlain by gray/brown fine to coarse gravel with fine to coarse sand, silt, and organics down to 96 inches bgs.

Groundwater ranges from approximately 4.5 feet to 10 feet bgs; it is suspected that the groundwater is tidally influenced by the nearby Middle Waterway. The direction of groundwater flow beneath the Site has not been determined but appears to flow toward towards the southeast. The Site elevation is approximately 15 feet above sea level.

[5] http://www.itouchmap.com/latlong.html
[6] http://www.govme.org/Common/gMap/MGMain.aspx



Source: GOOGLE EARTH PRO, 2009

N

1" = 1200'

70 0 1200

SITE VICINITY

Washington

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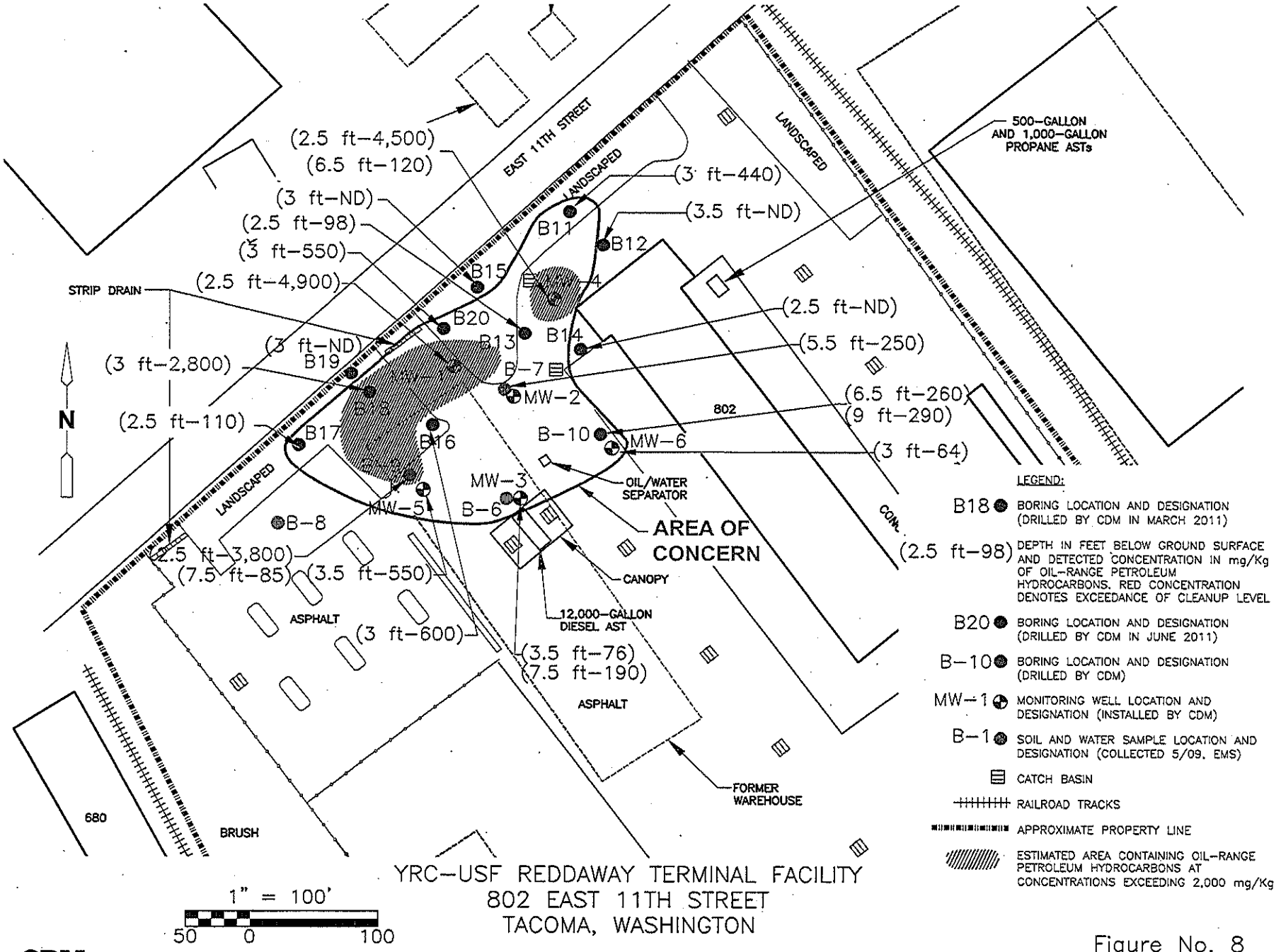
YRC–USF REDDAWAY TERMINAL FACILITY
802 EAST 11TH STREET
TACOMA, WASHINGTON

Figure No. 1
Vicinity Map

CDM

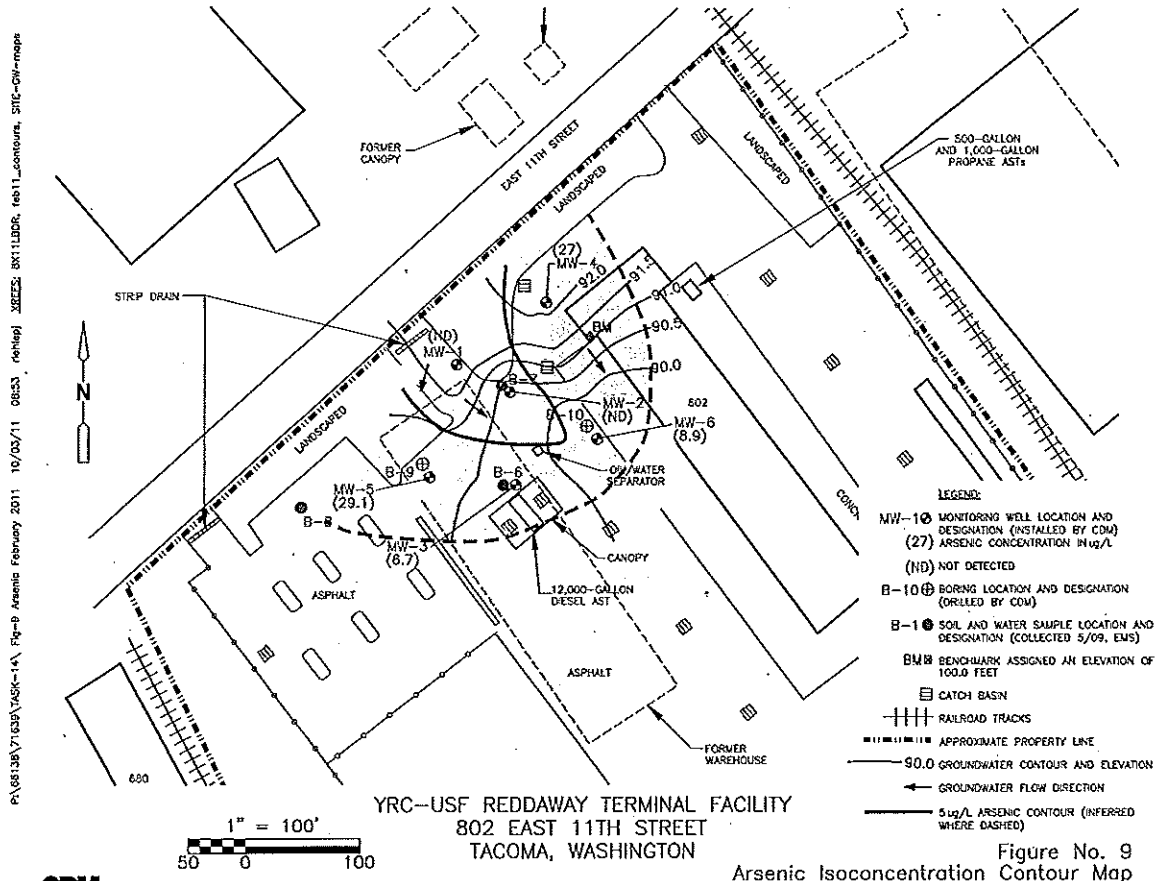


P:\66138\71639\TASK-14\ Fig-8 12/19/12 08:58 riehlepj XREFS: 8X11LBBR-TASK-14, SITE-TASK-14

YRC–USF REDDAWAY TERMINAL FACILITY
802 EAST 11TH STREET
TACOMA, WASHINGTON

CDM

Figure No. 8
Areas of Oil–Range Petroleum Hydrocarbon Contamination in Soil

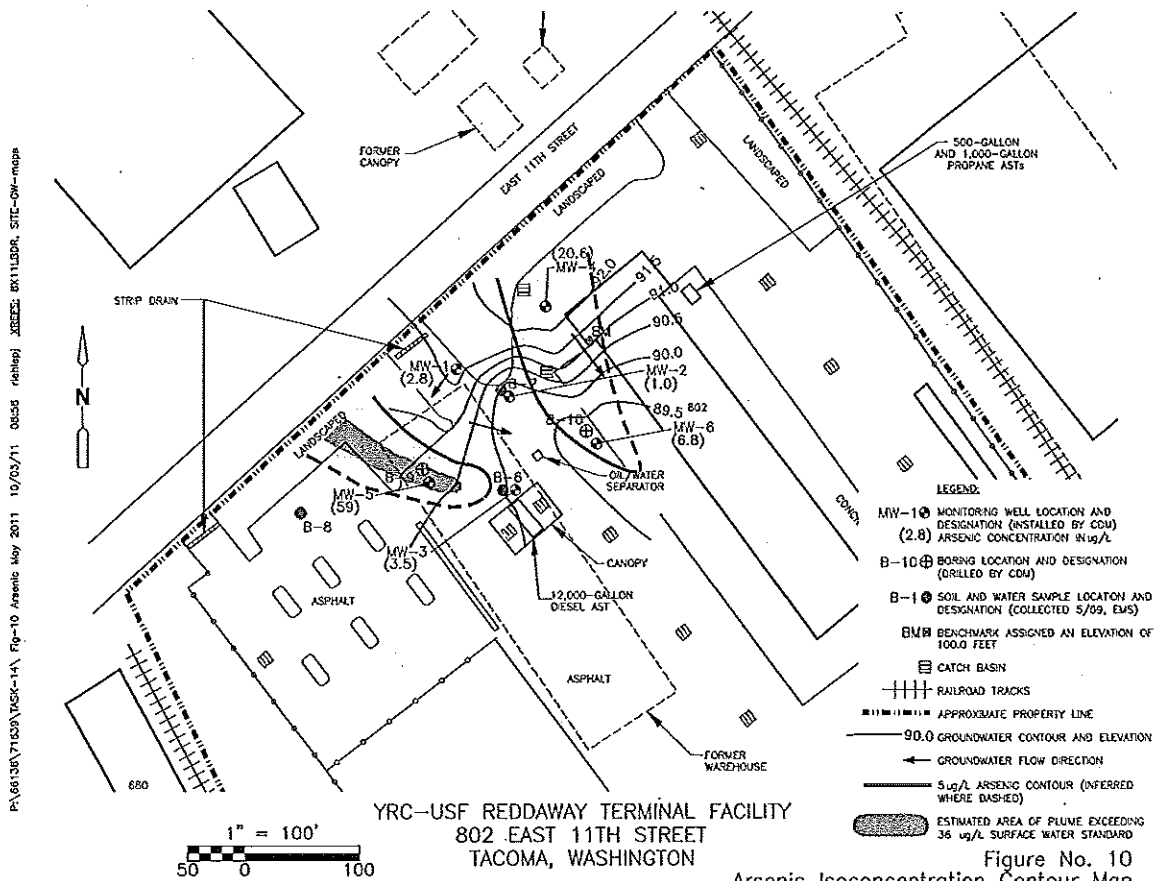


P:\66136\71639\TASK-14\ Fig-9 Arsenic February 2011 10/03/11 08:53 rehlapj XREFS: 8X11LDDR, feb11_contours, SITE-GW-maps

YRC–USF REDDAWAY TERMINAL FACILITY
802 EAST 11TH STREET
TACOMA, WASHINGTON

Figure No. 9
Arsenic Isoconcentration Contour Map
February 2011

CDM

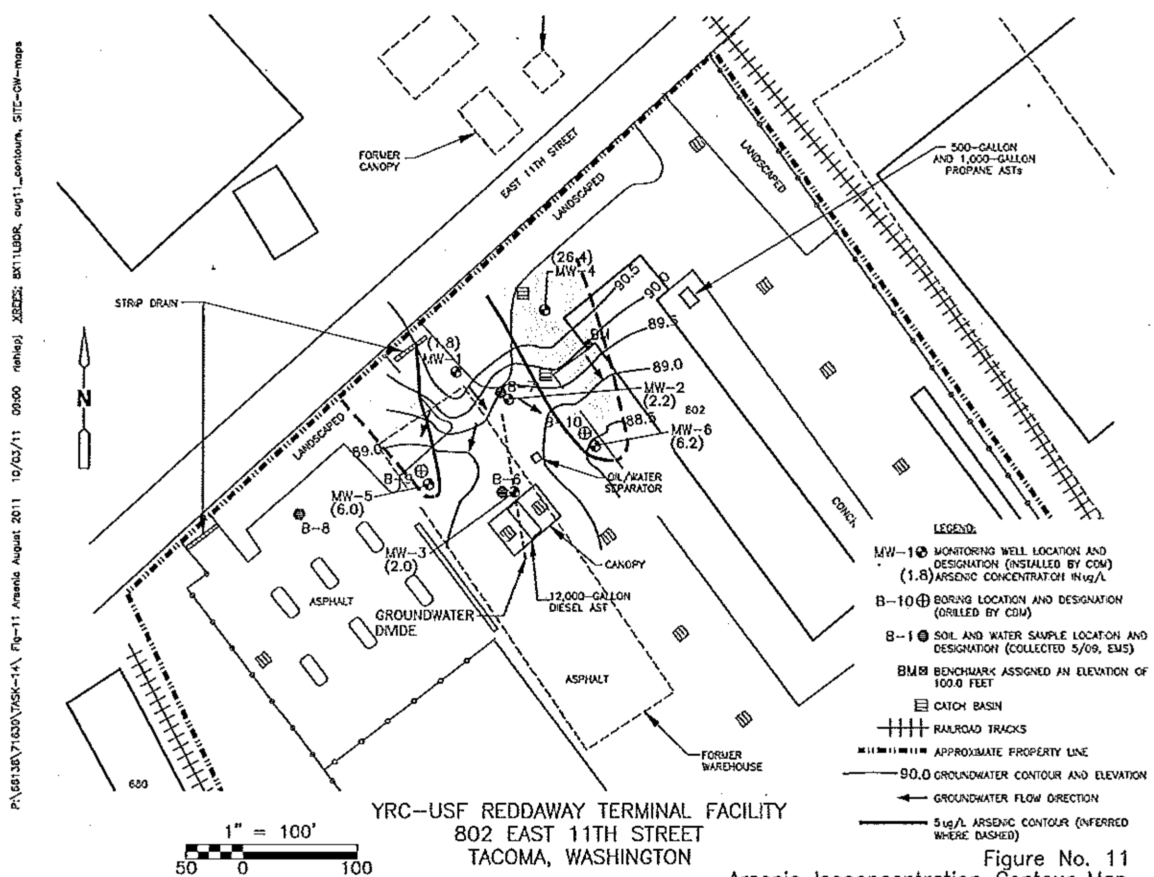


P:\66136\71639\TASK-14\ Fig-10 Arsenic May 2011 10/03/11 08:55 rehlapj XREFS: 8X11LDDR, SITE-GW-maps

YRC–USF REDDAWAY TERMINAL FACILITY
802 EAST 11TH STREET
TACOMA, WASHINGTON

Figure No. 10
Arsenic Isoconcentration Contour Map
May 2011

CDM



YRC–USF REDDAWAY TERMINAL FACILITY
802 EAST 11TH STREET
TACOMA, WASHINGTON

Figure No. 11
Arsenic Isoconcentration Contour Map
August 2011

CDM

Table 2
Soil Analytical Results
YRC North American Transportation - USF Reddaway Facility
Tacoma, Washington

Location ID	Sample Identification	Depth (feet bgs)	Date Sampled	Petroleum Hydrocarbons (mg/kg)			BTEX (mg/kg)				MTCA Metals (mg/kg)					
				Gasoline-Range	Diesel-Range	Oil-Range	Benzene	Toluene	Ethyl-benzene	Xylenes	Arsenic	Cadmium	Total Chromium	Hexavalent Chromium	Lead	Mercury
July/August 2009 Investigation																
MW-1	MW1-2.5	2.5	7/9/2009	<4.9	<340	**4,900**	<0.020	<0.049	<0.049	<0.049	<10	--	--	--	**9.6**	--
MW-2	MW2-5.5	5.5	7/9/2009	<4.5	<27	**250**	<0.020	<0.045	<0.045	<0.045	<11	--	--	--	**12**	--
MW-3	MW3-3.5	3.5	7/9/2009	<5.3	<28	**76**	<0.020	<0.053	<0.053	<0.053	<11	--	--	--	<5.5	--
MW-3	MW3-7.5	7.5	7/9/2009	--	<29	**190**	--	--	--	--	<12	--	--	--	**71**	--
MW-4	MW4-2.5	2.5	7/10/2009	<5.5	<270	**4,500**	<0.020	<0.055	<0.055	<0.055	<10	--	--	--	<5.2	--
MW-4	MW4-6.5	6.5	7/10/2009	--	<27	**120**	--	--	--	--	--	--	--	--	--	--
B-9	B9-2.5	2.5	7/10/2009	--	<140	**3,800**	--	--	--	--	--	--	--	--	--	--
B-9	B9-7.5	7.5	7/10/2009	<6.8	<29	**85**	<0.020	<0.068	<0.068	<0.068	<12	--	--	--	**16**	--
B-10	B10-6.5	6.5	7/10/2009	--	<31	**260**	--	--	--	--	--	--	--	--	--	--
B-10	B10-9	9	7/10/2009	<7.2	<33	**290**	<0.020	<0.072	<0.072	<0.072	<13	--	--	--	**99**	--
MW-5	MW5-3.5	3.5	8/10/2009	--	<27	**550**	<0.020	<0.052	<0.052	<0.052	<11	--	--	--	<5.3	--
MW-6	MW6-3	3	8/10/2009	--	<27	**64**	<0.020	<0.050	<0.050	<0.050	<11	--	--	--	<5.4	--
March 2011 Investigation																
B11	B11-3	3	3/17/2011	--	<59	**440**	--	--	--	--	<12	<0.58	**27**	<1.2	**180**	<0.29
B12	B12-3.5	3.5	3/17/2011	--	<27	<54	--	--	--	--	<11	<0.54	**26**	<1.1	<5.4	<0.27
B13	B13-2.5	2.5	3/17/2011	--	<27	**98**	--	--	--	--	<11	<0.54	**20**	<1.1	<5.4	<0.27
B14	B14-2.5	2.5	3/17/2011	--	<27	<54	--	--	--	--	<11	<0.54	**20**	<1.1	<5.4	<0.27
B15	B15-3	3	3/17/2011	--	<27	<53	--	--	--	--	<11	<0.53	**17**	--	<5.3	<0.27
B16	B16-3	3	3/17/2011	--	<27	**600**	--	--	--	--	<11	<0.53	**19**	--	<5.3	<0.27
B17	B17-2.5	2.5	3/17/2011	--	<29	**110**	--	--	--	--	**13**	<0.57	**18**	--	**150**	<0.29
B18	B18-3	3	3/17/2011	--	<160	**2,800**	--	--	--	--	<11	<0.53	**10**	--	**20**	<0.26
B18	B18D-3 (Duplicate)	3	3/17/2011	--	<27	**130**	--	--	--	--	<11	<0.55	**18**	--	<5.5	<0.27
June 2011 Investigation																
B19	B19-3	3	6/2/2011	--	<29	<58	--	--	--	--	<12	--	--	--	--	--
B20	B20-3	3	6/2/2011	--	<52	**550**	--	--	--	--	**18**	--	--	--	--	--
MTCA Method A Cleanup Level[a]				**100** [b]	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**	**20**	**2**	**19/2,000** [c]	**19**	**250**	**2**

Notes:
Orange highlighted values exceed the regulatory criteria.
Bold values are detections above the laboratory reporting limit.
a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act (MTCA) Cleanup Regulation, Method A suggested soil cleanup level for unrestricted land uses; promulgated August 15, 2001.
b) 100 mg/kg without benzene and total of ethylbenzene, toluene, and xylene are less than 1% of the gasoline mixture; 30 mg/kg all other gasoline mixtures.
c) Cleanup level for Chromium VI (hexavalent chromium) is 19 mg/kg; cleanup level for Chromium III is 2,000 mg/kg.
< - analyte not detected at or greater than the listed concentration
mg/kg - milligrams per kilogram.
BTEX - Benzene, toluene, ethylbenzene, and xylenes
bgs - below ground surface.
-- not analyzed

Table 3
Groundwater Monitoring Analytical Results
USF Reddaway Terminal Facility
Tacoma, Washington

Well I.D.	Date Sampled	NWTPH-Dx (µg/L)		EDB (µg/L)	Metals (µg/L)					Total Dissolved Solids (mg/L)
		Diesel	Lube Oil	EDB	Arsenic	Cadmium	Chromium	Lead	Mercury	
MW-1	7/15/2009	<250	<400	--	<3.3	--	--	<1.1	--	--
	2/17/2011	<260	<410	<0.0096	<3.3	<4.4	<11	10	<0.5	--
	5/12/2011	<100	<200	--	2.8	--	--	--	--	489
	8/3/2011	<100	<200	--	1.8	--	--	--	--	2,860
	11/15/2011	<100	<200	--	1.2	--	--	--	--	871
MW-2	7/15/2009	<250	<400	--	<3.3	--	--	<1.1	--	--
	2/17/2011	<260	<410	<0.0097	<3.3	<4.4	<11	<1.1	<0.5	--
	5/12/2011	<100	<200	--	1.0	--	--	--	--	1,070
	8/3/2011	<100	<200	--	2.2	--	--	--	--	1,060
	11/15/2011	<100	<200	--	2.7	--	--	--	--	1,400
MW-3	7/15/2009	<250	<400	--	<3.9	--	--	1.2	--	--
	2/16/2011	<260	<410	<0.0096	**6.7**	<4.4	<11	<1.1	<0.5	--
	5/12/2011	<100	<200	--	3.5	--	--	--	--	1,430
	8/3/2011	<100	<200	--	2.0	--	--	--	--	1,380
	11/15/2011	<100	<200	--	2.7	--	--	--	--	1,340
MW-4	7/15/2009	<250	<400	--	**26**	--	--	<1.1	--	--
	2/16/2011	<260	<410	<0.0097	**27**	<4.4	<11	<1.1	<0.5	--
	5/12/2011	<100	<200	--	**20.6**	--	--	--	--	315
	8/3/2011	<100	<200	--	**26.4**	--	--	--	--	360
	11/15/2011	<100	<200	--	**30.8**	--	--	--	--	448
MW-5	8/14/2009	<250	<400	--	<3.3	--	--	<1.1	--	--
	2/16/2011	<260	<410	<0.0096	**29.1** c	<4.4	<11	<1.1	<0.5	--
	5/12/2011	<100	<200	--	**59**	--	--	--	--	1,390
	8/3/2011	<100	<200	--	**6.0**	--	--	--	--	1,170
	11/15/2011	<100	<200	--	**13.2**					1,450
MW-6	8/14/2009	<260	<410	--	**5.8**	--	--	<1.1	--	--
	2/16/2011	<260	<410	<0.0097	**8.9**	<4.4	<11	<1.1	<0.5	--
	5/12/2011	<100	<200	--	**6.8**	--	--	--	--	992
	8/3/2011	<100	<200	--	**6.2**	--	--	--	--	1,040
	11/15/2011	<100	<200	--	**9.7**	--	--	--	--	893
Regulatory Criteria										
Method A Cleanup Level[a]		500	500	0.01	5	5	50	15	2	NA
Surface Water Standard[b]					36					NA

Notes:
Bold and boxed values exceed MTCA Method A regulatory criteria. Orange shaded values exceed State of Washington surface water standards.
a) Washington Administrative Code (WAC) Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested groundwater cleanup level; promulgated August 15, 2001.
b) Arsenic surface water standard from WAC 173-201A-240 Table 240(3): Chronic marine water value
c) Result shown is value generated by ARI lab in a re-analysis of sample. Original result from OnSite Environmental lab was 39 µg/L.
< - analyte not detected at or greater than the listed concentration
µg/L - micrograms per liter
mg/L - milligrams per liter
EDB - Ethylene dibromide
-- Not analyzed
NA - Not applicable