GW - 001

C-141s
(1 of 7)

Chavez, Carl J, EMNRD

From: Robinson, Kelly <Kelly.Robinson@wnr.com>
Sent: Tuesday, May 03, 2016 6:24 AM
To: Tsinnajinnie, Leona, NMENV
Cc: Schmaltz, Randy; Cobrain, Dave, NMENV; VanHorn, Kristen, NMENV; Dhawan, Neelam, NMENV; Chavez, Carl J, EMNRD
Subject: RE: Corrective Action Report

Thank you, Ma'am!

Western very much appreciates everyone's assistance on this matter. We will proceed with backfilling the area with clean soil. If anyone has questions regarding this topic going forward, please feel free to contact Randy or myself at your convenience.

Have a great week!

Kelly R. Robinson | Environmental
Western Refining | 111 County Road 4990 | Bloomfield, NM87413
(o) 505-632-4166 | (c) 505-801-5616 | (e) kelly.robinson@wnr.com

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From: Tsinnajinnie, Leona, NMENV [mailto:Leona.Tsinnajinnie@state.nm.us]
Sent: Monday, May 02, 2016 4:28 PM
To: Robinson, Kelly
Cc: Schmaltz, Randy; Cobrain, Dave, NMENV; VanHorn, Kristen, NMENV; Dhawan, Neelam, NMENV; Chavez, Carl J, EMNRD
Subject: RE: Corrective Action Report

Good Afternoon Kelly-

NMED has reviewed Bloomfield's *Corrective Action Report* and has determined that Bloomfield can move forward with backfilling the excavation site near Tanks 42a, 42b and 43. The backfill material must be clean fill and not the contaminated soil removed from the site.

NMED will provide a response letter to the *Corrective Action Report*.

Thanks,
Leona

From: Robinson, Kelly [mailto:Kelly.Robinson@wnr.com]
Sent: Thursday, April 07, 2016 6:23 AM
To: Tsinnajinnie, Leona, NMENV
Cc: Dhawan, Neelam, NMENV; Cobrain, Dave, NMENV; Chavez, Carl J, EMNRD; Schmaltz, Randy; Krakow, Matt; Powell, Brandon, EMNRD
Subject: Corrective Action Report

Good Afternoon Ma'am,

In response to an oil leak originally reported to NMED-HWB and NMOCD on Saturday, March 5th, 2016, Western is submitting this Corrective Action Report summarizing the activities completed to-date. This Report is being submitted as an attachment to a revised

C-141 Initial Report NMOCD has requested previously. The Report documents the excavation activities completed to-date, results from confirmation samples collected within the excavation area, and diagrams/photos showing the physical extent of the excavation.

As you will see in the Report, the excavation efforts were completed to the extent possible at this time. Due to the proximity of existing facility equipment and process piping, Western is no longer able to remove any additional soils safety. Western is requesting permission to suspend any further corrective actions until such time that the active process piping/equipment are removed to provide safe access to the area. This is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting that the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order. In addition, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as a secondary containment for active facility process equipment, and exposed active piping is being temporarily supported. Western believes the immediate threat this release had to the area has been removed by the excavation activities completed to-date. The remaining corrective actions would be best complete at a later date when the area is more accessible in a safe manner.

We would be more than happy to discuss this matter with you via a conference call to help facilitate NMED's review of the event, if so desired. Please let us know if you have any questions, or if you need any additional information not otherwise provided in this report. A hardcopy of this report is being sent to you, as well as to the OCD District Office and OCD Santa Fe Office.

Thank you for your time!

Sincerely,

Kelly R. Robinson | Environmental
Western Refining | 111 County Road 4990 | Bloomfield, NM87413
(o) 505-632-4166 | (c) 505-801-5616 | (e) kelly.robinson@wnr.com

Chavez, Carl J, EMNRD

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Cc: Dhawan, Neelam, NMENV; Cobrain, Dave, NMENV; Chavez, Carl J, EMNRD; Schmaltz, Randy; Krakow, Matt; Powell, Brandon, EMNRD
Subject: Corrective Action Report
Attachments: Corrective Action Report.pdf

Good Afternoon Ma'am,

In response to an oil leak originally reported to NMED-HWB and NMOCD on Saturday, March 5th, 2016, Western is submitting this Corrective Action Report summarizing the activities completed to-date. This Report is being submitted as an attachment to a revised C-141 Initial Report NMOCD has requested previously. The Report documents the excavation activities completed to-date, results from confirmation samples collected within the excavation area, and diagrams/photos showing the physical extent of the excavation.

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Thank you for your time!

Sincerely,

Kelly R. Robinson | Environmental
Western Refining | 111 County Road 4990 | Bloomfield, NM87413
(o) 505-632-4166 | (c) 505-801-5616 | (e) kelly.robinson@wnr.com

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report (Revised) ☐ Final Report

Name of Company: Western Refining Southwest, Inc.	Contact: Kelly Robinson
Address: 50 Road 4990	Telephone No.: 505-632-4166
Facility Name: Bloomfield Terminal	Facility Type: Products Terminal

Surface Owner: Western Refining Southwest, Inc.	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	27	29N	11W					

Latitude 36° 41' 45"N **Longitude** 107° 58' 12" W

NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: Unknown	Volume Recovered: 8 barrels
Source of Release: Crude Line Release Underground	Date and Hour of Occurrence: unknown	Date and Hour of Discovery: 3/05/2016 at 2am
Was Immediate Notice Given? ☒ Yes ☐ No ☒ Not Required	If YES, To Whom? Cory Smith (NMOCD-Aztec) Carl Chavez (NMED–Santa Fe) Leona Tsinnajinnie (NMED-HWB) Dave Cobrain (NMED-HWB) Neelam Dhawan (NMED-HWB)	
By Whom? : Kelly Robinson	Date and Hour : 03/05/2016 at 2:56 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

At approximately 2am on Saturday, March 5th, 2016, Western Operations identified a small 3-gallon accumulation of crude oil on ground surface within the secondary containment of Tank 41. Based on the location of the surface stain, the release was initially thought to be associated with the wet oil system. Operations took immediate action in shutting down the wet oil system. By 7am the same day, Maintenance arrived on-site and worked to expose the source of the oil release. By 11am, Maintenance identified the source of the oil release to be a breach in the crude unloading pipeline. The pipeline is located approximately 3 ft below grade surface. The line was able to be isolated and a temporary repair was installed by 12:15pm.

Describe Area Affected and Cleanup Action Taken.*

Excess liquids were collected using an on-site vacuum truck. The recovered oil was sent through the on-site wastewater treatment system for oil recovery. The oil release came from an underground pipeline that is located within the secondary containment of Tanks 41. As of 12:15pm this afternoon, temporary repairs have been completed on the pipeline. Surface soil impacts are localized to an area within the secondary containment of Tank 41. This crude oil release took place in an area previously investigated under an active Consent Order issued through New Mexico Hazardous Waste Bureau (NMED-HWB). Western will be coordinating with the NMED-HWB on implementing corrective actions pursuant to the condition of the Consent Order.

Updated April 6, 2016: Attached is a Corrective Action Report documenting in-detail the corrective action completed to-date. Due to the proximity of existing equipment within the excavation area, Western is no longer able to remove additional soils safely. Therefore, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as secondary containment for active in-service equipment. In addition, this is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Kelly Robinson	OIL CONSERVATION DIVISION	
Printed Name: Kelly Robinson	Approved by Environmental Specialist:	
Title: Environmental Manager - Logistics	Approval Date:	Expiration Date:
E-mail Address: Kelly.Robinson@wnr.com	Conditions of Approval:	Attached ☐
Date: 4-6-2016 Phone: (505) 632-4166		

* Attach Additional Sheets If Necessary

CORRECTIVE ACTION REPORT
Western Refining – Bloomfield Terminal

Cause of the Release

On Saturday, March 5th, 2016 at approximately 2am, the Operator on-duty at the Western Refining Bloomfield Terminal noticed a small stain of crude oil adjacent (east) of the Tank 42a/42b secondary containment pad. This area is located within the southern portion of the facility, south of highway 4990. The operator used absorbent material to soak-up the oil, and notified the Terminal Operations Manager. By 8am that same day, Maintenance personnel arrived on-scene to investigate the source of the stain. Using a backhoe, Western was able to identify a small leak in a 3-inch insulated crude oil pipeline used to convey crude oil from the Wet Oil System (Tank 41) to the facility Tank Farm area. The location of where the repair was made on the pipeline is approximately 10 to 15 feet east of where the crude oil surfaced. The pipeline was insulated with a fiberglass wrap, which likely was the reason why the oil released to surface slightly adjacent to the leak source location. Maintenance was able to isolate the line and repair the leak with a temporary clamp. The pipeline was returned to service by 12 noon on Saturday, March 5th, 2016. An initial notification of the release event was submitted to the New Mexico Oil Conservation Division (NMOCD) and New Mexico Environment Department – Hazardous Waste Bureau (NMED-HWB) on March 5th, 2016. The approximate location of where the release occurred within the facility boundary and the footprint of the excavation to-date is shown in Diagram 1 and Diagram 2, respectively.

Corrective Actions

Western contracted with Adobe Construction ("Adobe") to perform the excavation effort, and with LT Environmental to provide environmental over-site of the excavation efforts. Excavation activities commenced on Wednesday, March 9th, 2016 following clearance to dig through the New Mexico One Call System. The initial effort involved hand-digging to expose any existing pipelines within the area. Three additional pipelines were located within the excavation area. These additional lines have been confirmed by Operations to be out-of-service. Once the pipelines were exposed, a backhoe was used to progress the excavation effort. Field monitoring was conducted using a Photo Ionization Detector (PID) meter. The PID readings assisted in identifying the areas for which additional excavation was needed.

The excavation area was limited by the existing in-service aboveground pipelines to the north and east, existing concrete containment for in-service tanks to the west, and an existing tank to the south. Photo 1 and Photo 2 shows the adjacent facility equipment around the perimeter of the excavated area. Due to the restrictions from the existing structures, the lateral extent of the excavation was approximately 26 feet East – West and 12 feet North-South. The benching on the south side of the excavation was done to allow for means of egress for additional hand-digging around the pipelines.

The PID readings showing the surface concentrations as of March 14, 2016 are shown on Diagram #3. The diagram shows the relative depth below original grade in feet, and the corresponding PID reading in parts per million (ppm). The excavation had reached approximately 7.5 ft within eastern portion of the

excavation. This was accomplished utilizing a combination of excavation by backhoe and hand-digging. The west side was benched down approximately 2.5 feet, providing the backhoe an area to reach between the pipelines. PID readings were collected periodically as the excavation activities progressed. Along the north western portion of the excavation, there was an area of sandy soils exhibiting higher organic concentrations as observed using the PID. The excavation extended down deeper in this location, creating a hole approximately 3 feet by 2 feet by 13 feet deep (the maximum reach of the equipment used for excavation).

Between March 14th and March 16th, 2016, additional soils were removed, targeting areas higher than 300 pppm. Sidewall field readings indicated that the deeper hole needed to be extended laterally to the extent possible with the equipment used while taking into consideration the adjacent pipelines. Up-dated PID readings of the excavated area as of March 16th, 2016 are shown on Diagram #4. Due to adjacent facility equipment and concerns of being able to safely support the active pipeline that crosses the excavation, no additional soils were able to be removed at this time.

Between March 14th and March 16, 2016, 5-point composite samples were collected to characterize the North, South, East, West excavation walls. In addition, two 5-point composite samples were collected from the excavation base, with one sample collected at the bottom of the deepest excavation base. The samples were analyzed for the following:

- Total Petroleum Hydrocarbons (TPH) – Gasoline Range Organics (GRO) by EPA Method 8015
- TPH – Diesel Range Organics (DRO) by EPA Method 8015
- TPH- Motor Oil Range Organics (MRO) by EPA Method 8015
- Total Metals by EPA Method 6010B
- Volatile Organic Compounds (VOCs) by EPA Method 8260B
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C

A summary of the analytical results are provided in Table 1, and a copy of the analytical results are provided as an Appendix to this Report.

Waste Characterization

Excavated soils were temporarily stock-piled on-site during excavation activities. Approximately 80 yards of impacts soils were removed from the excavation. A composite sample was collected and analyzed for the following:

- TCLP VOCs by EPA Method 8260B
- TCLP SVOCs by EPA Method 8270C
- TCLP RCRA 8 Metals by EPA Method 6010B
- TPH-GRO by EPA Method 8015
- TPH-DRO by EPA Method 8015
- TPH-MRO by EPA Method 8015

The analytical results show that the material is classified as non-hazardous non-exempt waste. The waste was sent to the Envirotech landfarm for treatment and disposal. A copy of the waste characterization analytical report is provided in Appendix A.

Recommendations

The analytical results show that the north and south lateral extent of the impacted area has been defined. The remaining soils along the north and south boundary of the excavation area exhibit concentrations below the most conservative clean-up levels pursuant to the New Mexico Oil Conservation Division *Guidelines for Remediation of Leaks, Spill and Releases* dated August 13, 1993.

Confirmation samples collected from the west, east, and excavation base show that the residual soil concentrations are above the OCD clean-up levels for closure. However, the remaining soils no longer exhibit visual saturation staining. Due to the proximity of existing equipment within the excavation area, Western is no longer able to remove additional soils safely.

With this said, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as secondary containment for active in-service equipment. In addition, this is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order.

PHOTOS

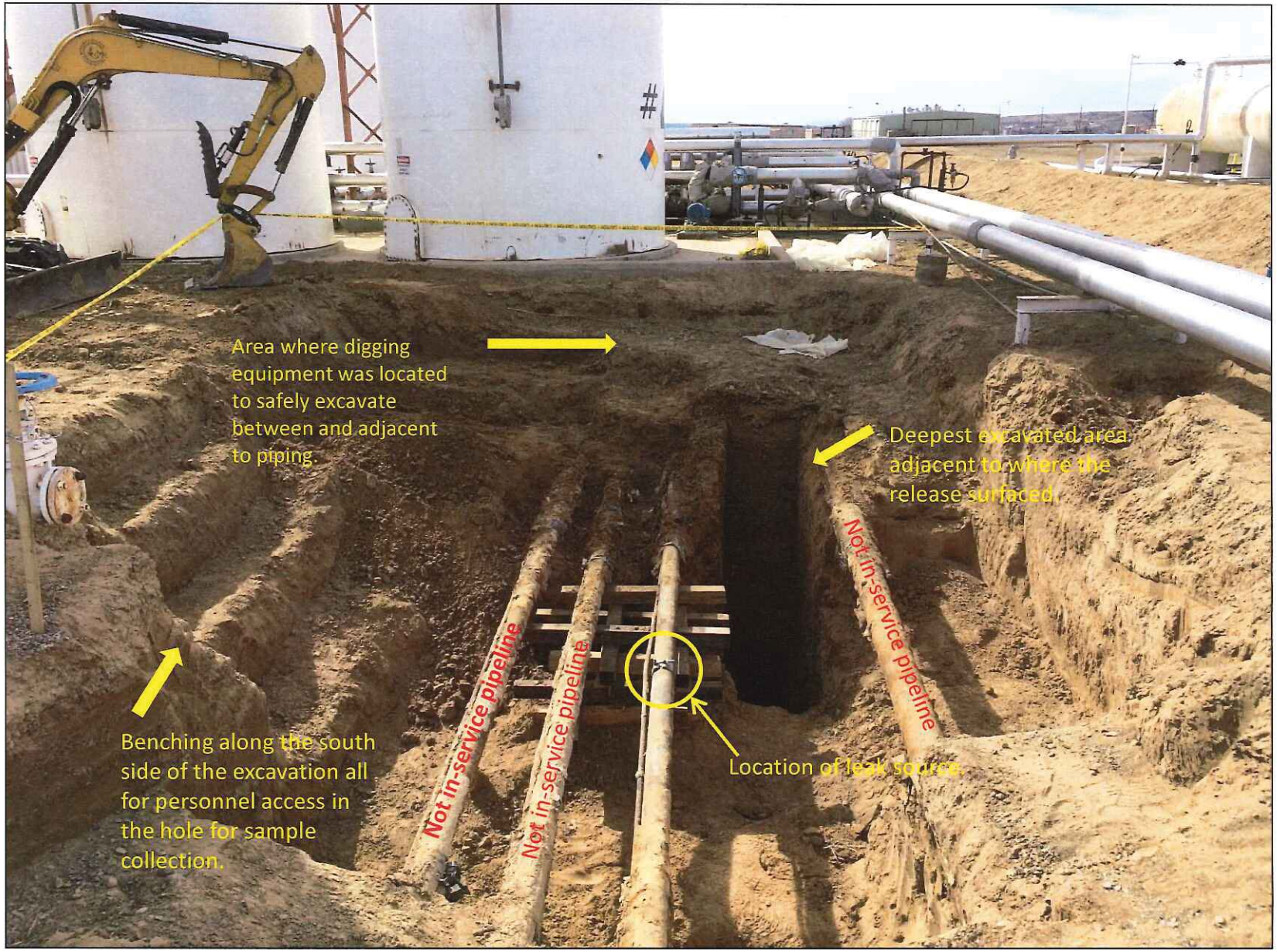
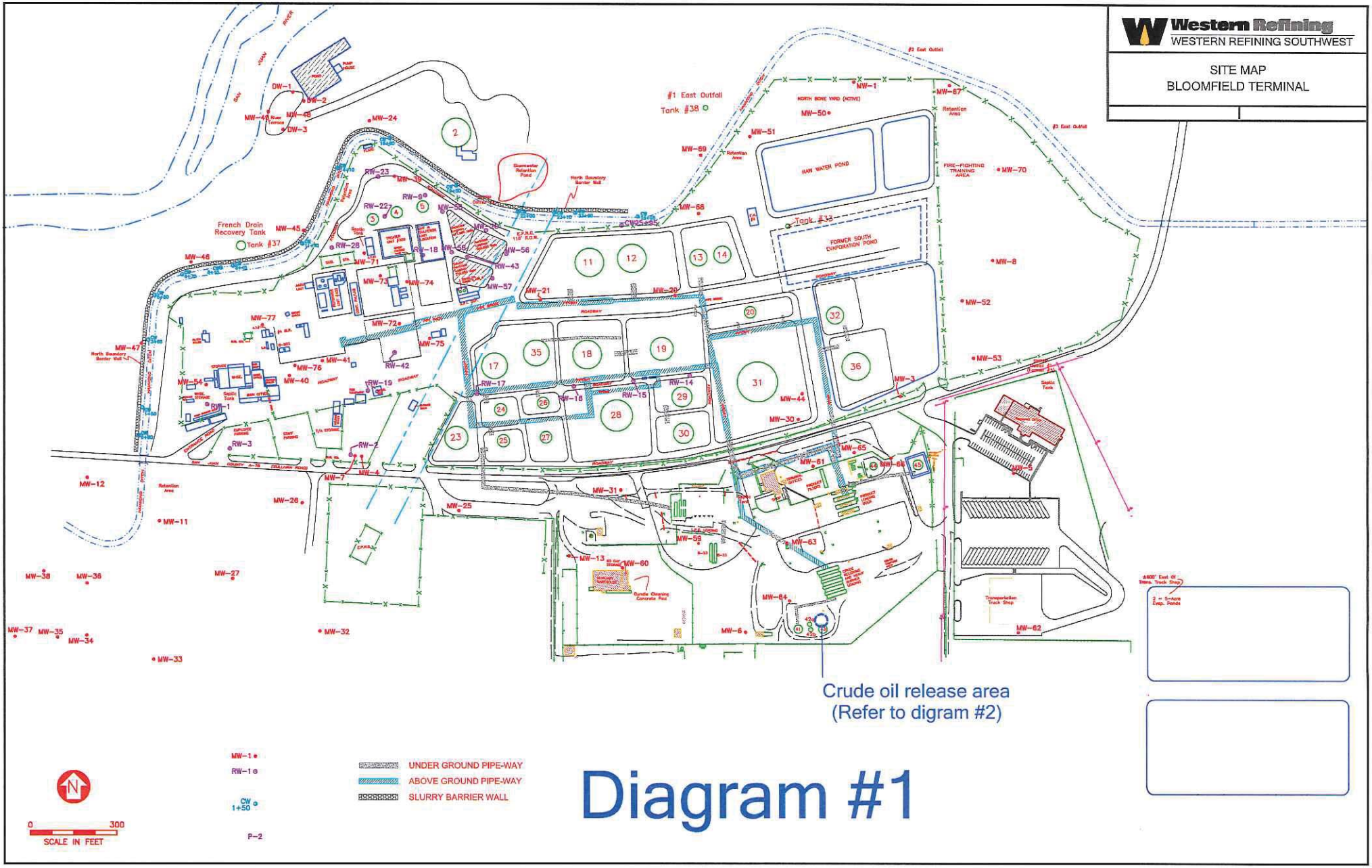
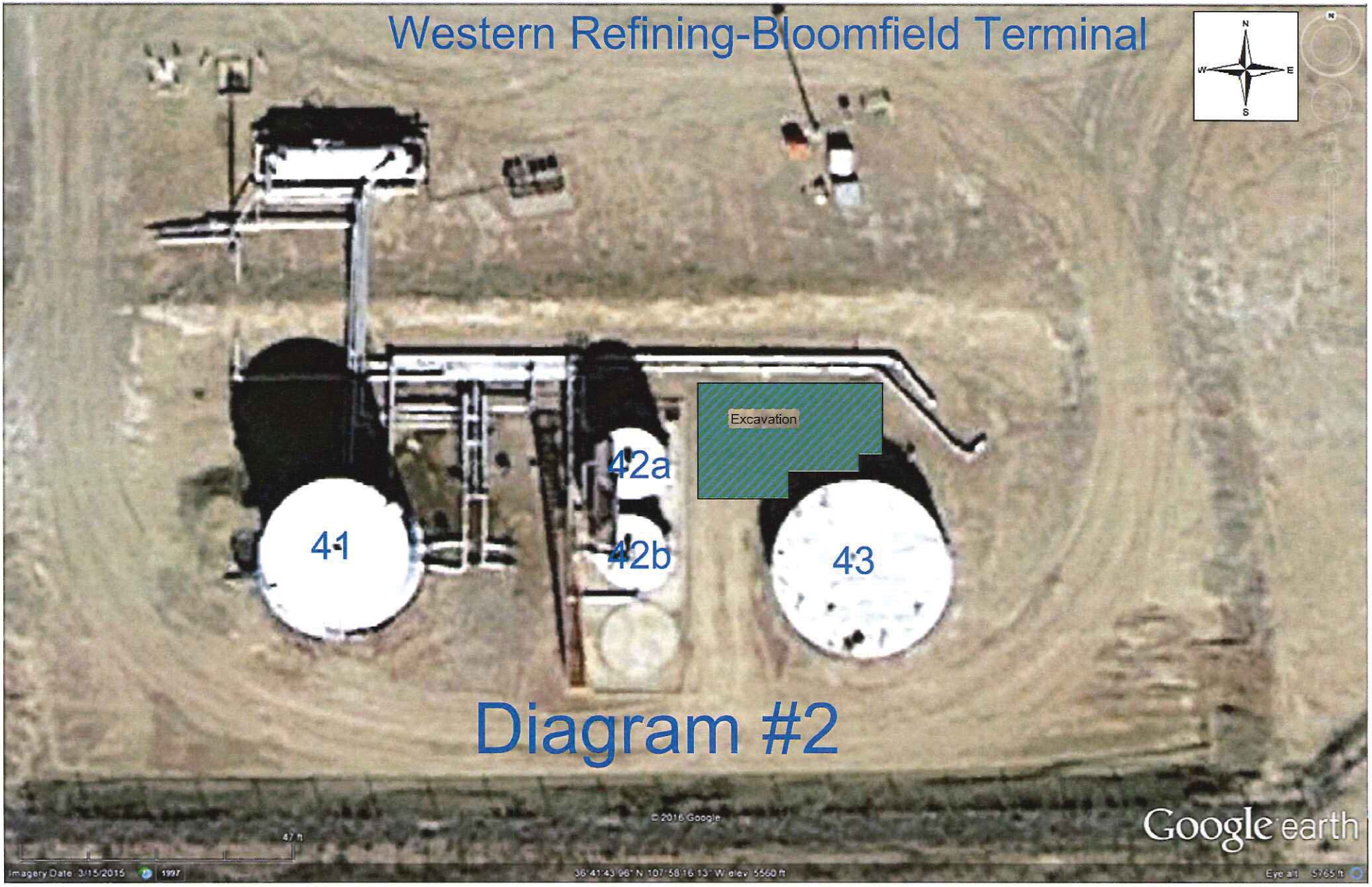


Photo 1: View of excavation as of March 14, 2016 looking west.

Photos 2: View of excavation as of March 14, 2016 looking east.

DIAGRAMS


Western Refining
WESTERN REFINING SOUTHWEST
SITE MAP
BLOOMFIELD TERMINAL
Crude oil release area
(Refer to digram #2)
UNDER GROUND PIPE-WAY
ABOVE GROUND PIPE-WAY
SLURRY BARRIER WALL
SCALE IN FEET
0
300
Diagram #1


Western Refining-Bloomfield Terminal
N
W
E
S
Excavation
42a
41
42b
43
Diagram #2
© 2016 Google
Google earth

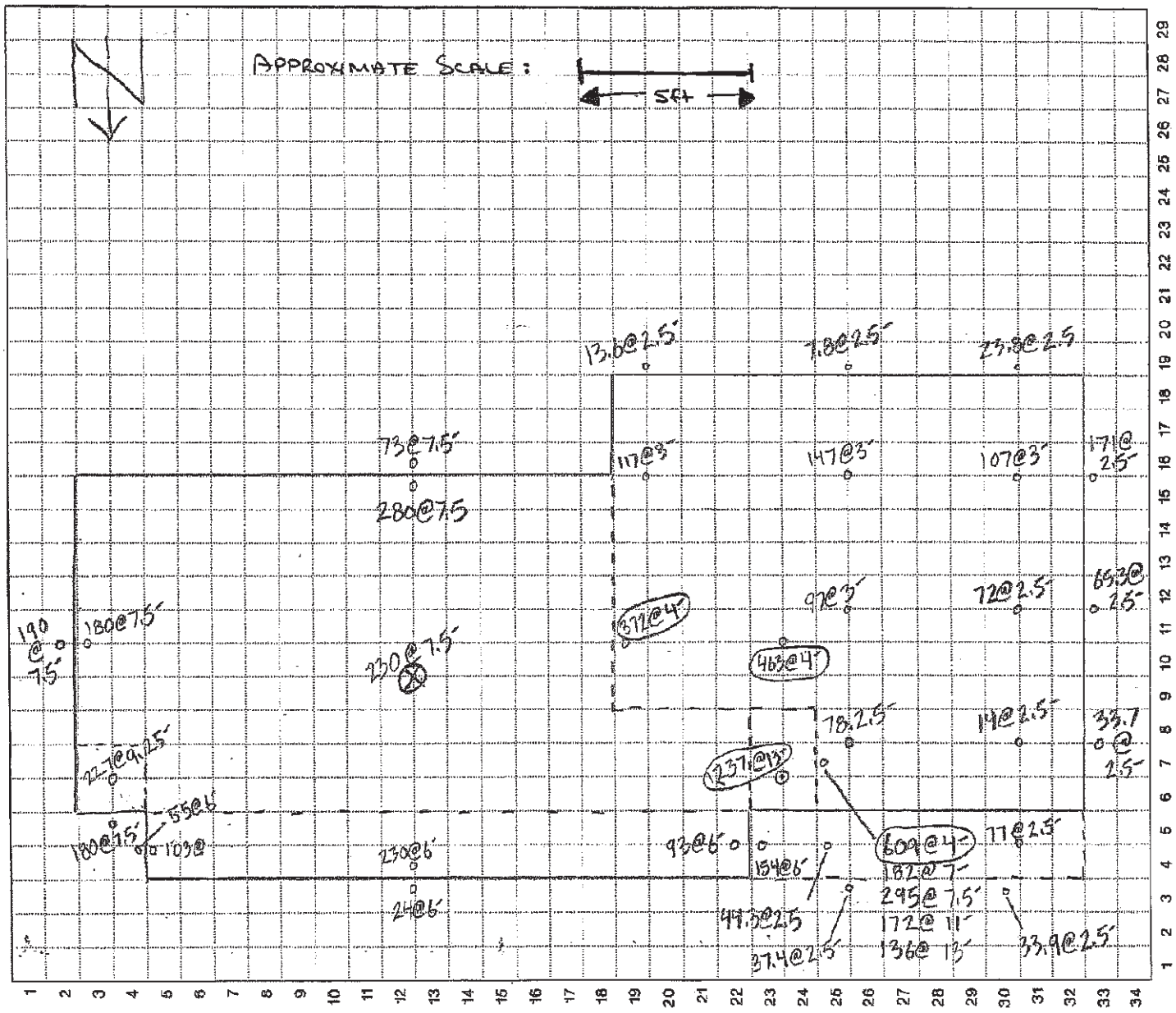


Diagram 3: Extent of excavation as of March 14, 2016. The diagram shows the PID reading in parts per million (ppm) with the corresponding depth below original grade surface in feet.

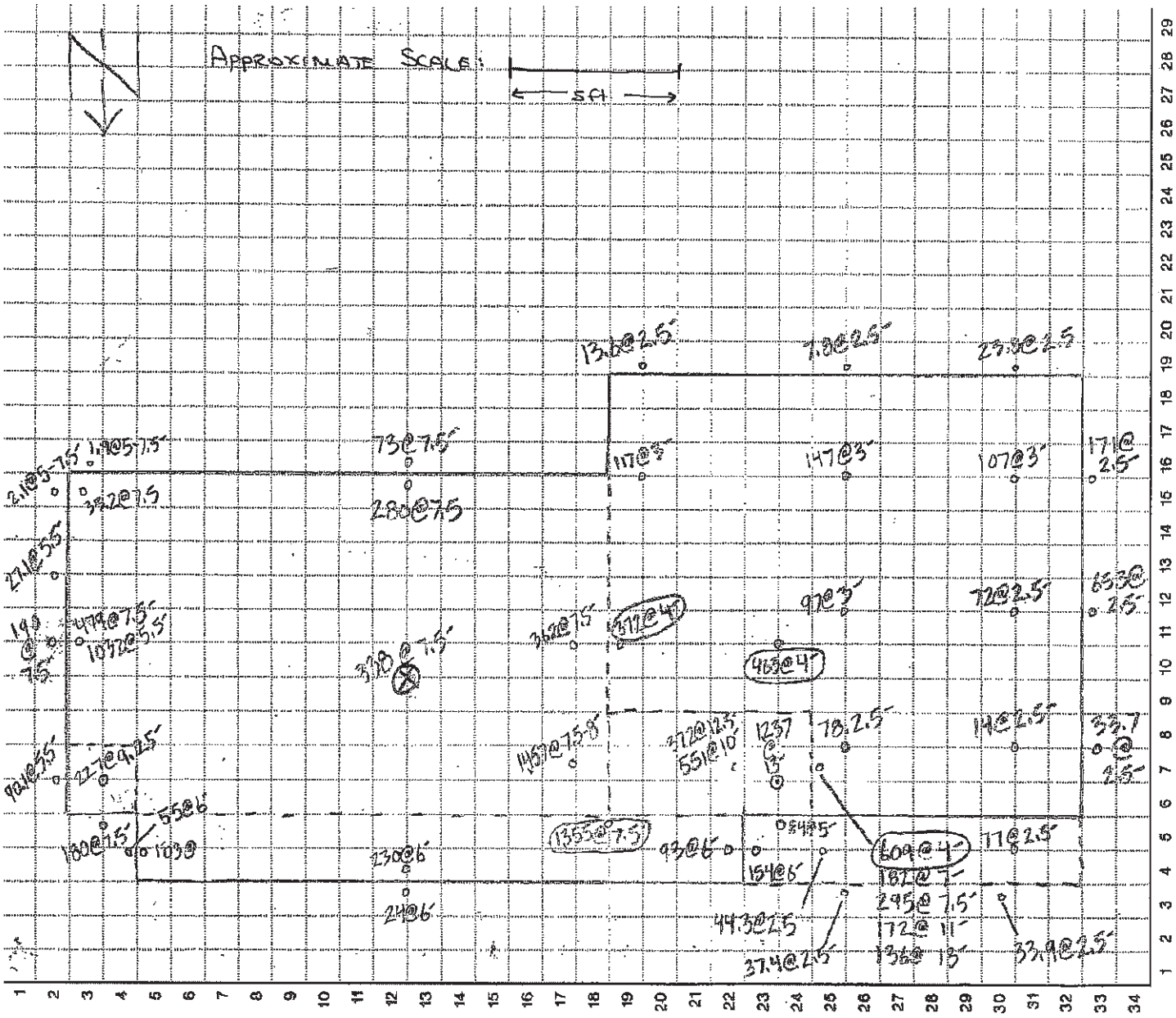


Diagram 4: Extent of excavation as of March 16, 2016. The diagram shows the PID reading in parts per million (ppm) with the corresponding depth below original grade surface in feet.

TABLES

TABLE 1
Analytical Summary of Confirmation Sample Results

			Sample IDs					
	Analytical Method	OCD Clean-up Levels [2]	E Wall	Floor	N Wall	NW Pothole @ 14'	S Wall	W Wall
Diesel Range Organics (DRO)	SW8015		760	3500	< 11	17	27	4600
Gasoline Range Organics (GRO)	SW8015	100	2300	5600	< 5.2	12	< 4.9	4000
Motor Oil Range Organics (MRO)	SW8015		280	1300	< 54	< 54	68	1800
Total TPH		100	3340	10400	ND	29	95	10400
Benzene	SW8021	10	6.2	14	< 0.026	< 0.018	< 0.025	15
Ethylbenzene	SW8021		11	26	< 0.052	0.065	< 0.049	18
Toluene	SW8021		64	150	< 0.052	0.11	< 0.049	100
Xylenes, Total	SW8021		100	240	< 0.10	0.71	< 0.099	160
BTEX	Total	50	181.2	430	ND	ND	ND	293
Arsenic	SW6010B		< 2.6	< 2.7	**3.1**	< 2.6	< 2.7	< 2.7
Barium	SW6010B		**82**	**150**	**230**	**30**	**130**	**160**
Cadmium	SW6010B		< 0.11	< 0.11	< 0.11	< 0.10	< 0.11	< 0.11
Chromium	SW6010B		**4.3**	**4.5**	**6.3**	**2.5**	**4.8**	**5.3**
Lead	SW6010B		**3.8**	**4.2**	**5.0**	**2.4**	**4.0**	**3.8**
Selenium	SW6010B		< 2.6	< 2.7	< 2.9	< 2.6	< 2.7	< 2.7
Silver	SW6010B		< 0.26	< 0.27	< 0.29	< 0.26	< 0.27	< 0.27
Mercury	SW7471		< 0.035	< 0.035	< 0.037	< 0.034	< 0.035	< 0.036
1,1,1,2-Tetrachloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,1-Trichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,2,2-Tetrachloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,2-Trichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloroethene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloropropene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,3-Trichlorobenzene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,3-Trichloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,4-Trichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2,4-Trimethylbenzene	SW8260B		**14**	**56**	< 0.056	< 0.050	< 0.052	**28**
1,2-Dibromo-3-chloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2-Dibromoethane (EDB)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichloroethane (EDC)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichloropropane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,3,5-Trimethylbenzene	SW8260B		**6.7**	**27**	< 0.056	< 0.050	< 0.052	**13**
1,3-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,3-Dichloropropane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,4-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1-Methylnaphthalene	SW8260B		**2.4**	**8.9**	< 0.23	< 0.20	< 0.21	**6.3**
2,2-Dichloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
2-Butanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
2-Chlorotoluene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
2-Hexanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
2-Methylnaphthalene	SW8260B		**3.7**	**14**	< 0.23	< 0.20	< 0.21	**9.5**
4-Chlorotoluene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
4-Isopropyltoluene	SW8260B		**0.80**	**3.3**	< 0.056	< 0.050	< 0.052	**1.7**
4-Methyl-2-pentanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
Acetone	SW8260B		< 7.7	< 15	< 0.84	< 0.75	< 0.79	< 16
Benzene	SW8260B		**1.6**	**13**	< 0.028	< 0.025	< 0.026	**7.2**
Bromobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromodichloromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromoform	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromomethane	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
Carbon disulfide	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
Carbon tetrachloride	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chloroethane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
Chloroform	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chloromethane	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
cis-1,2-DCE	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
cis-1,3-Dichloropropene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dibromochloromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dibromomethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dichlorodifluoromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Ethylbenzene	SW8260B		**5.8**	**27**	< 0.056	< 0.050	< 0.052	**9.3**
Hexachlorobutadiene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
Isopropylbenzene	SW8260B		**1.4**	**6.2**	< 0.056	< 0.050	< 0.052	**2.6**
Methyl tert-butyl ether (MTBE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Methylene chloride	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
Naphthalene	SW8260B		**1.9**	**7.2**	< 0.11	< 0.10	< 0.10	**4.4**
n-Butylbenzene	SW8260B		< 1.5	**3.5**	< 0.17	< 0.15	< 0.16	< 3.1
n-Propylbenzene	SW8260B		**2.2**	**9.6**	< 0.056	< 0.050	< 0.052	**4.3**
sec-Butylbenzene	SW8260B		**0.72**	**3.0**	< 0.056	< 0.050	< 0.052	**1.5**
Styrene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
tert-Butylbenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Tetrachloroethene (PCE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Toluene	SW8260B		29	180	< 0.056	< 0.050	< 0.052	**52**
trans-1,2-DCE	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
trans-1,3-Dichloropropene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Trichloroethene (TCE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Trichlorofluoromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0

TABLE 1
Analytical Summary of Confirmation Sample Results

	Analytical Method	OCD Clean-up Levels [2]	Sample IDs					
			E Wall	Floor	N Wall	NW Pothole @ 14'	S Wall	W Wall
Vinyl chloride	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Xylenes, Total	SW8260B		**57**	**270**	< 0.11	< 0.10	< 0.10	**88**
1,2,4-Trichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,2-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,3-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,4-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1-Methylnaphthalene	SW8270C		< 2.2	**5.4**	< 2.3	< 0.21	< 2.2	**3.0**
2,4,5-Trichlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2,4,6-Trichlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2,4-Dichlorophenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
2,4-Dimethylphenol	SW8270C		< 3.2	< 3.3	< 3.4	< 0.32	< 3.3	< 3.3
2,4-Dinitrophenol	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2,4-Dinitrotoluene	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2,6-Dinitrotoluene	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2-Chloronaphthalene	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
2-Chlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2-Methylnaphthalene	SW8270C		**2.9**	**9.5**	< 2.3	< 0.21	< 2.2	4.6
2-Methylphenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
2-Nitroaniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2-Nitrophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
3,3'-Dichlorobenzidine	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
3+4-Methylphenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
3-Nitroaniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4,6-Dinitro-2-methylphenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
4-Bromophenyl phenyl ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4-Chloro-3-methylphenol	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
4-Chloroaniline	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
4-Chlorophenyl phenyl ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4-Nitroaniline	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
4-Nitrophenol	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
Acenaphthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Acenaphthylene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Aniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Azobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benz(a)anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(a)pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(b)fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(g,h,i)perylene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(k)fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzoic acid	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
Benzyl alcohol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroethoxy)methane	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroethyl)ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroisopropyl)ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-ethylhexyl)phthalate	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
Butyl benzyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Carbazole	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Chrysene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dibenz(a,h)anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dibenzofuran	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Diethyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dimethyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Di-n-butyl phthalate	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Di-n-octyl phthalate	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Fluorene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorobutadiene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorocyclopentadiene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachloroethane	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Indeno(1,2,3-cd)pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Isophorone	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Naphthalene	SW8270C		< 2.2	**3.5**	< 2.3	< 0.21	< 2.2	< 2.2
Nitrobenzene	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
N-Nitrosodi-n-propylamine	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
N-Nitrosodiphenylamine	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pentachlorophenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Phenanthrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Phenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pyridine	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4

Notes:

1. All analytical results are reporting in units of milligrams per kilograms (mg/kg)
2. Clean-up standards are pursuant to the NMOCD Guidelines for Remediation of Leaks, Spills, and Releases dated August 13, 1993.

APPENDIX A

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 25, 2016

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Bloomfield Terminal OrderNo.: 1603878

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/17/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-001 **Matrix:** SOIL

Client Sample ID: NW Pothole @ 14'
Collection Date: 3/14/2016 1:20:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dibenz(a,h)anthracene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dibenzofuran	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,2-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,3-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,4-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3,3'-Dichlorobenzidine	ND	0.26		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Diethyl phthalate	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dimethyl phthalate	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dichlorophenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dimethylphenol	ND	0.32		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4,6-Dinitro-2-methylphenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dinitrophenol	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dinitrotoluene	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,6-Dinitrotoluene	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Fluoranthene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Fluorene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorobutadiene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorocyclopentadiene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachloroethane	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Indeno(1,2,3-cd)pyrene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Isophorone	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1-Methylnaphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Methylnaphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Methylphenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3+4-Methylphenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
N-Nitrosodi-n-propylamine	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
N-Nitrosodiphenylamine	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Naphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Nitroaniline	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3-Nitroaniline	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4-Nitroaniline	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Nitrobenzene	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Nitrophenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4-Nitrophenol	ND	0.26		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Pentachlorophenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Phenanthrene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Phenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-001 **Matrix:** SOIL

Client Sample ID: NW Pothole @ 14'
Collection Date: 3/14/2016 1:20:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dibromochloromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dibromomethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,3-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,4-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dichlorodifluoromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloroethene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2-Dichloropropane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,3-Dichloropropane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
2,2-Dichloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloropropene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Hexachlorobutadiene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
2-Hexanone	ND	0.50		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Isopropylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
4-Isopropyltoluene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
4-Methyl-2-pentanone	ND	0.50		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Methylene chloride	ND	0.15		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
n-Butylbenzene	ND	0.15		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
n-Propylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
sec-Butylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Styrene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
tert-Butylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Tetrachloroethene (PCE)	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
trans-1,2-DCE	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
trans-1,3-Dichloropropene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,1-Trichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,2-Trichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Trichloroethene (TCE)	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Trichlorofluoromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,3-Trichloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Vinyl chloride	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Surr: Dibromofluoromethane	103	70-130		%Rec	1	3/18/2016 5:30:34 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** N Wall
Project: Bloomfield Terminal **Collection Date:** 3/14/2016 1:40:00 PM
Lab ID: 1603878-002 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	12	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.037		mg/Kg-dry	1	3/22/2016 5:44:27 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	3.1	2.9		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Barium	230	0.11		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Chromium	6.3	0.34		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Lead	5.0	0.29		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Selenium	ND	2.9		mg/Kg-dry	1	3/24/2016 6:07:45 AM	24353
Silver	ND	0.29		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Acenaphthylene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Aniline	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Anthracene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Azobenzene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benz(a)anthracene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(a)pyrene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(b)fluoranthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(g,h,i)perylene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(k)fluoranthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzoic acid	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzyl alcohol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroethoxy)methane	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroethyl)ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Bromophenyl phenyl ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Butyl benzyl phthalate	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Carbazole	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chloro-3-methylphenol	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chloroaniline	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2-Chloronaphthalene	ND	2.8	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2-Chlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chlorophenyl phenyl ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Chrysene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Di-n-butyl phthalate	ND	4.5	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-002 **Matrix:** SOIL

Client Sample ID: N Wall
Collection Date: 3/14/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Pyridine	ND	4.5	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
1,2,4-Trichlorobenzene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2,4,5-Trichlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2,4,6-Trichlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	0.028		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Toluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Ethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Methyl tert-butyl ether (MTBE)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2,4-Trimethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,3,5-Trimethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2-Dichloroethane (EDC)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2-Dibromoethane (EDB)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Naphthalene	ND	0.11		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1-Methylnaphthalene	ND	0.23		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Methylnaphthalene	ND	0.23		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Acetone	ND	0.84		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromobenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromodichloromethane	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromoform	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromomethane	ND	0.17		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Butanone	ND	0.56		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Carbon disulfide	ND	0.56		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Carbon tetrachloride	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chlorobenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloroethane	ND	0.11		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloroform	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloromethane	ND	0.17		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Chlorotoluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
4-Chlorotoluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
cis-1,2-DCE	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
cis-1,3-Dichloropropene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-002 **Matrix:** SOIL

Client Sample ID: N Wall
Collection Date: 3/14/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321
Surr: Toluene-d8	101	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** E Wall
Project: Bloomfield Terminal **Collection Date:** 3/15/2016 2:20:00 PM
Lab ID: 1603878-003 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dibenz(a,h)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dibenzofuran	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,2-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,3-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,4-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3,3'-Dichlorobenzidine	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Diethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dimethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dichlorophenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dimethylphenol	ND	3.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4,6-Dinitro-2-methylphenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dinitrophenol	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dinitrotoluene	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,6-Dinitrotoluene	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Fluorene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorobutadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorocyclopentadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachloroethane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Indeno(1,2,3-cd)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Isophorone	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Methylnaphthalene	2.9	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Methylphenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3+4-Methylphenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
N-Nitrosodi-n-propylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
N-Nitrosodiphenylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Naphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4-Nitroaniline	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Nitrobenzene	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Nitrophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4-Nitrophenol	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Pentachlorophenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Phenanthrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Phenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** E Wall
Project: Bloomfield Terminal **Collection Date:** 3/15/2016 2:20:00 PM
Lab ID: 1603878-003 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dibromochloromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dibromomethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,3-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,4-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dichlorodifluoromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloroethene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2-Dichloropropane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,3-Dichloropropane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
2,2-Dichloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloropropene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Hexachlorobutadiene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
2-Hexanone	ND	5.1		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Isopropylbenzene	1.4	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
4-Isopropyltoluene	0.80	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
4-Methyl-2-pentanone	ND	5.1		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Methylene chloride	ND	1.5		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
n-Butylbenzene	ND	1.5		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
n-Propylbenzene	2.2	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
sec-Butylbenzene	0.72	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Styrene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
tert-Butylbenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Tetrachloroethene (PCE)	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
trans-1,2-DCE	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
trans-1,3-Dichloropropene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,3-Trichlorobenzene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,4-Trichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,1-Trichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,2-Trichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Trichloroethene (TCE)	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Trichlorofluoromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,3-Trichloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Vinyl chloride	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Xylenes, Total	57	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Surr: Dibromofluoromethane	99.3	70-130		%Rec	10	3/21/2016 2:11:56 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603878-004 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	7.7	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.035		mg/Kg-dry	1	3/22/2016 5:48:00 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.7		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Barium	150	0.11		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Chromium	4.5	0.32		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Lead	4.2	0.27		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Selenium	ND	2.7		mg/Kg-dry	1	3/24/2016 6:12:32 AM	24353
Silver	ND	0.27		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Acenaphthylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Aniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Azobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benz(a)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(a)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(b)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(g,h,i)perylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(k)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzoic acid	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzyl alcohol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroethoxy)methane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroethyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Bromophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Butyl benzyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Carbazole	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chloro-3-methylphenol	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chloroaniline	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2-Chloronaphthalene	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2-Chlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chlorophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Chrysene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Di-n-butyl phthalate	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603878-004 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Pyridine	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
1,2,4-Trichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2,4,5-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2,4,6-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	13	0.50		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Toluene	180	5.0		mg/Kg-dry	100	3/22/2016 7:09:36 AM	24321
Ethylbenzene	27	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Methyl tert-butyl ether (MTBE)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2,4-Trimethylbenzene	56	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,3,5-Trimethylbenzene	27	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2-Dichloroethane (EDC)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2-Dibromoethane (EDB)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Naphthalene	7.2	2.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1-Methylnaphthalene	8.9	4.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Methylnaphthalene	14	4.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Acetone	ND	15		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromodichloromethane	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromoform	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromomethane	ND	3.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Butanone	ND	10		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Carbon disulfide	ND	10		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Carbon tetrachloride	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chlorobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloroethane	ND	2.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloroform	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloromethane	ND	3.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
4-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
cis-1,2-DCE	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
cis-1,3-Dichloropropene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-004 **Matrix:** SOIL

Client Sample ID: Floor
Collection Date: 3/16/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	97.9	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321
Surr: Toluene-d8	107	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321
Surr: 4-Bromofluorobenzene	120	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-005 **Matrix:** SOIL

Client Sample ID: S Wall
Collection Date: 3/16/2016 1:50:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dibenz(a,h)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dibenzofuran	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,2-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,3-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,4-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3,3'-Dichlorobenzidine	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Diethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dimethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dichlorophenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dimethylphenol	ND	3.3	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4,6-Dinitro-2-methylphenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dinitrophenol	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dinitrotoluene	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,6-Dinitrotoluene	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Fluorene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorobutadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorocyclopentadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachloroethane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Indeno(1,2,3-cd)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Isophorone	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Methylphenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3+4-Methylphenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
N-Nitrosodi-n-propylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
N-Nitrosodiphenylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Naphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4-Nitroaniline	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Nitrobenzene	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Nitrophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4-Nitrophenol	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Pentachlorophenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Phenanthrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Phenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** S Wall
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:50:00 PM
Lab ID: 1603878-005 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dibromochloromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dibromomethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,3-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,4-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dichlorodifluoromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloroethene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2-Dichloropropane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,3-Dichloropropane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
2,2-Dichloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloropropene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Hexachlorobutadiene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
2-Hexanone	ND	0.52		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Isopropylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
4-Isopropyltoluene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
4-Methyl-2-pentanone	ND	0.52		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Methylene chloride	ND	0.16		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
n-Butylbenzene	ND	0.16		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
n-Propylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
sec-Butylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Styrene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
tert-Butylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Tetrachloroethene (PCE)	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
trans-1,2-DCE	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
trans-1,3-Dichloropropene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,4-Trichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,1-Trichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,2-Trichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Trichloroethene (TCE)	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Trichlorofluoromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,3-Trichloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Vinyl chloride	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Surr: Dibromofluoromethane	105	70-130		%Rec	1	3/21/2016 12:46:58 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	9.1	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.036		mg/Kg-dry	1	3/22/2016 5:51:36 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.7		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Barium	160	0.11		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Chromium	5.3	0.33		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Lead	3.8	0.27		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Selenium	ND	2.7		mg/Kg-dry	1	3/24/2016 6:14:59 AM	24353
Silver	ND	0.27		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Acenaphthylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Aniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Azobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benz(a)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(a)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(b)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(g,h,i)perylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(k)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzoic acid	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzyl alcohol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroethoxy)methane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroethyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Bromophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Butyl benzyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Carbazole	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chloro-3-methylphenol	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chloroaniline	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2-Chloronaphthalene	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2-Chlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chlorophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Chrysene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Di-n-butyl phthalate	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Pyridine	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
1,2,4-Trichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2,4,5-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2,4,6-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	7.2	0.52		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Toluene	52	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Ethylbenzene	9.3	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Methyl tert-butyl ether (MTBE)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2,4-Trimethylbenzene	28	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,3,5-Trimethylbenzene	13	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2-Dichloroethane (EDC)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2-Dibromoethane (EDB)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Naphthalene	4.4	2.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1-Methylnaphthalene	6.3	4.2		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Methylnaphthalene	9.5	4.2		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Acetone	ND	16		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromodichloromethane	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromoform	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromomethane	ND	3.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Butanone	ND	10		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Carbon disulfide	ND	10		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Carbon tetrachloride	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chlorobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloroethane	ND	2.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloroform	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloromethane	ND	3.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
4-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
cis-1,2-DCE	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
cis-1,3-Dichloropropene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321
Surr: Toluene-d8	98.0	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321
Surr: 4-Bromofluorobenzene	116	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **mb-24321** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **24321** RunNo: **32918**
Prep Date: **3/17/2016** Analysis Date: **3/18/2016** SeqNo: **1009413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.50		0.5000		101	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.53		0.5000		106	70	130			

Sample ID **lcs-24321** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **24321** RunNo: **32918**
Prep Date: **3/17/2016** Analysis Date: **3/18/2016** SeqNo: **1009414** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.8	70	130			
Toluene	1.0	0.050	1.000	0	99.6	70	130			
Chlorobenzene	0.99	0.050	1.000	0	98.8	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **mb-24350**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **24350**	RunNo: **32992**
Prep Date: **3/21/2016**	Analysis Date: **3/23/2016**	SeqNo: **1013032** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3'-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID **lcs-24350** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**

Client ID: **LCSS** Batch ID: **24350** RunNo: **32992**

Prep Date: **3/21/2016** Analysis Date: **3/23/2016** SeqNo: **1013033** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.20	1.670	0	75.1	45.8	99.8			
4-Chloro-3-methylphenol	2.4	0.50	3.330	0	73.1	51.5	103			
2-Chlorophenol	2.4	0.20	3.330	0	71.4	46.5	105			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	72.2	45.5	103			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	70.8	36	87.2			
N-Nitrosodi-n-propylamine	1.0	0.20	1.670	0	60.4	47.3	104			
4-Nitrophenol	2.7	0.25	3.330	0	80.8	47.3	95.3			
Pentachlorophenol	2.1	0.40	3.330	0	63.9	38.7	89.3			
Phenol	2.4	0.20	3.330	0	72.6	47.8	106			
Pyrene	1.1	0.20	1.670	0	68.7	33.4	105			
1,2,4-Trichlorobenzene	1.4	0.20	1.670	0	85.9	50.4	115			
Surr: 2-Fluorophenol	2.2		3.330		65.3	28.3	102			
Surr: Phenol-d5	2.5		3.330		74.2	35.7	103			
Surr: 2,4,6-Tribromophenol	2.3		3.330		70.4	35.2	108			
Surr: Nitrobenzene-d5	1.3		1.670		79.3	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		77.5	35.4	111			
Surr: 4-Terphenyl-d14	1.2		1.670		71.6	15	91.7			

Sample ID **1603878-001ams** SampType: **MS** TestCode: **EPA Method 8270C: Semivolatiles**

Client ID: **NW Pothole @ 14'** Batch ID: **24350** RunNo: **32992**

Prep Date: **3/21/2016** Analysis Date: **3/23/2016** SeqNo: **1013040** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.21	1.768	0	72.1	27.5	117			
4-Chloro-3-methylphenol	2.8	0.53	3.526	0	78.2	26.3	116			
2-Chlorophenol	2.2	0.21	3.526	0	61.4	21.4	113			
1,4-Dichlorobenzene	0.92	0.21	1.768	0	52.2	25	105			
2,4-Dinitrotoluene	1.4	0.53	1.768	0	76.9	21.1	119			
N-Nitrosodi-n-propylamine	1.0	0.21	1.768	0	58.7	21.3	126			
4-Nitrophenol	2.9	0.26	3.526	0	82.0	21.3	120			
Pentachlorophenol	2.6	0.42	3.526	0	74.6	11.5	115			
Phenol	2.2	0.21	3.526	0	62.7	23	118			
Pyrene	1.4	0.21	1.768	0	76.4	25.7	110			
1,2,4-Trichlorobenzene	1.2	0.21	1.768	0	67.4	31.1	107			
Surr: 2-Fluorophenol	1.7		3.526		49.0	28.3	102			
Surr: Phenol-d5	2.2		3.526		61.9	35.7	103			
Surr: 2,4,6-Tribromophenol	2.5		3.526		71.8	35.2	108			
Surr: Nitrobenzene-d5	1.1		1.768		60.0	24	118			
Surr: 2-Fluorobiphenyl	1.1		1.768		64.3	35.4	111			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID	**MB-24354**	SampType: **mblk**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011747**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-24354**	SampType: **lcs**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011748**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.18	0.033	0.1667	0	107	80	120			

Sample ID	**1603878-001AMS**	SampType: **ms**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**NW Pothole @ 14'**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011750**		Units: **mg/Kg-dry**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.19	0.035	0.1779	0.003482	105	75	125			

Sample ID	**1603878-001AMSD**	SampType: **msd**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**NW Pothole @ 14'**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011751**		Units: **mg/Kg-dry**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.19	0.034	0.1734	0.003482	106	75	125	1.14	20	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **1603878-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **32957**
Prep Date: **3/21/2016** Analysis Date: **3/22/2016** SeqNo: **1010814** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	24	0.26	26.04	2.427	83.0	75	125	4.66	20	
Silver	4.5	0.26	5.209	0	86.5	75	125	2.46	20	

Sample ID **MB-24353** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012884** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	2.5								

Sample ID **LCS-24353** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012885** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	26	2.5	25.00	0	103	80	120			

Sample ID **1603878-001AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012889** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	23	2.6	26.34	0	87.8	75	125			

Sample ID **1603878-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012890** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	23	2.6	26.04	0	88.8	75	125	0.0715	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Western Refining	Turn-Around Time: ☒ Standard ☑ Rush ASAP 4/20/16
111	Project Name: Bloomfield Terminal
Mailing Address: 111 CR 4990 Bloomfield, NM 87413	Project #:
Phone #: (505) 632-4166	
Email or Fax#:	Project Manager: Kelly Robinson
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)	Sampler: Michael Wicker
Accreditation: ☒ NELAP ☐ Other	On Ice: ☑ Yes ☐ No
EDD (Type) Excel	Sample Temperature: 2.2

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1603878	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VOCs 8260	S-VOCs 8270	Total Metals 6010/6020	Mercury 7470	Air Bubbles (Y or N)
3-16	1320	Soil	NW Pothole @14'	2-8oz	Cool	-001												✓	✓	✓	✓	
"	1340		N Wall	↓		-002																
3-16	1420		E Wall	↓		-003																
3-16	1340		Floor	1-8oz 2-4oz		-004																
	1350		S Wall	4-4oz		-005																
"	1410	↓	W Wall	↓	↓	-006												↓	↓	↓	↓	

Date	Time	Relinquished by:	Received by:	Date	Time
3/16/16	17:16			3/16/16	1716
3/16	1965			03/17/16	0733

Remarks: Please CC MWicker@LTEnv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 21, 2016

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Bloomfield Terminal OrderNo.: 1603876

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/17/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** N Wall
Project: Bloomfield Terminal **Collection Date:** 3/14/2016 1:40:00 PM
Lab ID: 1603876-002 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	11	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	11		mg/Kg-dry	1	3/17/2016 2:14:55 PM	24297
Motor Oil Range Organics (MRO)	ND	54		mg/Kg-dry	1	3/17/2016 2:14:55 PM	24297
Surr: DNOP	87.0	70-130		%Rec	1	3/17/2016 2:14:55 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.2		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Surr: BFB	111	66.2-112		%Rec	1	3/17/2016 11:40:31 AM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.026		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Toluene	ND	0.052		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Ethylbenzene	ND	0.052		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Surr: 4-Bromofluorobenzene	117	80-120		%Rec	1	3/17/2016 11:40:31 AM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603876-004 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	7.6	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	3500	100		mg/Kg-dry	10	3/17/2016 4:04:11 PM	24297
Motor Oil Range Organics (MRO)	1300	510		mg/Kg-dry	10	3/17/2016 4:04:11 PM	24297
Surr: DNOP	0	70-130	S	%Rec	10	3/17/2016 4:04:11 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	5600	280		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Surr: BFB	310	66.2-112	S	%Rec	50	3/17/2016 12:27:44 PM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	14	1.4		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Toluene	150	2.8		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Ethylbenzene	26	2.8		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Xylenes, Total	240	5.5		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Surr: 4-Bromofluorobenzene	135	80-120	S	%Rec	50	3/17/2016 12:27:44 PM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** W Wall
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 2:10:00 PM
Lab ID: 1603876-006 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	11	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	4600	110		mg/Kg-dry	10	3/17/2016 5:30:55 PM	24297
Motor Oil Range Organics (MRO)	1800	550		mg/Kg-dry	10	3/17/2016 5:30:55 PM	24297
Surr: DNOP	0	70-130	S	%Rec	10	3/17/2016 5:30:55 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	4000	280		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Surr: BFB	255	66.2-112	S	%Rec	50	3/17/2016 5:56:51 PM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	15	1.4		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Toluene	100	2.8		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Ethylbenzene	18	2.8		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Xylenes, Total	160	5.6		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Surr: 4-Bromofluorobenzene	134	80-120	S	%Rec	50	3/17/2016 5:56:51 PM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603876**

21-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID **MB-24284**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **24284**	RunNo: **32868**
Prep Date: **3/16/2016**	Analysis Date: **3/17/2016**	SeqNo: **1007393** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		109	66.2	112			

Sample ID **LCS-24284**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **24284**	RunNo: **32868**
Prep Date: **3/16/2016**	Analysis Date: **3/17/2016**	SeqNo: **1007394** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.1	80	120			
Surr: BFB	1100		1000		115	66.2	112			S

Sample ID **1603876-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **NW Pothole @ 14'**	Batch ID: **24284**	RunNo: **32868**
Prep Date:	Analysis Date: **3/17/2016**	SeqNo: **1007411** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	3.5	17.66	11.65	95.6	59.3	143			
Surr: BFB	1400		706.4		198	66.2	112			S

Sample ID **1603876-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **NW Pothole @ 14'**	Batch ID: **24284**	RunNo: **32868**
Prep Date:	Analysis Date: **3/17/2016**	SeqNo: **1007412** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	3.5	17.66	11.65	111	59.3	143	9.30	20	
Surr: BFB	1400		706.4		201	66.2	112	0	0	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1603876 RcptNo: 1

Received by/date: 03/17/16

Logged By: Lindsay Mangin 3/17/2016 7:33:00 AM

Completed By: Lindsay Mangin 3/17/2016 8:33:58 AM

Reviewed By: 03/17/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 16, 2016

Matt Krakow
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Crude Unloading Line OrderNo.: 1603350

Dear Matt Krakow:

Hall Environmental Analysis Laboratory received 1 sample(s) on 3/7/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Crude Unloading Line
Lab ID: 1603350-001 **Matrix:** SOIL

Client Sample ID: Waste Characterization
Collection Date: 3/7/2016 1:00:00 PM
Received Date: 3/7/2016 4:52:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst: **DJF**	
Benzene	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
2-Butanone	ND	200		mg/L	1	3/9/2016 5:51:30 PM	24135
Carbon Tetrachloride	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Chlorobenzene	ND	100		mg/L	1	3/9/2016 5:51:30 PM	24135
Chloroform	ND	6.0		mg/L	1	3/9/2016 5:51:30 PM	24135
1,4-Dichlorobenzene	ND	7.5		mg/L	1	3/9/2016 5:51:30 PM	24135
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
1,1-Dichloroethene	ND	0.70		mg/L	1	3/9/2016 5:51:30 PM	24135
Hexachlorobutadiene	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	3/9/2016 5:51:30 PM	24135
Trichloroethene (TCE)	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Vinyl chloride	ND	0.20		mg/L	1	3/9/2016 5:51:30 PM	24135
Surr: 1,2-Dichloroethane-d4	94.9	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: Dibromofluoromethane	91.6	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: Toluene-d8	100	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.
Project: Crude Unloading Line

Sample ID **MB-24219**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **24219**	RunNo: **32770**
Prep Date: **3/11/2016**	Analysis Date: **3/14/2016**	SeqNo: **1004230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		106	66.2	112			

Sample ID **LCS-24219**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **24219**	RunNo: **32770**
Prep Date: **3/11/2016**	Analysis Date: **3/14/2016**	SeqNo: **1004231** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.3	80	120			
Surr: BFB	1100		1000		114	66.2	112			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID **1603350-001ams** SampType: **MS** TestCode: **Volatiles by 8260B/1311**

Client ID: **Waste Characterizat** Batch ID: **24135** RunNo: **32688**

Prep Date: **3/8/2016** Analysis Date: **3/9/2016** SeqNo: **1000436** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		92.9	70	130			
Surr: 4-Bromofluorobenzene	0.23		0.2000		115	70	130			
Surr: Dibromofluoromethane	0.19		0.2000		95.0	70	130			
Surr: Toluene-d8	0.19		0.2000		96.5	70	130			

Sample ID **1603350-001amsd** SampType: **MSD** TestCode: **Volatiles by 8260B/1311**

Client ID: **Waste Characterizat** Batch ID: **24135** RunNo: **32688**

Prep Date: **3/8/2016** Analysis Date: **3/9/2016** SeqNo: **1000450** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.38	0.30	0.4000	0	94.2	70	130	5.98	20	
Chlorobenzene	0.40	0.30	0.4000	0	99.4	70	130	5.41	20	
1,1-Dichloroethene	0.35	0.30	0.4000	0	88.6	70	130	11.0	20	
Trichloroethene (TCE)	0.35	0.30	0.4000	0	86.7	70	130	9.13	20	
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		94.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.22		0.2000		111	70	130	0	0	
Surr: Dibromofluoromethane	0.18		0.2000		91.2	70	130	0	0	
Surr: Toluene-d8	0.19		0.2000		95.5	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID **lcs-24177** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**

Client ID: **LCSS** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004052** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.18		0.2000		89.8	31.3	139			
Surr: Nitrobenzene-d5	0.075		0.1000		74.7	48.2	128			
Surr: 2-Fluorobiphenyl	0.076		0.1000		75.7	58.4	114			
Surr: 4-Terphenyl-d14	0.078		0.1000		78.1	17.4	141			

Sample ID **1603350-001ams** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **Waste Characterizat** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004054** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.10	0.010	0.1000	0	101	43.1	114			
3+4-Methylphenol	0.21	0.010	0.2000	0	107	37.8	128			
2,4-Dinitrotoluene	0.076	0.010	0.1000	0	76.3	36.5	125			
Hexachlorobenzene	0.11	0.010	0.1000	0	112	41.4	108			S
Hexachlorobutadiene	0.085	0.010	0.1000	0	84.8	30.4	101			
Hexachloroethane	0.087	0.010	0.1000	0	87.3	37.3	115			
Nitrobenzene	0.10	0.010	0.1000	0	102	40.2	132			
Pentachlorophenol	0.043	0.010	0.1000	0	43.0	8.72	103			
Pyridine	0.074	0.010	0.1000	0	73.9	9.36	106			
2,4,5-Trichlorophenol	0.11	0.010	0.1000	0	105	16.5	123			
2,4,6-Trichlorophenol	0.082	0.010	0.1000	0	81.6	11.3	117			
Cresols, Total	0.32	0.010	0.3000	0	105	23.2	151			
Surr: 2-Fluorophenol	0.13		0.2000		63.8	19	121			
Surr: Phenol-d5	0.11		0.2000		53.1	31.8	117			
Surr: 2,4,6-Tribromophenol	0.20		0.2000		102	31.3	139			
Surr: Nitrobenzene-d5	0.10		0.1000		101	48.2	128			
Surr: 2-Fluorobiphenyl	0.096		0.1000		95.5	58.4	114			
Surr: 4-Terphenyl-d14	0.076		0.1000		76.1	17.4	141			

Sample ID **1603350-001amsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **Waste Characterizat** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004056** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.069	0.010	0.1000	0	69.2	43.1	114	37.2	28.4	R
3+4-Methylphenol	0.14	0.010	0.2000	0	70.8	37.8	128	40.7	29.4	R
2,4-Dinitrotoluene	0.055	0.010	0.1000	0	55.5	36.5	125	31.6	24.7	R
Hexachlorobenzene	0.079	0.010	0.1000	0	78.8	41.4	108	34.7	20	R
Hexachlorobutadiene	0.063	0.010	0.1000	0	63.2	30.4	101	29.1	29	R
Hexachloroethane	0.060	0.010	0.1000	0	60.3	37.3	115	36.6	25.2	R

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID	**MB-24168**	SampType: **MBLK**			TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **24168**			RunNo: **32705**					
Prep Date:	**3/9/2016**	Analysis Date: **3/10/2016**			SeqNo: **1001072**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-24168**	SampType: **LCS**			TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **24168**			RunNo: **32705**					
Prep Date:	**3/9/2016**	Analysis Date: **3/10/2016**			SeqNo: **1001074**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1603350 RcptNo: 1

Received by/date: 03/07/16

Logged By: Ashley Gallegos 3/7/2016 4:52:00 PM

Completed By: Ashley Gallegos 3/8/2016 9:08:31 AM

Reviewed By: 03/08/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.4	Good	Yes			

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Western Refining Southwest, Inc.	Contact: Kelly Robinson
Address: 50 Road 4990	Telephone No.: 505-632-4166
Facility Name: Bloomfield Terminal	Facility Type: Products Terminal

Surface Owner: Western Refining Southwest, Inc.	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	27	29N	11W					

Latitude 36° 41' 45"N **Longitude** 107° 58' 12" W

NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: Unknown	Volume Recovered: 8 barrels
Source of Release: Crude Line Release Underground	Date and Hour of Occurrence: unknown	Date and Hour of Discovery: 3/05/2016 at 2am
Was Immediate Notice Given? ☒ Yes ☐ No ☒ Not Required	If YES, To Whom? Cory Smith (NMOCD-Aztec) Carl Chavez (NMED–Santa Fe) Leona Tsinnajinnie (NMED-HWB) Dave Cobrain (NMED-HWB) Neelam Dhawan (NMED-HWB)	
By Whom? : Kelly Robinson	Date and Hour : 6/11/2015 at 8:30 am MT	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

At approximately 2am on Saturday, March 5th, 2016, Western Operations identified a small 3-gallon accumulation of crude oil on ground surface within the secondary containment of Tank 41. Based on the location of the surface stain, the release was initially thought to be associated with the wet oil system. Operations took immediate action in shutting down the wet oil system. By 7am the same day, Maintenance arrived on-site and worked to expose the source of the oil release. By 11am, Maintenance identified the source of the oil release to be a breach in the crude unloading pipeline. The pipeline is located approximately 3 ft below grade surface. The line was able to be isolated and a temporary repair was installed by 12:15pm.

Describe Area Affected and Cleanup Action Taken.*

Excess liquids were collected using an on-site vacuum truck. The recovered oil was sent through the on-site wastewater treatment system for oil recovery. The oil release came from an underground pipeline that is located within the secondary containment of Tanks 41. As of 12:15pm this afternoon, temporary repairs have been completed on the pipeline. Surface soil impacts are localized to an area within the secondary containment of Tank 41. This crude oil release took place in an area previously investigated under an active Consent Order issued through New Mexico Hazardous Waste Bureau (NMED-HWB). Western will be coordinating with the NMED-HWB on implementing corrective actions pursuant to the condition of the Consent Order.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Kelly Robinson	OIL CONSERVATION DIVISION	
Printed Name: Kelly Robinson	Approved by Environmental Specialist:	
Title: Environmental Manager - Logistics	Approval Date:	Expiration Date:
E-mail Address: Kelly.Robinson@wnr.com	Conditions of Approval:	Attached ☐
Date: 3-5-2016 Phone: (505)632-4166		

* Attach Additional Sheets If Necessary

Chavez, Carl J, EMNRD

From: Martinez, Cynthia, NMENV
Sent: Tuesday, May 17, 2016 2:07 PM
To: Randy.Schmaltz@wnr.com
Cc: Kieling, John, NMENV; Cobrain, Dave, NMENV; Dhawan, Neelam, NMENV; VanHorn, Kristen, NMENV; Tsinnajinnie, Leona, NMENV; Chavez, Carl J, EMNRD; Smith, Cory, EMNRD; Allen.Hains@wnr.com; Kelly.Robinson@wnr.com
Subject: Letter to Mr. Schmaltz
Attachments: Western Refining Bloomfield-Response to Corrective Action Rpt.pdf

Good Afternoon All,
The attached letter will be mailed today.

Cynthia Martinez
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg.1
Santa Fe, New Mexico 87505
Phone 505-476-6000

NEW MEXICO
ENVIRONMENT DEPARTMENT

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.env.nm.gov

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Cabinet Secretary
BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

May 17, 2016

Mr. Randy Schmaltz
Health, Safety, Environmental, and
Regulatory Director
Western Refining, Southwest, Inc.
Bloomfield Terminal
P.O. Box 159
Bloomfield, New Mexico 87413

RE: RESPONSE TO CORRECTIVE ACTION REPORT
WESTERN REFINING SOUTHWEST INC., BLOOMFIELD REFINERY
EPA ID# NMD089416416
HWB-WRB-MISC

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) has received Western Refining Southwest, Inc., Bloomfield Refinery's (Western) *Corrective Action Report* (Report) received April 8, 2016. NMED has reviewed the Report and hereby issues the following comments.

Comment 1

In the section titled *Corrective Actions*, Western states "5-point composite samples were collected to characterize the North, South, East, West excavation walls. In addition, two 5-point composite samples were collected from the excavation base, one sample collected at the bottom of the deepest excavation base." Composite samples are not appropriate for confirmation sampling. Discrete samples must be collected for all future soil confirmation sampling. In addition, it is not clear where the samples were collected and at what depths because a figure was not provided and the sample locations were not described in the Report. Provide a figure with the sample locations and indicate the depths where the samples were collected in the response

letter. For all future Reports, soil sample locations and depths, where appropriate, must be clearly defined and a figure must be provided depicting the sample locations.

Comment 2

In the section titled *Waste Characterization*, Western provides the analytical methods used to characterize the excavated soils for disposal. However, Western did not provide copies of the waste manifest(s) with the Report. In addition, it is helpful to include the waste characterization analytical results in a table comparing them to the appropriate screening levels. Provide copies of the waste manifest(s) and generate a table (Analytical Summary of Waste Characterization Sample Results) that summarizes the waste characterization analytical results and compare them to the appropriate screening levels. Include the waste manifest(s) and additional table with the response letter.

Comment 3

In the section titled *Recommendations,* Western states that the New Mexico Oil Conservation Division's (OCD) *Guidelines for Remediation of Leaks, Spills, and Releases* (dated August 13, 1993) cleanup levels were utilized to evaluate the soil confirmation and waste characterization samples analytical results. NMED requires the use of the most recent construction worker soil screening levels (SSLs) from NMED's *Risk Assessment Guidance for Site Investigations and Remediation* because NMED's SSLs are more current than the screening levels in OCD's guidance document. In addition, utilizing NMED's SSLs will better characterize the contaminants detected in the soil confirmation and waste characterization samples because the cleanup levels provided in OCD's guidance document did not provide screening levels for a majority of the constituents analyzed by Western. It is expected that construction and excavation activities at the terminal will expose the workers to impacted soil; therefore, future soil confirmation samples that result from a leak, spill or release must be compared to NMED's construction worker SSLs because the terminal is still active and the tanks are still in use.

Comment 4

In the section titled *Recommendations,* Western requested "permission to backfill the excavation area to match [the] existing grade." Western states that "this is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order." NMED concurs with Western and sent an e-mail response on May 2, 2016 to Ms. Kelly Robinson to allow Western to backfill the excavation. In addition, NMED also concurs that corrective action activities at this site may be deferred until this area is no longer in use or otherwise accessible.

Comment 5

Diagram #2 is an aerial photo depicting the approximate location and excavation boundary at the site near Tanks 41, 42a, 42b, and 43. Diagrams 3 and 4 are field note diagrams depicting the

excavation boundary and photoionization detector (PID) readings at the corresponding excavation depths for the March 14 and 16, 2016 excavation events. Below are comments regarding Diagrams #2, 3, and 4:

a. It appears that the excavation boundary in Diagram #2 may be a different shape than the boundary depicted in Diagrams 3 and 4. Provide an explanation or clearer Diagrams 3 and 4 to show that all three diagrams have the same excavation boundary.

b. Diagrams 3 and 4 depict PID readings with the corresponding depths at several locations on the excavation boundary. However, Western circled 4 locations on each of the diagrams and did not explain why. In addition, there is a location with an "X" with a circle around it that is not explained. Explain why certain PID readings were circled in the response letter. For all future submittals, all figures with symbols must have a key to define the symbols.

Comment 6

In Table 1 (Analytical Summary of Confirmation Sample Results), Western summarizes the analytical results for the soil confirmation samples and compares them to OCD Clean up Levels. As stated in Comment 3, NMED requires comparing the soil confirmation analytical results to the construction worker SSLs for all future leaks, spills or releases. Provide a revised Table 1 comparing the soil confirmation analytical results to the construction worker SSLs. In addition, there appears to be analytical results reported as detections in bold face print while others are not highlighted. Provide a footnote to explain the bold print analytical results in the revised table submitted with the response letter.

Western must address the comments from this response and provide the information required, along with a response letter to NMED by **August 5, 2016**.

If you have any questions regarding this letter, please contact Leona Tsinnajinnie of my staff at (505) 476-6057.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
N. Dhawan, NMED HWB
K. Van Horn, NMED HWB
L. Tsinnajinnie, NMED HWB
C. Chavez, NMENRD OCD (Santa Fe)
C. Smith, NMENRD OCD (Aztec)
A. Hains, Western Refining Company, El Paso, Texas
K. Robinson, Western Refining Company, Bloomfield, New Mexico

File: HWB-WRB-MISC and Reading 2016

Chavez, Carl J, EMNRD

From: Robinson, Kelly <Kelly.Robinson@wnr.com>
Sent: Thursday, April 07, 2016 6:23 AM
To: Tsinnajinnie, Leona, NMENV
Cc: Dhawan, Neelam, NMENV; Cobrain, Dave, NMENV; Chavez, Carl J, EMNRD; Schmaltz, Randy; Krakow, Matt; Powell, Brandon, EMNRD
Subject: Corrective Action Report
Attachments: Corrective Action Report.pdf

Good Afternoon Ma'am,

In response to an oil leak originally reported to NMED-HWB and NMOCD on Saturday, March 5th, 2016, Western is submitting this Corrective Action Report summarizing the activities completed to-date. This Report is being submitted as an attachment to a revised C-141 Initial Report NMOCD has requested previously. The Report documents the excavation activities completed to-date, results from confirmation samples collected within the excavation area, and diagrams/photos showing the physical extent of the excavation.

As you will see in the Report, the excavation efforts were completed to the extent possible at this time. Due to the proximity of existing facility equipment and process piping, Western is no longer able to remove any additional soils safety. Western is requesting permission to suspend any further corrective actions until such time that the active process piping/equipment are removed to provide safe access to the area. This is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting that the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order. In addition, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as a secondary containment for active facility process equipment, and exposed active piping is being temporarily supported. Western believes the immediate threat this release had to the area has been removed by the excavation activities completed to-date. The remaining corrective actions would be best complete at a later date when the area is more accessible in a safe manner.

We would be more than happy to discuss this matter with you via a conference call to help facilitate NMED's review of the event, if so desired. Please let us know if you have any questions, or if you need any additional information not otherwise provided in this report. A hardcopy of this report is being sent to you, as well as to the OCD District Office and OCD Santa Fe Office.

Thank you for your time!

Sincerely,

Kelly R. Robinson | Environmental
Western Refining | 111 County Road 4990 | Bloomfield, NM87413
(o) 505-632-4166 | (c) 505-801-5616 | (e) kelly.robinson@wnr.com

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report (Revised) ☐ Final Report

Name of Company: Western Refining Southwest, Inc.	Contact: Kelly Robinson
Address: 50 Road 4990	Telephone No.: 505-632-4166
Facility Name: Bloomfield Terminal	Facility Type: Products Terminal

Surface Owner: Western Refining Southwest, Inc.	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	27	29N	11W					

Latitude 36° 41' 45"N **Longitude** 107° 58' 12" W

NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: Unknown	Volume Recovered: 8 barrels
Source of Release: Crude Line Release Underground	Date and Hour of Occurrence: unknown	Date and Hour of Discovery: 3/05/2016 at 2am
Was Immediate Notice Given? ☒ Yes ☐ No ☒ Not Required	If YES, To Whom? Cory Smith (NMOCD-Aztec) Carl Chavez (NMED–Santa Fe) Leona Tsinnajinnie (NMED-HWB) Dave Cobrain (NMED-HWB) Neelam Dhawan (NMED-HWB)	
By Whom? : Kelly Robinson	Date and Hour : 03/05/2016 at 2:56 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

At approximately 2am on Saturday, March 5th, 2016, Western Operations identified a small 3-gallon accumulation of crude oil on ground surface within the secondary containment of Tank 41. Based on the location of the surface stain, the release was initially thought to be associated with the wet oil system. Operations took immediate action in shutting down the wet oil system. By 7am the same day, Maintenance arrived on-site and worked to expose the source of the oil release. By 11am, Maintenance identified the source of the oil release to be a breach in the crude unloading pipeline. The pipeline is located approximately 3 ft below grade surface. The line was able to be isolated and a temporary repair was installed by 12:15pm.

Describe Area Affected and Cleanup Action Taken.*

Excess liquids were collected using an on-site vacuum truck. The recovered oil was sent through the on-site wastewater treatment system for oil recovery. The oil release came from an underground pipeline that is located within the secondary containment of Tanks 41. As of 12:15pm this afternoon, temporary repairs have been completed on the pipeline. Surface soil impacts are localized to an area within the secondary containment of Tank 41. This crude oil release took place in an area previously investigated under an active Consent Order issued through New Mexico Hazardous Waste Bureau (NMED-HWB). Western will be coordinating with the NMED-HWB on implementing corrective actions pursuant to the condition of the Consent Order.

Updated April 6, 2016: Attached is a Corrective Action Report documenting in-detail the corrective action completed to-date. Due to the proximity of existing equipment within the excavation area, Western is no longer able to remove additional soils safely. Therefore, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as secondary containment for active in-service equipment. In addition, this is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Kelly Robinson	OIL CONSERVATION DIVISION	
Printed Name: Kelly Robinson	Approved by Environmental Specialist:	
Title: Environmental Manager - Logistics	Approval Date:	Expiration Date:
E-mail Address: Kelly.Robinson@wnr.com	Conditions of Approval:	Attached ☐
Date: 4-6-2016 Phone: (505) 632-4166		

* Attach Additional Sheets If Necessary

CORRECTIVE ACTION REPORT
Western Refining – Bloomfield Terminal

Cause of the Release

On Saturday, March 5th, 2016 at approximately 2am, the Operator on-duty at the Western Refining Bloomfield Terminal noticed a small stain of crude oil adjacent (east) of the Tank 42a/42b secondary containment pad. This area is located within the southern portion of the facility, south of highway 4990. The operator used absorbent material to soak-up the oil, and notified the Terminal Operations Manager. By 8am that same day, Maintenance personnel arrived on-scene to investigate the source of the stain. Using a backhoe, Western was able to identify a small leak in a 3-inch insulated crude oil pipeline used to convey crude oil from the Wet Oil System (Tank 41) to the facility Tank Farm area. The location of where the repair was made on the pipeline is approximately 10 to 15 feet east of where the crude oil surfaced. The pipeline was insulated with a fiberglass wrap, which likely was the reason why the oil released to surface slightly adjacent to the leak source location. Maintenance was able to isolate the line and repair the leak with a temporary clamp. The pipeline was returned to service by 12 noon on Saturday, March 5th, 2016. An initial notification of the release event was submitted to the New Mexico Oil Conservation Division (NMOCD) and New Mexico Environment Department – Hazardous Waste Bureau (NMED-HWB) on March 5th, 2016. The approximate location of where the release occurred within the facility boundary and the footprint of the excavation to-date is shown in Diagram 1 and Diagram 2, respectively.

Corrective Actions

Western contracted with Adobe Construction ("Adobe") to perform the excavation effort, and with LT Environmental to provide environmental over-site of the excavation efforts. Excavation activities commenced on Wednesday, March 9th, 2016 following clearance to dig through the New Mexico One Call System. The initial effort involved hand-digging to expose any existing pipelines within the area. Three additional pipelines were located within the excavation area. These additional lines have been confirmed by Operations to be out-of-service. Once the pipelines were exposed, a backhoe was used to progress the excavation effort. Field monitoring was conducted using a Photo Ionization Detector (PID) meter. The PID readings assisted in identifying the areas for which additional excavation was needed.

The excavation area was limited by the existing in-service aboveground pipelines to the north and east, existing concrete containment for in-service tanks to the west, and an existing tank to the south. Photo 1 and Photo 2 shows the adjacent facility equipment around the perimeter of the excavated area. Due to the restrictions from the existing structures, the lateral extent of the excavation was approximately 26 feet East – West and 12 feet North-South. The benching on the south side of the excavation was done to allow for means of egress for additional hand-digging around the pipelines.

The PID readings showing the surface concentrations as of March 14, 2016 are shown on Diagram #3. The diagram shows the relative depth below original grade in feet, and the corresponding PID reading in parts per million (ppm). The excavation had reached approximately 7.5 ft within eastern portion of the

excavation. This was accomplished utilizing a combination of excavation by backhoe and hand-digging. The west side was benched down approximately 2.5 feet, providing the backhoe an area to reach between the pipelines. PID readings were collected periodically as the excavation activities progressed. Along the north western portion of the excavation, there was an area of sandy soils exhibiting higher organic concentrations as observed using the PID. The excavation extended down deeper in this location, creating a hole approximately 3 feet by 2 feet by 13 feet deep (the maximum reach of the equipment used for excavation).

Between March 14th and March 16th, 2016, additional soils were removed, targeting areas higher than 300 pppm. Sidewall field readings indicated that the deeper hole needed to be extended laterally to the extent possible with the equipment used while taking into consideration the adjacent pipelines. Up-dated PID readings of the excavated area as of March 16th, 2016 are shown on Diagram #4. Due to adjacent facility equipment and concerns of being able to safely support the active pipeline that crosses the excavation, no additional soils were able to be removed at this time.

Between March 14th and March 16, 2016, 5-point composite samples were collected to characterize the North, South, East, West excavation walls. In addition, two 5-point composite samples were collected from the excavation base, with one sample collected at the bottom of the deepest excavation base. The samples were analyzed for the following:

- Total Petroleum Hydrocarbons (TPH) – Gasoline Range Organics (GRO) by EPA Method 8015
- TPH – Diesel Range Organics (DRO) by EPA Method 8015
- TPH- Motor Oil Range Organics (MRO) by EPA Method 8015
- Total Metals by EPA Method 6010B
- Volatile Organic Compounds (VOCs) by EPA Method 8260B
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C

A summary of the analytical results are provided in Table 1, and a copy of the analytical results are provided as an Appendix to this Report.

Waste Characterization

Excavated soils were temporarily stock-piled on-site during excavation activities. Approximately 80 yards of impacts soils were removed from the excavation. A composite sample was collected and analyzed for the following:

- TCLP VOCs by EPA Method 8260B
- TCLP SVOCs by EPA Method 8270C
- TCLP RCRA 8 Metals by EPA Method 6010B
- TPH-GRO by EPA Method 8015
- TPH-DRO by EPA Method 8015
- TPH-MRO by EPA Method 8015

The analytical results show that the material is classified as non-hazardous non-exempt waste. The waste was sent to the Envirotech landfarm for treatment and disposal. A copy of the waste characterization analytical report is provided in Appendix A.

Recommendations

The analytical results show that the north and south lateral extent of the impacted area has been defined. The remaining soils along the north and south boundary of the excavation area exhibit concentrations below the most conservative clean-up levels pursuant to the New Mexico Oil Conservation Division *Guidelines for Remediation of Leaks, Spill and Releases* dated August 13, 1993.

Confirmation samples collected from the west, east, and excavation base show that the residual soil concentrations are above the OCD clean-up levels for closure. However, the remaining soils no longer exhibit visual saturation staining. Due to the proximity of existing equipment within the excavation area, Western is no longer able to remove additional soils safely.

With this said, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as secondary containment for active in-service equipment. In addition, this is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order.

PHOTOS

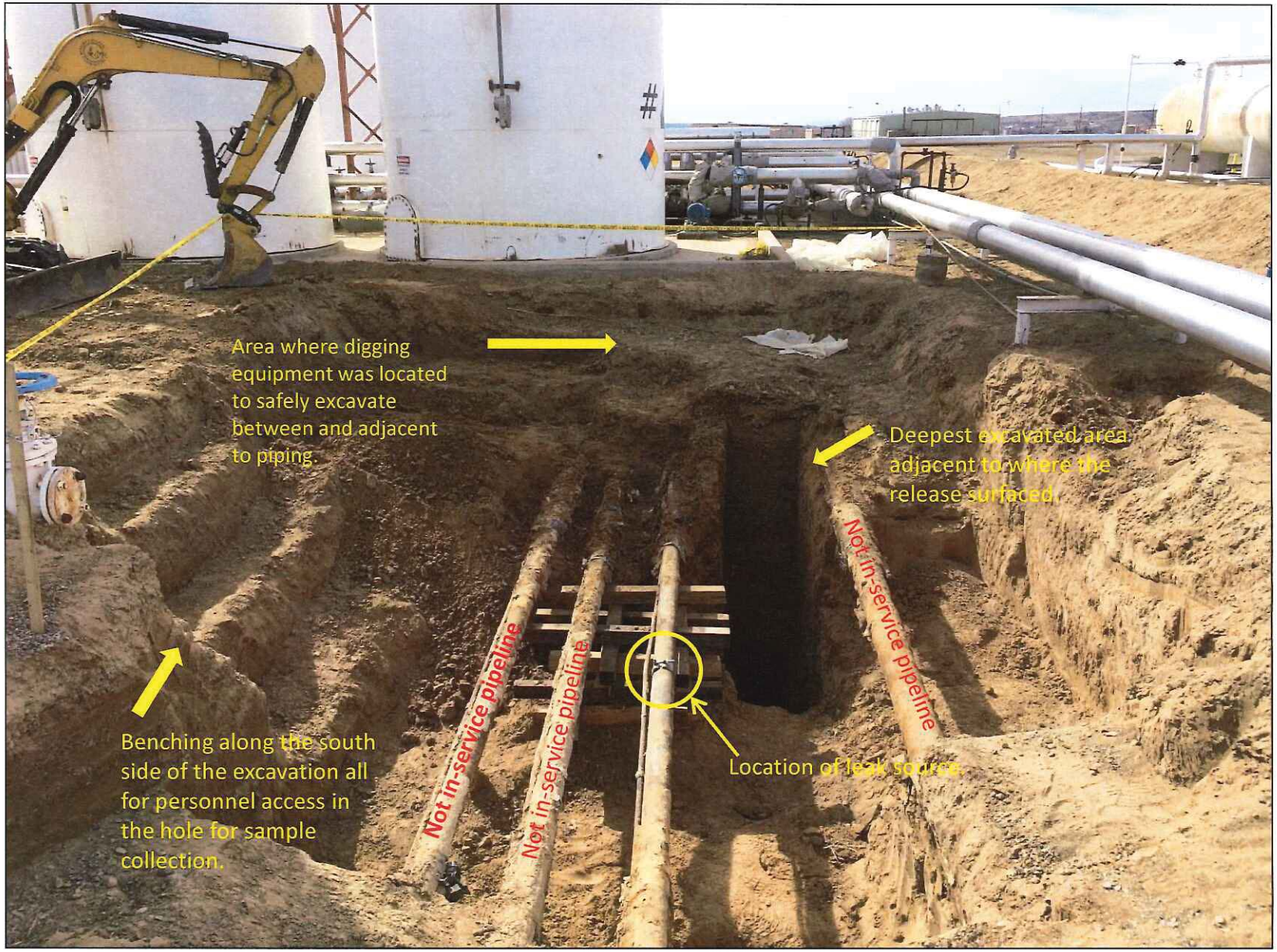
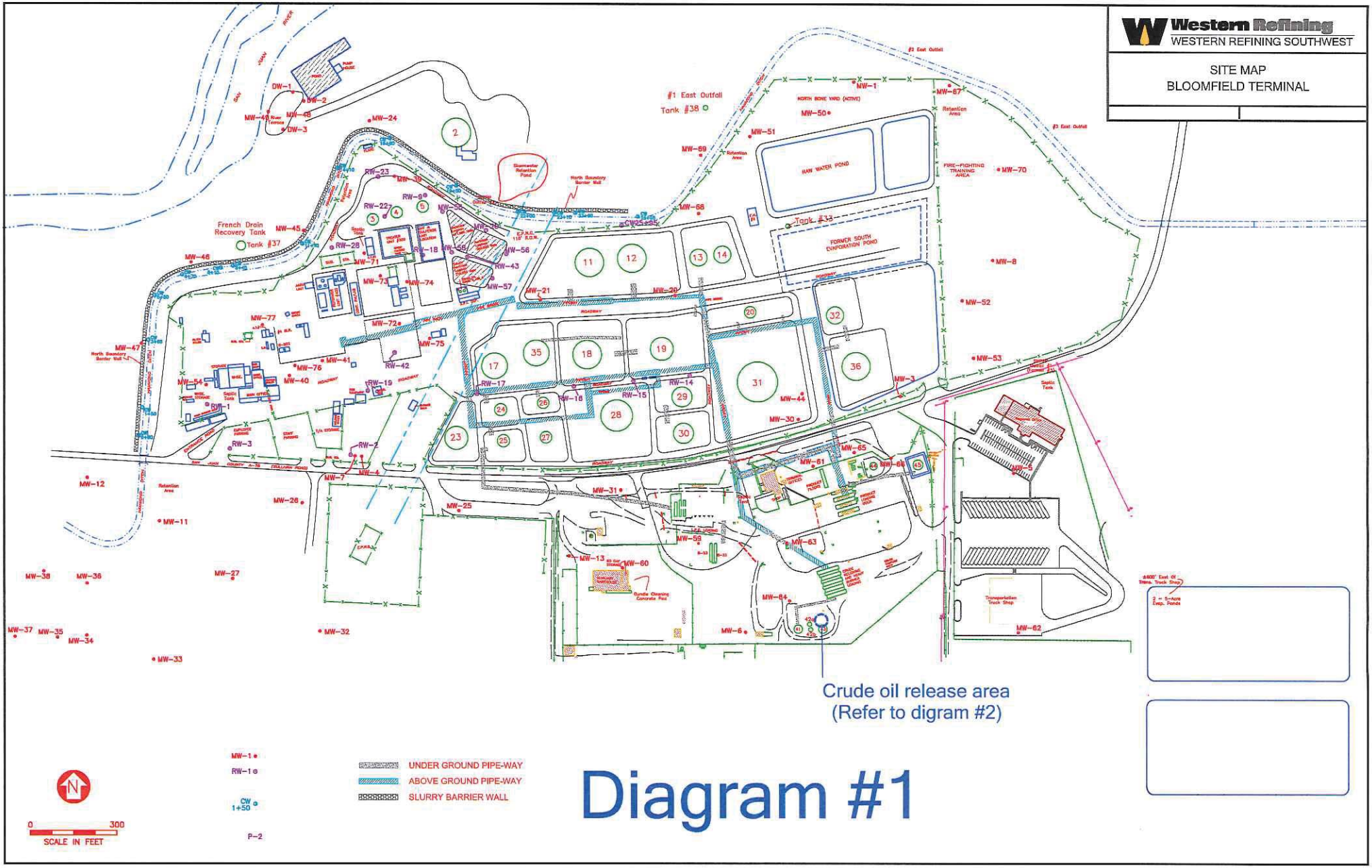
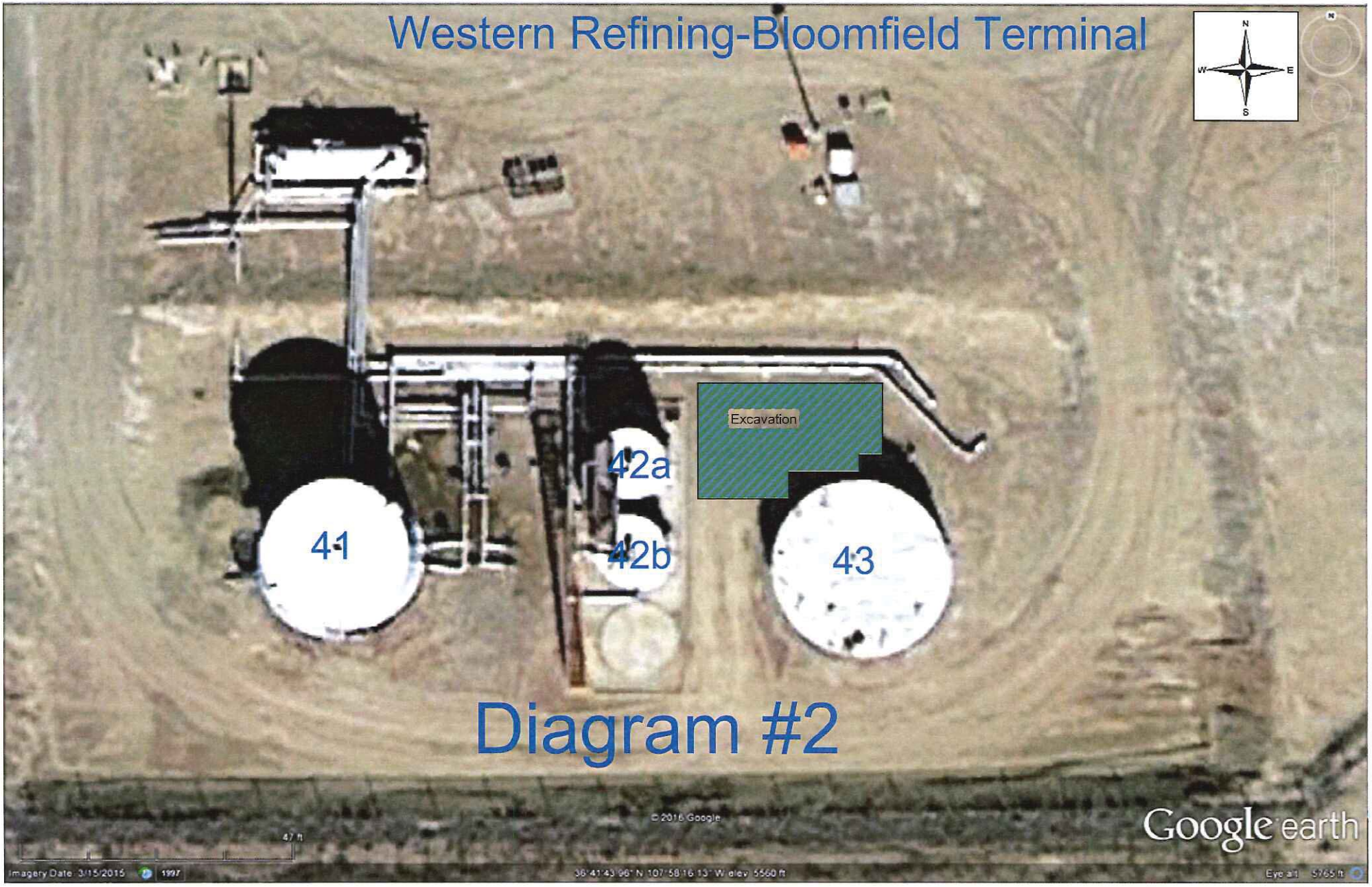


Photo 1: View of excavation as of March 14, 2016 looking west.

Photos 2: View of excavation as of March 14, 2016 looking east.

DIAGRAMS


Western Refining
WESTERN REFINING SOUTHWEST
SITE MAP
BLOOMFIELD TERMINAL
Crude oil release area
(Refer to digram #2)
UNDER GROUND PIPE-WAY
ABOVE GROUND PIPE-WAY
SLURRY BARRIER WALL
SCALE IN FEET
0
300
Diagram #1


Western Refining-Bloomfield Terminal
N
W
E
S
Excavation
42a
41
42b
43
Diagram #2
© 2016 Google
Google earth

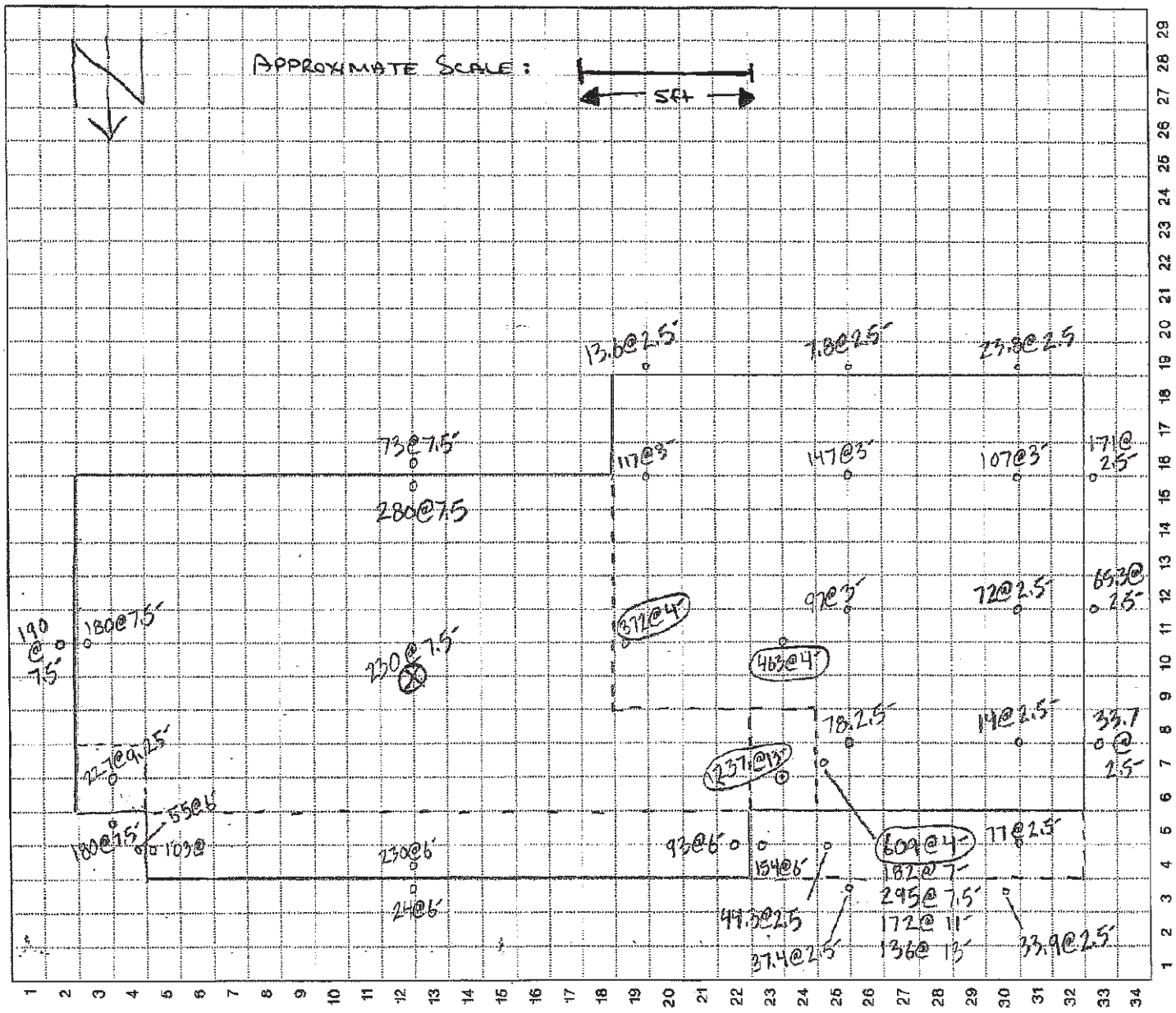


Diagram 3: Extent of excavation as of March 14, 2016. The diagram shows the PID reading in parts per million (ppm) with the corresponding depth below original grade surface in feet.

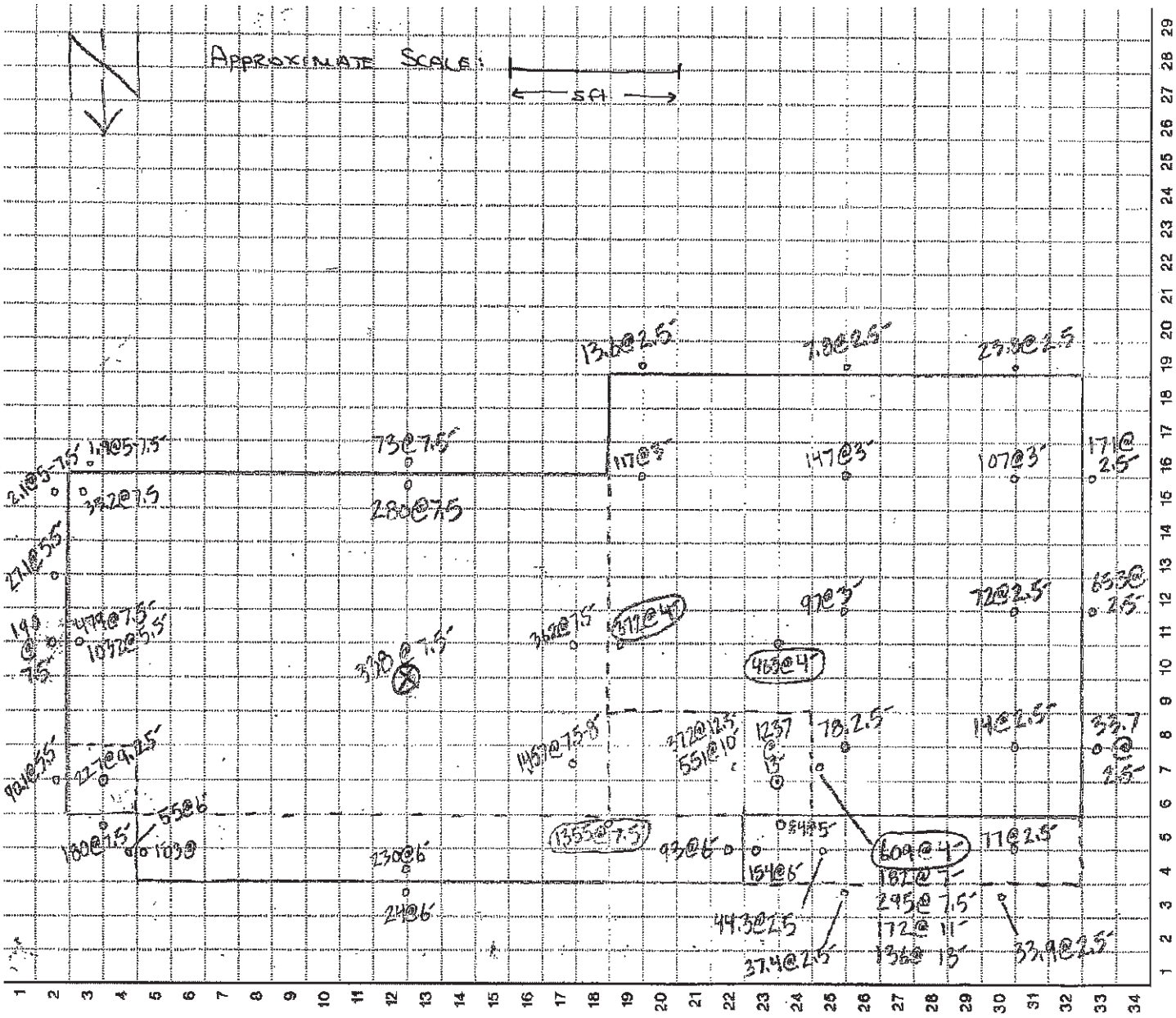


Diagram 4: Extent of excavation as of March 16, 2016. The diagram shows the PID reading in parts per million (ppm) with the corresponding depth below original grade surface in feet.

TABLES

TABLE 1
Analytical Summary of Confirmation Sample Results

			Sample IDs					
	Analytical Method	OCD Clean-up Levels [2]	E Wall	Floor	N Wall	NW Pothole @ 14'	S Wall	W Wall
Diesel Range Organics (DRO)	SW8015		760	3500	< 11	17	27	4600
Gasoline Range Organics (GRO)	SW8015	100	2300	5600	< 5.2	12	< 4.9	4000
Motor Oil Range Organics (MRO)	SW8015		280	1300	< 54	< 54	68	1800
Total TPH		100	3340	10400	ND	29	95	10400
Benzene	SW8021	10	6.2	14	< 0.026	< 0.018	< 0.025	15
Ethylbenzene	SW8021		11	26	< 0.052	0.065	< 0.049	18
Toluene	SW8021		64	150	< 0.052	0.11	< 0.049	100
Xylenes, Total	SW8021		100	240	< 0.10	0.71	< 0.099	160
BTEX	Total	50	181.2	430	ND	ND	ND	293
Arsenic	SW6010B		< 2.6	< 2.7	**3.1**	< 2.6	< 2.7	< 2.7
Barium	SW6010B		**82**	**150**	**230**	**30**	**130**	**160**
Cadmium	SW6010B		< 0.11	< 0.11	< 0.11	< 0.10	< 0.11	< 0.11
Chromium	SW6010B		**4.3**	**4.5**	**6.3**	**2.5**	**4.8**	**5.3**
Lead	SW6010B		**3.8**	**4.2**	**5.0**	**2.4**	**4.0**	**3.8**
Selenium	SW6010B		< 2.6	< 2.7	< 2.9	< 2.6	< 2.7	< 2.7
Silver	SW6010B		< 0.26	< 0.27	< 0.29	< 0.26	< 0.27	< 0.27
Mercury	SW7471		< 0.035	< 0.035	< 0.037	< 0.034	< 0.035	< 0.036
1,1,1,2-Tetrachloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,1-Trichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,2,2-Tetrachloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,2-Trichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloroethene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloropropene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,3-Trichlorobenzene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,3-Trichloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,4-Trichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2,4-Trimethylbenzene	SW8260B		**14**	**56**	< 0.056	< 0.050	< 0.052	**28**
1,2-Dibromo-3-chloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2-Dibromoethane (EDB)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichloroethane (EDC)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichloropropane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,3,5-Trimethylbenzene	SW8260B		**6.7**	**27**	< 0.056	< 0.050	< 0.052	**13**
1,3-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,3-Dichloropropane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,4-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1-Methylnaphthalene	SW8260B		**2.4**	**8.9**	< 0.23	< 0.20	< 0.21	**6.3**
2,2-Dichloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
2-Butanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
2-Chlorotoluene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
2-Hexanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
2-Methylnaphthalene	SW8260B		**3.7**	**14**	< 0.23	< 0.20	< 0.21	**9.5**
4-Chlorotoluene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
4-Isopropyltoluene	SW8260B		**0.80**	**3.3**	< 0.056	< 0.050	< 0.052	**1.7**
4-Methyl-2-pentanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
Acetone	SW8260B		< 7.7	< 15	< 0.84	< 0.75	< 0.79	< 16
Benzene	SW8260B		**1.6**	**13**	< 0.028	< 0.025	< 0.026	**7.2**
Bromobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromodichloromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromoform	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromomethane	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
Carbon disulfide	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
Carbon tetrachloride	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chloroethane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
Chloroform	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chloromethane	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
cis-1,2-DCE	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
cis-1,3-Dichloropropene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dibromochloromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dibromomethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dichlorodifluoromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Ethylbenzene	SW8260B		**5.8**	**27**	< 0.056	< 0.050	< 0.052	**9.3**
Hexachlorobutadiene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
Isopropylbenzene	SW8260B		**1.4**	**6.2**	< 0.056	< 0.050	< 0.052	**2.6**
Methyl tert-butyl ether (MTBE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Methylene chloride	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
Naphthalene	SW8260B		**1.9**	**7.2**	< 0.11	< 0.10	< 0.10	**4.4**
n-Butylbenzene	SW8260B		< 1.5	**3.5**	< 0.17	< 0.15	< 0.16	< 3.1
n-Propylbenzene	SW8260B		**2.2**	**9.6**	< 0.056	< 0.050	< 0.052	**4.3**
sec-Butylbenzene	SW8260B		**0.72**	**3.0**	< 0.056	< 0.050	< 0.052	**1.5**
Styrene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
tert-Butylbenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Tetrachloroethene (PCE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Toluene	SW8260B		29	180	< 0.056	< 0.050	< 0.052	**52**
trans-1,2-DCE	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
trans-1,3-Dichloropropene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Trichloroethene (TCE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Trichlorofluoromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0

TABLE 1
Analytical Summary of Confirmation Sample Results

	Analytical Method	OCD Clean-up Levels [2]	Sample IDs					
			E Wall	Floor	N Wall	NW Pothole @ 14'	S Wall	W Wall
Vinyl chloride	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Xylenes, Total	SW8260B		**57**	**270**	< 0.11	< 0.10	< 0.10	**88**
1,2,4-Trichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,2-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,3-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,4-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1-Methylnaphthalene	SW8270C		< 2.2	**5.4**	< 2.3	< 0.21	< 2.2	**3.0**
2,4,5-Trichlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2,4,6-Trichlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2,4-Dichlorophenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
2,4-Dimethylphenol	SW8270C		< 3.2	< 3.3	< 3.4	< 0.32	< 3.3	< 3.3
2,4-Dinitrophenol	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2,4-Dinitrotoluene	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2,6-Dinitrotoluene	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2-Chloronaphthalene	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
2-Chlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2-Methylnaphthalene	SW8270C		**2.9**	**9.5**	< 2.3	< 0.21	< 2.2	4.6
2-Methylphenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
2-Nitroaniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2-Nitrophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
3,3'-Dichlorobenzidine	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
3+4-Methylphenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
3-Nitroaniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4,6-Dinitro-2-methylphenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
4-Bromophenyl phenyl ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4-Chloro-3-methylphenol	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
4-Chloroaniline	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
4-Chlorophenyl phenyl ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4-Nitroaniline	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
4-Nitrophenol	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
Acenaphthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Acenaphthylene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Aniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Azobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benz(a)anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(a)pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(b)fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(g,h,i)perylene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(k)fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzoic acid	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
Benzyl alcohol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroethoxy)methane	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroethyl)ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroisopropyl)ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-ethylhexyl)phthalate	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
Butyl benzyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Carbazole	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Chrysene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dibenz(a,h)anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dibenzofuran	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Diethyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dimethyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Di-n-butyl phthalate	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Di-n-octyl phthalate	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Fluorene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorobutadiene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorocyclopentadiene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachloroethane	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Indeno(1,2,3-cd)pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Isophorone	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Naphthalene	SW8270C		< 2.2	**3.5**	< 2.3	< 0.21	< 2.2	< 2.2
Nitrobenzene	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
N-Nitrosodi-n-propylamine	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
N-Nitrosodiphenylamine	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pentachlorophenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Phenanthrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Phenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pyridine	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4

Notes:

1. All analytical results are reporting in units of milligrams per kilograms (mg/kg)
2. Clean-up standards are pursuant to the NMOCD Guidelines for Remediation of Leaks, Spills, and Releases dated August 13, 1993.

APPENDIX A

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 25, 2016

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Bloomfield Terminal OrderNo.: 1603878

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/17/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-001 **Matrix:** SOIL

Client Sample ID: NW Pothole @ 14'
Collection Date: 3/14/2016 1:20:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dibenz(a,h)anthracene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dibenzofuran	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,2-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,3-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,4-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3,3'-Dichlorobenzidine	ND	0.26		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Diethyl phthalate	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dimethyl phthalate	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dichlorophenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dimethylphenol	ND	0.32		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4,6-Dinitro-2-methylphenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dinitrophenol	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dinitrotoluene	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,6-Dinitrotoluene	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Fluoranthene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Fluorene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorobutadiene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorocyclopentadiene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachloroethane	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Indeno(1,2,3-cd)pyrene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Isophorone	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1-Methylnaphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Methylnaphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Methylphenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3+4-Methylphenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
N-Nitrosodi-n-propylamine	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
N-Nitrosodiphenylamine	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Naphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Nitroaniline	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3-Nitroaniline	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4-Nitroaniline	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Nitrobenzene	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Nitrophenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4-Nitrophenol	ND	0.26		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Pentachlorophenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Phenanthrene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Phenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-001 **Matrix:** SOIL

Client Sample ID: NW Pothole @ 14'
Collection Date: 3/14/2016 1:20:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dibromochloromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dibromomethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,3-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,4-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dichlorodifluoromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloroethene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2-Dichloropropane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,3-Dichloropropane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
2,2-Dichloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloropropene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Hexachlorobutadiene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
2-Hexanone	ND	0.50		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Isopropylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
4-Isopropyltoluene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
4-Methyl-2-pentanone	ND	0.50		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Methylene chloride	ND	0.15		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
n-Butylbenzene	ND	0.15		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
n-Propylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
sec-Butylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Styrene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
tert-Butylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Tetrachloroethene (PCE)	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
trans-1,2-DCE	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
trans-1,3-Dichloropropene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,1-Trichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,2-Trichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Trichloroethene (TCE)	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Trichlorofluoromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,3-Trichloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Vinyl chloride	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Surr: Dibromofluoromethane	103	70-130		%Rec	1	3/18/2016 5:30:34 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** N Wall
Project: Bloomfield Terminal **Collection Date:** 3/14/2016 1:40:00 PM
Lab ID: 1603878-002 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	12	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.037		mg/Kg-dry	1	3/22/2016 5:44:27 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	3.1	2.9		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Barium	230	0.11		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Chromium	6.3	0.34		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Lead	5.0	0.29		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Selenium	ND	2.9		mg/Kg-dry	1	3/24/2016 6:07:45 AM	24353
Silver	ND	0.29		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Acenaphthylene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Aniline	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Anthracene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Azobenzene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benz(a)anthracene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(a)pyrene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(b)fluoranthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(g,h,i)perylene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(k)fluoranthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzoic acid	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzyl alcohol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroethoxy)methane	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroethyl)ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Bromophenyl phenyl ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Butyl benzyl phthalate	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Carbazole	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chloro-3-methylphenol	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chloroaniline	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2-Chloronaphthalene	ND	2.8	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2-Chlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chlorophenyl phenyl ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Chrysene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Di-n-butyl phthalate	ND	4.5	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-002 **Matrix:** SOIL

Client Sample ID: N Wall
Collection Date: 3/14/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Pyridine	ND	4.5	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
1,2,4-Trichlorobenzene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2,4,5-Trichlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2,4,6-Trichlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	0.028		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Toluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Ethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Methyl tert-butyl ether (MTBE)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2,4-Trimethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,3,5-Trimethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2-Dichloroethane (EDC)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2-Dibromoethane (EDB)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Naphthalene	ND	0.11		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1-Methylnaphthalene	ND	0.23		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Methylnaphthalene	ND	0.23		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Acetone	ND	0.84		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromobenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromodichloromethane	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromoform	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromomethane	ND	0.17		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Butanone	ND	0.56		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Carbon disulfide	ND	0.56		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Carbon tetrachloride	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chlorobenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloroethane	ND	0.11		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloroform	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloromethane	ND	0.17		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Chlorotoluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
4-Chlorotoluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
cis-1,2-DCE	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
cis-1,3-Dichloropropene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-002 **Matrix:** SOIL

Client Sample ID: N Wall
Collection Date: 3/14/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321
Surr: Toluene-d8	101	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** E Wall
Project: Bloomfield Terminal **Collection Date:** 3/15/2016 2:20:00 PM
Lab ID: 1603878-003 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dibenz(a,h)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dibenzofuran	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,2-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,3-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,4-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3,3'-Dichlorobenzidine	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Diethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dimethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dichlorophenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dimethylphenol	ND	3.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4,6-Dinitro-2-methylphenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dinitrophenol	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dinitrotoluene	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,6-Dinitrotoluene	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Fluorene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorobutadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorocyclopentadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachloroethane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Indeno(1,2,3-cd)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Isophorone	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Methylnaphthalene	2.9	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Methylphenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3+4-Methylphenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
N-Nitrosodi-n-propylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
N-Nitrosodiphenylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Naphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4-Nitroaniline	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Nitrobenzene	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Nitrophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4-Nitrophenol	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Pentachlorophenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Phenanthrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Phenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** E Wall
Project: Bloomfield Terminal **Collection Date:** 3/15/2016 2:20:00 PM
Lab ID: 1603878-003 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dibromochloromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dibromomethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,3-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,4-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dichlorodifluoromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloroethene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2-Dichloropropane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,3-Dichloropropane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
2,2-Dichloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloropropene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Hexachlorobutadiene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
2-Hexanone	ND	5.1		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Isopropylbenzene	1.4	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
4-Isopropyltoluene	0.80	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
4-Methyl-2-pentanone	ND	5.1		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Methylene chloride	ND	1.5		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
n-Butylbenzene	ND	1.5		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
n-Propylbenzene	2.2	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
sec-Butylbenzene	0.72	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Styrene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
tert-Butylbenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Tetrachloroethene (PCE)	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
trans-1,2-DCE	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
trans-1,3-Dichloropropene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,3-Trichlorobenzene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,4-Trichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,1-Trichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,2-Trichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Trichloroethene (TCE)	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Trichlorofluoromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,3-Trichloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Vinyl chloride	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Xylenes, Total	57	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Surr: Dibromofluoromethane	99.3	70-130		%Rec	10	3/21/2016 2:11:56 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603878-004 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	7.7	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.035		mg/Kg-dry	1	3/22/2016 5:48:00 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.7		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Barium	150	0.11		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Chromium	4.5	0.32		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Lead	4.2	0.27		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Selenium	ND	2.7		mg/Kg-dry	1	3/24/2016 6:12:32 AM	24353
Silver	ND	0.27		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Acenaphthylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Aniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Azobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benz(a)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(a)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(b)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(g,h,i)perylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(k)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzoic acid	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzyl alcohol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroethoxy)methane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroethyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Bromophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Butyl benzyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Carbazole	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chloro-3-methylphenol	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chloroaniline	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2-Chloronaphthalene	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2-Chlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chlorophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Chrysene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Di-n-butyl phthalate	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603878-004 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Pyridine	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
1,2,4-Trichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2,4,5-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2,4,6-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	13	0.50		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Toluene	180	5.0		mg/Kg-dry	100	3/22/2016 7:09:36 AM	24321
Ethylbenzene	27	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Methyl tert-butyl ether (MTBE)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2,4-Trimethylbenzene	56	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,3,5-Trimethylbenzene	27	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2-Dichloroethane (EDC)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2-Dibromoethane (EDB)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Naphthalene	7.2	2.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1-Methylnaphthalene	8.9	4.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Methylnaphthalene	14	4.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Acetone	ND	15		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromodichloromethane	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromoform	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromomethane	ND	3.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Butanone	ND	10		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Carbon disulfide	ND	10		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Carbon tetrachloride	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chlorobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloroethane	ND	2.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloroform	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloromethane	ND	3.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
4-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
cis-1,2-DCE	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
cis-1,3-Dichloropropene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-004 **Matrix:** SOIL

Client Sample ID: Floor
Collection Date: 3/16/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	97.9	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321
Surr: Toluene-d8	107	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321
Surr: 4-Bromofluorobenzene	120	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-005 **Matrix:** SOIL

Client Sample ID: S Wall
Collection Date: 3/16/2016 1:50:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dibenz(a,h)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dibenzofuran	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,2-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,3-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,4-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3,3'-Dichlorobenzidine	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Diethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dimethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dichlorophenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dimethylphenol	ND	3.3	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4,6-Dinitro-2-methylphenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dinitrophenol	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dinitrotoluene	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,6-Dinitrotoluene	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Fluorene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorobutadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorocyclopentadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachloroethane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Indeno(1,2,3-cd)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Isophorone	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Methylphenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3+4-Methylphenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
N-Nitrosodi-n-propylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
N-Nitrosodiphenylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Naphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4-Nitroaniline	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Nitrobenzene	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Nitrophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4-Nitrophenol	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Pentachlorophenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Phenanthrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Phenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** S Wall
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:50:00 PM
Lab ID: 1603878-005 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dibromochloromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dibromomethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,3-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,4-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dichlorodifluoromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloroethene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2-Dichloropropane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,3-Dichloropropane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
2,2-Dichloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloropropene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Hexachlorobutadiene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
2-Hexanone	ND	0.52		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Isopropylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
4-Isopropyltoluene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
4-Methyl-2-pentanone	ND	0.52		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Methylene chloride	ND	0.16		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
n-Butylbenzene	ND	0.16		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
n-Propylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
sec-Butylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Styrene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
tert-Butylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Tetrachloroethene (PCE)	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
trans-1,2-DCE	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
trans-1,3-Dichloropropene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,4-Trichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,1-Trichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,2-Trichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Trichloroethene (TCE)	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Trichlorofluoromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,3-Trichloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Vinyl chloride	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Surr: Dibromofluoromethane	105	70-130		%Rec	1	3/21/2016 12:46:58 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	9.1	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.036		mg/Kg-dry	1	3/22/2016 5:51:36 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.7		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Barium	160	0.11		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Chromium	5.3	0.33		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Lead	3.8	0.27		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Selenium	ND	2.7		mg/Kg-dry	1	3/24/2016 6:14:59 AM	24353
Silver	ND	0.27		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Acenaphthylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Aniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Azobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benz(a)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(a)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(b)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(g,h,i)perylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(k)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzoic acid	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzyl alcohol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroethoxy)methane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroethyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Bromophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Butyl benzyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Carbazole	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chloro-3-methylphenol	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chloroaniline	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2-Chloronaphthalene	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2-Chlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chlorophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Chrysene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Di-n-butyl phthalate	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Pyridine	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
1,2,4-Trichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2,4,5-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2,4,6-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	7.2	0.52		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Toluene	52	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Ethylbenzene	9.3	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Methyl tert-butyl ether (MTBE)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2,4-Trimethylbenzene	28	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,3,5-Trimethylbenzene	13	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2-Dichloroethane (EDC)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2-Dibromoethane (EDB)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Naphthalene	4.4	2.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1-Methylnaphthalene	6.3	4.2		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Methylnaphthalene	9.5	4.2		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Acetone	ND	16		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromodichloromethane	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromoform	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromomethane	ND	3.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Butanone	ND	10		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Carbon disulfide	ND	10		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Carbon tetrachloride	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chlorobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloroethane	ND	2.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloroform	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloromethane	ND	3.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
4-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
cis-1,2-DCE	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
cis-1,3-Dichloropropene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321
Surr: Toluene-d8	98.0	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321
Surr: 4-Bromofluorobenzene	116	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **mb-24321** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **24321** RunNo: **32918**
Prep Date: **3/17/2016** Analysis Date: **3/18/2016** SeqNo: **1009413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.50		0.5000		101	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.53		0.5000		106	70	130			

Sample ID **lcs-24321** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **24321** RunNo: **32918**
Prep Date: **3/17/2016** Analysis Date: **3/18/2016** SeqNo: **1009414** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.8	70	130			
Toluene	1.0	0.050	1.000	0	99.6	70	130			
Chlorobenzene	0.99	0.050	1.000	0	98.8	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **mb-24350**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **24350**	RunNo: **32992**
Prep Date: **3/21/2016**	Analysis Date: **3/23/2016**	SeqNo: **1013032** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3'-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID **lcs-24350** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**

Client ID: **LCSS** Batch ID: **24350** RunNo: **32992**

Prep Date: **3/21/2016** Analysis Date: **3/23/2016** SeqNo: **1013033** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.20	1.670	0	75.1	45.8	99.8			
4-Chloro-3-methylphenol	2.4	0.50	3.330	0	73.1	51.5	103			
2-Chlorophenol	2.4	0.20	3.330	0	71.4	46.5	105			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	72.2	45.5	103			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	70.8	36	87.2			
N-Nitrosodi-n-propylamine	1.0	0.20	1.670	0	60.4	47.3	104			
4-Nitrophenol	2.7	0.25	3.330	0	80.8	47.3	95.3			
Pentachlorophenol	2.1	0.40	3.330	0	63.9	38.7	89.3			
Phenol	2.4	0.20	3.330	0	72.6	47.8	106			
Pyrene	1.1	0.20	1.670	0	68.7	33.4	105			
1,2,4-Trichlorobenzene	1.4	0.20	1.670	0	85.9	50.4	115			
Surr: 2-Fluorophenol	2.2		3.330		65.3	28.3	102			
Surr: Phenol-d5	2.5		3.330		74.2	35.7	103			
Surr: 2,4,6-Tribromophenol	2.3		3.330		70.4	35.2	108			
Surr: Nitrobenzene-d5	1.3		1.670		79.3	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		77.5	35.4	111			
Surr: 4-Terphenyl-d14	1.2		1.670		71.6	15	91.7			

Sample ID **1603878-001ams** SampType: **MS** TestCode: **EPA Method 8270C: Semivolatiles**

Client ID: **NW Pothole @ 14'** Batch ID: **24350** RunNo: **32992**

Prep Date: **3/21/2016** Analysis Date: **3/23/2016** SeqNo: **1013040** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.21	1.768	0	72.1	27.5	117			
4-Chloro-3-methylphenol	2.8	0.53	3.526	0	78.2	26.3	116			
2-Chlorophenol	2.2	0.21	3.526	0	61.4	21.4	113			
1,4-Dichlorobenzene	0.92	0.21	1.768	0	52.2	25	105			
2,4-Dinitrotoluene	1.4	0.53	1.768	0	76.9	21.1	119			
N-Nitrosodi-n-propylamine	1.0	0.21	1.768	0	58.7	21.3	126			
4-Nitrophenol	2.9	0.26	3.526	0	82.0	21.3	120			
Pentachlorophenol	2.6	0.42	3.526	0	74.6	11.5	115			
Phenol	2.2	0.21	3.526	0	62.7	23	118			
Pyrene	1.4	0.21	1.768	0	76.4	25.7	110			
1,2,4-Trichlorobenzene	1.2	0.21	1.768	0	67.4	31.1	107			
Surr: 2-Fluorophenol	1.7		3.526		49.0	28.3	102			
Surr: Phenol-d5	2.2		3.526		61.9	35.7	103			
Surr: 2,4,6-Tribromophenol	2.5		3.526		71.8	35.2	108			
Surr: Nitrobenzene-d5	1.1		1.768		60.0	24	118			
Surr: 2-Fluorobiphenyl	1.1		1.768		64.3	35.4	111			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID	**MB-24354**	SampType: **mblk**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011747**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-24354**	SampType: **lcs**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011748**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.18	0.033	0.1667	0	107	80	120			

Sample ID	**1603878-001AMS**	SampType: **ms**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**NW Pothole @ 14'**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011750**		Units: **mg/Kg-dry**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.19	0.035	0.1779	0.003482	105	75	125			

Sample ID	**1603878-001AMSD**	SampType: **msd**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**NW Pothole @ 14'**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011751**		Units: **mg/Kg-dry**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.19	0.034	0.1734	0.003482	106	75	125	1.14	20	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **1603878-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **32957**
Prep Date: **3/21/2016** Analysis Date: **3/22/2016** SeqNo: **1010814** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	24	0.26	26.04	2.427	83.0	75	125	4.66	20	
Silver	4.5	0.26	5.209	0	86.5	75	125	2.46	20	

Sample ID **MB-24353** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012884** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	2.5								

Sample ID **LCS-24353** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012885** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	26	2.5	25.00	0	103	80	120			

Sample ID **1603878-001AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012889** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	23	2.6	26.34	0	87.8	75	125			

Sample ID **1603878-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012890** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	23	2.6	26.04	0	88.8	75	125	0.0715	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Western Refining	Turn-Around Time: ☒ Standard ☑ Rush ASAP 4/20/16
111	Project Name: Bloomfield Terminal
Mailing Address: 111 CR 4990 Bloomfield, NM 87413	Project #:
Phone #: (505) 632-4166	
Email or Fax#:	Project Manager: Kelly Robinson
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)	Sampler: Michael Wicker
Accreditation: ☒ NELAP ☐ Other	On Ice: ☑ Yes ☐ No
EDD (Type) Excel	Sample Temperature: 2.2

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1603878	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VOCs 8260	S-VOCs 8270	Total Metals 6010/6020	Mercury 7470	Air Bubbles (Y or N)
3-16	1320	Soil	NW Pothole @14'	2-8oz	Cool	-001												✓	✓	✓	✓	
"	1340		N Wall	↓		-002																
3-16	1420		E Wall	↓		-003																
3-16	1340		Floor	1-8oz 2-4oz		-004																
	1350		S Wall	4-4oz		-005																
"	1410	↓	W Wall	↓	↓	-006												↓	↓	↓	↓	

Date	Time	Relinquished by:	Received by:	Date	Time
3/16/16	17:16			3/16/16	1716
3/16	1965			03/17/16	0733

Remarks: Please CC MWicker@LTEnv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 21, 2016

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Bloomfield Terminal OrderNo.: 1603876

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/17/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** N Wall
Project: Bloomfield Terminal **Collection Date:** 3/14/2016 1:40:00 PM
Lab ID: 1603876-002 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	11	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	11		mg/Kg-dry	1	3/17/2016 2:14:55 PM	24297
Motor Oil Range Organics (MRO)	ND	54		mg/Kg-dry	1	3/17/2016 2:14:55 PM	24297
Surr: DNOP	87.0	70-130		%Rec	1	3/17/2016 2:14:55 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.2		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Surr: BFB	111	66.2-112		%Rec	1	3/17/2016 11:40:31 AM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.026		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Toluene	ND	0.052		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Ethylbenzene	ND	0.052		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Surr: 4-Bromofluorobenzene	117	80-120		%Rec	1	3/17/2016 11:40:31 AM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603876-004 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	7.6	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	3500	100		mg/Kg-dry	10	3/17/2016 4:04:11 PM	24297
Motor Oil Range Organics (MRO)	1300	510		mg/Kg-dry	10	3/17/2016 4:04:11 PM	24297
Surr: DNOP	0	70-130	S	%Rec	10	3/17/2016 4:04:11 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	5600	280		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Surr: BFB	310	66.2-112	S	%Rec	50	3/17/2016 12:27:44 PM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	14	1.4		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Toluene	150	2.8		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Ethylbenzene	26	2.8		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Xylenes, Total	240	5.5		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Surr: 4-Bromofluorobenzene	135	80-120	S	%Rec	50	3/17/2016 12:27:44 PM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** W Wall
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 2:10:00 PM
Lab ID: 1603876-006 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	11	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	4600	110		mg/Kg-dry	10	3/17/2016 5:30:55 PM	24297
Motor Oil Range Organics (MRO)	1800	550		mg/Kg-dry	10	3/17/2016 5:30:55 PM	24297
Surr: DNOP	0	70-130	S	%Rec	10	3/17/2016 5:30:55 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	4000	280		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Surr: BFB	255	66.2-112	S	%Rec	50	3/17/2016 5:56:51 PM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	15	1.4		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Toluene	100	2.8		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Ethylbenzene	18	2.8		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Xylenes, Total	160	5.6		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Surr: 4-Bromofluorobenzene	134	80-120	S	%Rec	50	3/17/2016 5:56:51 PM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603876**

21-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID **MB-24284**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **24284**	RunNo: **32868**
Prep Date: **3/16/2016**	Analysis Date: **3/17/2016**	SeqNo: **1007393** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		109	66.2	112			

Sample ID **LCS-24284**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **24284**	RunNo: **32868**
Prep Date: **3/16/2016**	Analysis Date: **3/17/2016**	SeqNo: **1007394** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.1	80	120			
Surr: BFB	1100		1000		115	66.2	112			S

Sample ID **1603876-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **NW Pothole @ 14'**	Batch ID: **24284**	RunNo: **32868**
Prep Date:	Analysis Date: **3/17/2016**	SeqNo: **1007411** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	3.5	17.66	11.65	95.6	59.3	143			
Surr: BFB	1400		706.4		198	66.2	112			S

Sample ID **1603876-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **NW Pothole @ 14'**	Batch ID: **24284**	RunNo: **32868**
Prep Date:	Analysis Date: **3/17/2016**	SeqNo: **1007412** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	3.5	17.66	11.65	111	59.3	143	9.30	20	
Surr: BFB	1400		706.4		201	66.2	112	0	0	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1603876 RcptNo: 1

Received by/date: 03/17/16

Logged By: Lindsay Mangin 3/17/2016 7:33:00 AM

Completed By: Lindsay Mangin 3/17/2016 8:33:58 AM

Reviewed By: 03/17/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 16, 2016

Matt Krakow
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Crude Unloading Line OrderNo.: 1603350

Dear Matt Krakow:

Hall Environmental Analysis Laboratory received 1 sample(s) on 3/7/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Crude Unloading Line
Lab ID: 1603350-001 **Matrix:** SOIL

Client Sample ID: Waste Characterization
Collection Date: 3/7/2016 1:00:00 PM
Received Date: 3/7/2016 4:52:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst: **DJF**	
Benzene	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
2-Butanone	ND	200		mg/L	1	3/9/2016 5:51:30 PM	24135
Carbon Tetrachloride	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Chlorobenzene	ND	100		mg/L	1	3/9/2016 5:51:30 PM	24135
Chloroform	ND	6.0		mg/L	1	3/9/2016 5:51:30 PM	24135
1,4-Dichlorobenzene	ND	7.5		mg/L	1	3/9/2016 5:51:30 PM	24135
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
1,1-Dichloroethene	ND	0.70		mg/L	1	3/9/2016 5:51:30 PM	24135
Hexachlorobutadiene	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	3/9/2016 5:51:30 PM	24135
Trichloroethene (TCE)	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Vinyl chloride	ND	0.20		mg/L	1	3/9/2016 5:51:30 PM	24135
Surr: 1,2-Dichloroethane-d4	94.9	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: Dibromofluoromethane	91.6	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: Toluene-d8	100	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.
Project: Crude Unloading Line

Sample ID **MB-24219**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **24219**	RunNo: **32770**
Prep Date: **3/11/2016**	Analysis Date: **3/14/2016**	SeqNo: **1004230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		106	66.2	112			

Sample ID **LCS-24219**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **24219**	RunNo: **32770**
Prep Date: **3/11/2016**	Analysis Date: **3/14/2016**	SeqNo: **1004231** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.3	80	120			
Surr: BFB	1100		1000		114	66.2	112			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID **1603350-001ams** SampType: **MS** TestCode: **Volatiles by 8260B/1311**

Client ID: **Waste Characterizat** Batch ID: **24135** RunNo: **32688**

Prep Date: **3/8/2016** Analysis Date: **3/9/2016** SeqNo: **1000436** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		92.9	70	130			
Surr: 4-Bromofluorobenzene	0.23		0.2000		115	70	130			
Surr: Dibromofluoromethane	0.19		0.2000		95.0	70	130			
Surr: Toluene-d8	0.19		0.2000		96.5	70	130			

Sample ID **1603350-001amsd** SampType: **MSD** TestCode: **Volatiles by 8260B/1311**

Client ID: **Waste Characterizat** Batch ID: **24135** RunNo: **32688**

Prep Date: **3/8/2016** Analysis Date: **3/9/2016** SeqNo: **1000450** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.38	0.30	0.4000	0	94.2	70	130	5.98	20	
Chlorobenzene	0.40	0.30	0.4000	0	99.4	70	130	5.41	20	
1,1-Dichloroethene	0.35	0.30	0.4000	0	88.6	70	130	11.0	20	
Trichloroethene (TCE)	0.35	0.30	0.4000	0	86.7	70	130	9.13	20	
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		94.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.22		0.2000		111	70	130	0	0	
Surr: Dibromofluoromethane	0.18		0.2000		91.2	70	130	0	0	
Surr: Toluene-d8	0.19		0.2000		95.5	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID **lcs-24177** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**

Client ID: **LCSS** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004052** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.18		0.2000		89.8	31.3	139			
Surr: Nitrobenzene-d5	0.075		0.1000		74.7	48.2	128			
Surr: 2-Fluorobiphenyl	0.076		0.1000		75.7	58.4	114			
Surr: 4-Terphenyl-d14	0.078		0.1000		78.1	17.4	141			

Sample ID **1603350-001ams** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **Waste Characterizat** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004054** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.10	0.010	0.1000	0	101	43.1	114			
3+4-Methylphenol	0.21	0.010	0.2000	0	107	37.8	128			
2,4-Dinitrotoluene	0.076	0.010	0.1000	0	76.3	36.5	125			
Hexachlorobenzene	0.11	0.010	0.1000	0	112	41.4	108			S
Hexachlorobutadiene	0.085	0.010	0.1000	0	84.8	30.4	101			
Hexachloroethane	0.087	0.010	0.1000	0	87.3	37.3	115			
Nitrobenzene	0.10	0.010	0.1000	0	102	40.2	132			
Pentachlorophenol	0.043	0.010	0.1000	0	43.0	8.72	103			
Pyridine	0.074	0.010	0.1000	0	73.9	9.36	106			
2,4,5-Trichlorophenol	0.11	0.010	0.1000	0	105	16.5	123			
2,4,6-Trichlorophenol	0.082	0.010	0.1000	0	81.6	11.3	117			
Cresols, Total	0.32	0.010	0.3000	0	105	23.2	151			
Surr: 2-Fluorophenol	0.13		0.2000		63.8	19	121			
Surr: Phenol-d5	0.11		0.2000		53.1	31.8	117			
Surr: 2,4,6-Tribromophenol	0.20		0.2000		102	31.3	139			
Surr: Nitrobenzene-d5	0.10		0.1000		101	48.2	128			
Surr: 2-Fluorobiphenyl	0.096		0.1000		95.5	58.4	114			
Surr: 4-Terphenyl-d14	0.076		0.1000		76.1	17.4	141			

Sample ID **1603350-001amsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **Waste Characterizat** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004056** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.069	0.010	0.1000	0	69.2	43.1	114	37.2	28.4	R
3+4-Methylphenol	0.14	0.010	0.2000	0	70.8	37.8	128	40.7	29.4	R
2,4-Dinitrotoluene	0.055	0.010	0.1000	0	55.5	36.5	125	31.6	24.7	R
Hexachlorobenzene	0.079	0.010	0.1000	0	78.8	41.4	108	34.7	20	R
Hexachlorobutadiene	0.063	0.010	0.1000	0	63.2	30.4	101	29.1	29	R
Hexachloroethane	0.060	0.010	0.1000	0	60.3	37.3	115	36.6	25.2	R

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID	**MB-24168**	SampType: **MBLK**			TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **24168**			RunNo: **32705**					
Prep Date:	**3/9/2016**	Analysis Date: **3/10/2016**			SeqNo: **1001072**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-24168**	SampType: **LCS**			TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **24168**			RunNo: **32705**					
Prep Date:	**3/9/2016**	Analysis Date: **3/10/2016**			SeqNo: **1001074**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1603350 RcptNo: 1

Received by/date: 03/07/16

Logged By: Ashley Gallegos 3/7/2016 4:52:00 PM

Completed By: Ashley Gallegos 3/8/2016 9:08:31 AM

Reviewed By: 03/08/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.4	Good	Yes			

Chavez, Carl J, EMNRD

From: Robinson, Kelly <Kelly.Robinson@wnr.com>
Sent: Thursday, April 07, 2016 6:23 AM
To: Tsinnajinnie, Leona, NMENV
Cc: Dhawan, Neelam, NMENV; Cobrain, Dave, NMENV; Chavez, Carl J, EMNRD; Schmaltz, Randy; Krakow, Matt; Powell, Brandon, EMNRD
Subject: Corrective Action Report
Attachments: Corrective Action Report.pdf

Good Afternoon Ma'am,

In response to an oil leak originally reported to NMED-HWB and NMOCD on Saturday, March 5th, 2016, Western is submitting this Corrective Action Report summarizing the activities completed to-date. This Report is being submitted as an attachment to a revised C-141 Initial Report NMOCD has requested previously. The Report documents the excavation activities completed to-date, results from confirmation samples collected within the excavation area, and diagrams/photos showing the physical extent of the excavation.

As you will see in the Report, the excavation efforts were completed to the extent possible at this time. Due to the proximity of existing facility equipment and process piping, Western is no longer able to remove any additional soils safety. Western is requesting permission to suspend any further corrective actions until such time that the active process piping/equipment are removed to provide safe access to the area. This is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting that the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order. In addition, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as a secondary containment for active facility process equipment, and exposed active piping is being temporarily supported. Western believes the immediate threat this release had to the area has been removed by the excavation activities completed to-date. The remaining corrective actions would be best complete at a later date when the area is more accessible in a safe manner.

We would be more than happy to discuss this matter with you via a conference call to help facilitate NMED's review of the event, if so desired. Please let us know if you have any questions, or if you need any additional information not otherwise provided in this report. A hardcopy of this report is being sent to you, as well as to the OCD District Office and OCD Santa Fe Office.

Thank you for your time!

Sincerely,

Kelly R. Robinson | Environmental
Western Refining | 111 County Road 4990 | Bloomfield, NM87413
(o) 505-632-4166 | (c) 505-801-5616 | (e) kelly.robinson@wnr.com

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report (Revised) ☐ Final Report

Name of Company: Western Refining Southwest, Inc.	Contact: Kelly Robinson
Address: 50 Road 4990	Telephone No.: 505-632-4166
Facility Name: Bloomfield Terminal	Facility Type: Products Terminal

Surface Owner: Western Refining Southwest, Inc.	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	27	29N	11W					

Latitude 36° 41' 45"N **Longitude** 107° 58' 12" W

NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: Unknown	Volume Recovered: 8 barrels
Source of Release: Crude Line Release Underground	Date and Hour of Occurrence: unknown	Date and Hour of Discovery: 3/05/2016 at 2am
Was Immediate Notice Given? ☒ Yes ☐ No ☒ Not Required	If YES, To Whom? Cory Smith (NMOCD-Aztec) Carl Chavez (NMED–Santa Fe) Leona Tsinnajinnie (NMED-HWB) Dave Cobrain (NMED-HWB) Neelam Dhawan (NMED-HWB)	
By Whom? : Kelly Robinson	Date and Hour : 03/05/2016 at 2:56 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

At approximately 2am on Saturday, March 5th, 2016, Western Operations identified a small 3-gallon accumulation of crude oil on ground surface within the secondary containment of Tank 41. Based on the location of the surface stain, the release was initially thought to be associated with the wet oil system. Operations took immediate action in shutting down the wet oil system. By 7am the same day, Maintenance arrived on-site and worked to expose the source of the oil release. By 11am, Maintenance identified the source of the oil release to be a breach in the crude unloading pipeline. The pipeline is located approximately 3 ft below grade surface. The line was able to be isolated and a temporary repair was installed by 12:15pm.

Describe Area Affected and Cleanup Action Taken.*

Excess liquids were collected using an on-site vacuum truck. The recovered oil was sent through the on-site wastewater treatment system for oil recovery. The oil release came from an underground pipeline that is located within the secondary containment of Tanks 41. As of 12:15pm this afternoon, temporary repairs have been completed on the pipeline. Surface soil impacts are localized to an area within the secondary containment of Tank 41. This crude oil release took place in an area previously investigated under an active Consent Order issued through New Mexico Hazardous Waste Bureau (NMED-HWB). Western will be coordinating with the NMED-HWB on implementing corrective actions pursuant to the condition of the Consent Order.

Updated April 6, 2016: Attached is a Corrective Action Report documenting in-detail the corrective action completed to-date. Due to the proximity of existing equipment within the excavation area, Western is no longer able to remove additional soils safely. Therefore, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as secondary containment for active in-service equipment. In addition, this is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Kelly Robinson	OIL CONSERVATION DIVISION	
Printed Name: Kelly Robinson	Approved by Environmental Specialist:	
Title: Environmental Manager - Logistics	Approval Date:	Expiration Date:
E-mail Address: Kelly.Robinson@wnr.com	Conditions of Approval:	Attached ☐
Date: 4-6-2016 Phone: (505) 632-4166		

* Attach Additional Sheets If Necessary

CORRECTIVE ACTION REPORT
Western Refining – Bloomfield Terminal

Cause of the Release

On Saturday, March 5th, 2016 at approximately 2am, the Operator on-duty at the Western Refining Bloomfield Terminal noticed a small stain of crude oil adjacent (east) of the Tank 42a/42b secondary containment pad. This area is located within the southern portion of the facility, south of highway 4990. The operator used absorbent material to soak-up the oil, and notified the Terminal Operations Manager. By 8am that same day, Maintenance personnel arrived on-scene to investigate the source of the stain. Using a backhoe, Western was able to identify a small leak in a 3-inch insulated crude oil pipeline used to convey crude oil from the Wet Oil System (Tank 41) to the facility Tank Farm area. The location of where the repair was made on the pipeline is approximately 10 to 15 feet east of where the crude oil surfaced. The pipeline was insulated with a fiberglass wrap, which likely was the reason why the oil released to surface slightly adjacent to the leak source location. Maintenance was able to isolate the line and repair the leak with a temporary clamp. The pipeline was returned to service by 12 noon on Saturday, March 5th, 2016. An initial notification of the release event was submitted to the New Mexico Oil Conservation Division (NMOCD) and New Mexico Environment Department – Hazardous Waste Bureau (NMED-HWB) on March 5th, 2016. The approximate location of where the release occurred within the facility boundary and the footprint of the excavation to-date is shown in Diagram 1 and Diagram 2, respectively.

Corrective Actions

Western contracted with Adobe Construction ("Adobe") to perform the excavation effort, and with LT Environmental to provide environmental over-site of the excavation efforts. Excavation activities commenced on Wednesday, March 9th, 2016 following clearance to dig through the New Mexico One Call System. The initial effort involved hand-digging to expose any existing pipelines within the area. Three additional pipelines were located within the excavation area. These additional lines have been confirmed by Operations to be out-of-service. Once the pipelines were exposed, a backhoe was used to progress the excavation effort. Field monitoring was conducted using a Photo Ionization Detector (PID) meter. The PID readings assisted in identifying the areas for which additional excavation was needed.

The excavation area was limited by the existing in-service aboveground pipelines to the north and east, existing concrete containment for in-service tanks to the west, and an existing tank to the south. Photo 1 and Photo 2 shows the adjacent facility equipment around the perimeter of the excavated area. Due to the restrictions from the existing structures, the lateral extent of the excavation was approximately 26 feet East – West and 12 feet North-South. The benching on the south side of the excavation was done to allow for means of egress for additional hand-digging around the pipelines.

The PID readings showing the surface concentrations as of March 14, 2016 are shown on Diagram #3. The diagram shows the relative depth below original grade in feet, and the corresponding PID reading in parts per million (ppm). The excavation had reached approximately 7.5 ft within eastern portion of the

excavation. This was accomplished utilizing a combination of excavation by backhoe and hand-digging. The west side was benched down approximately 2.5 feet, providing the backhoe an area to reach between the pipelines. PID readings were collected periodically as the excavation activities progressed. Along the north western portion of the excavation, there was an area of sandy soils exhibiting higher organic concentrations as observed using the PID. The excavation extended down deeper in this location, creating a hole approximately 3 feet by 2 feet by 13 feet deep (the maximum reach of the equipment used for excavation).

Between March 14th and March 16th, 2016, additional soils were removed, targeting areas higher than 300 pppm. Sidewall field readings indicated that the deeper hole needed to be extended laterally to the extent possible with the equipment used while taking into consideration the adjacent pipelines. Up-dated PID readings of the excavated area as of March 16th, 2016 are shown on Diagram #4. Due to adjacent facility equipment and concerns of being able to safely support the active pipeline that crosses the excavation, no additional soils were able to be removed at this time.

Between March 14th and March 16, 2016, 5-point composite samples were collected to characterize the North, South, East, West excavation walls. In addition, two 5-point composite samples were collected from the excavation base, with one sample collected at the bottom of the deepest excavation base. The samples were analyzed for the following:

- Total Petroleum Hydrocarbons (TPH) – Gasoline Range Organics (GRO) by EPA Method 8015
- TPH – Diesel Range Organics (DRO) by EPA Method 8015
- TPH- Motor Oil Range Organics (MRO) by EPA Method 8015
- Total Metals by EPA Method 6010B
- Volatile Organic Compounds (VOCs) by EPA Method 8260B
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C

A summary of the analytical results are provided in Table 1, and a copy of the analytical results are provided as an Appendix to this Report.

Waste Characterization

Excavated soils were temporarily stock-piled on-site during excavation activities. Approximately 80 yards of impacts soils were removed from the excavation. A composite sample was collected and analyzed for the following:

- TCLP VOCs by EPA Method 8260B
- TCLP SVOCs by EPA Method 8270C
- TCLP RCRA 8 Metals by EPA Method 6010B
- TPH-GRO by EPA Method 8015
- TPH-DRO by EPA Method 8015
- TPH-MRO by EPA Method 8015

The analytical results show that the material is classified as non-hazardous non-exempt waste. The waste was sent to the Envirotech landfarm for treatment and disposal. A copy of the waste characterization analytical report is provided in Appendix A.

Recommendations

The analytical results show that the north and south lateral extent of the impacted area has been defined. The remaining soils along the north and south boundary of the excavation area exhibit concentrations below the most conservative clean-up levels pursuant to the New Mexico Oil Conservation Division *Guidelines for Remediation of Leaks, Spill and Releases* dated August 13, 1993.

Confirmation samples collected from the west, east, and excavation base show that the residual soil concentrations are above the OCD clean-up levels for closure. However, the remaining soils no longer exhibit visual saturation staining. Due to the proximity of existing equipment within the excavation area, Western is no longer able to remove additional soils safely.

With this said, Western is requesting permission to backfill the excavation area to match existing grade. This area serves as secondary containment for active in-service equipment. In addition, this is an active investigation area under the NMED-HWB Consent Order dated July 27, 2007, and therefore Western is requesting the remaining corrective actions for this area be covered under the direction of the 2007 Consent Order.

PHOTOS

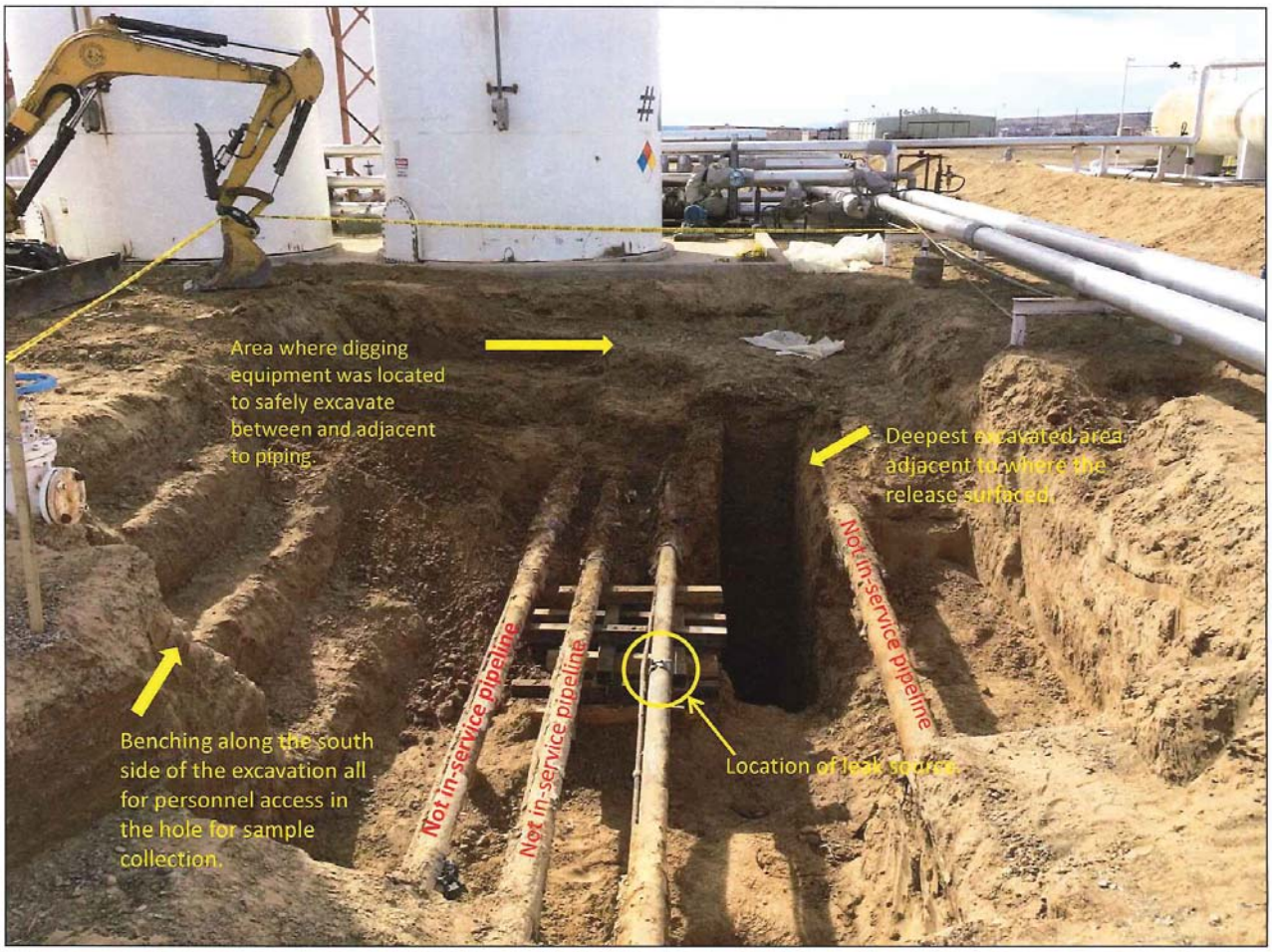
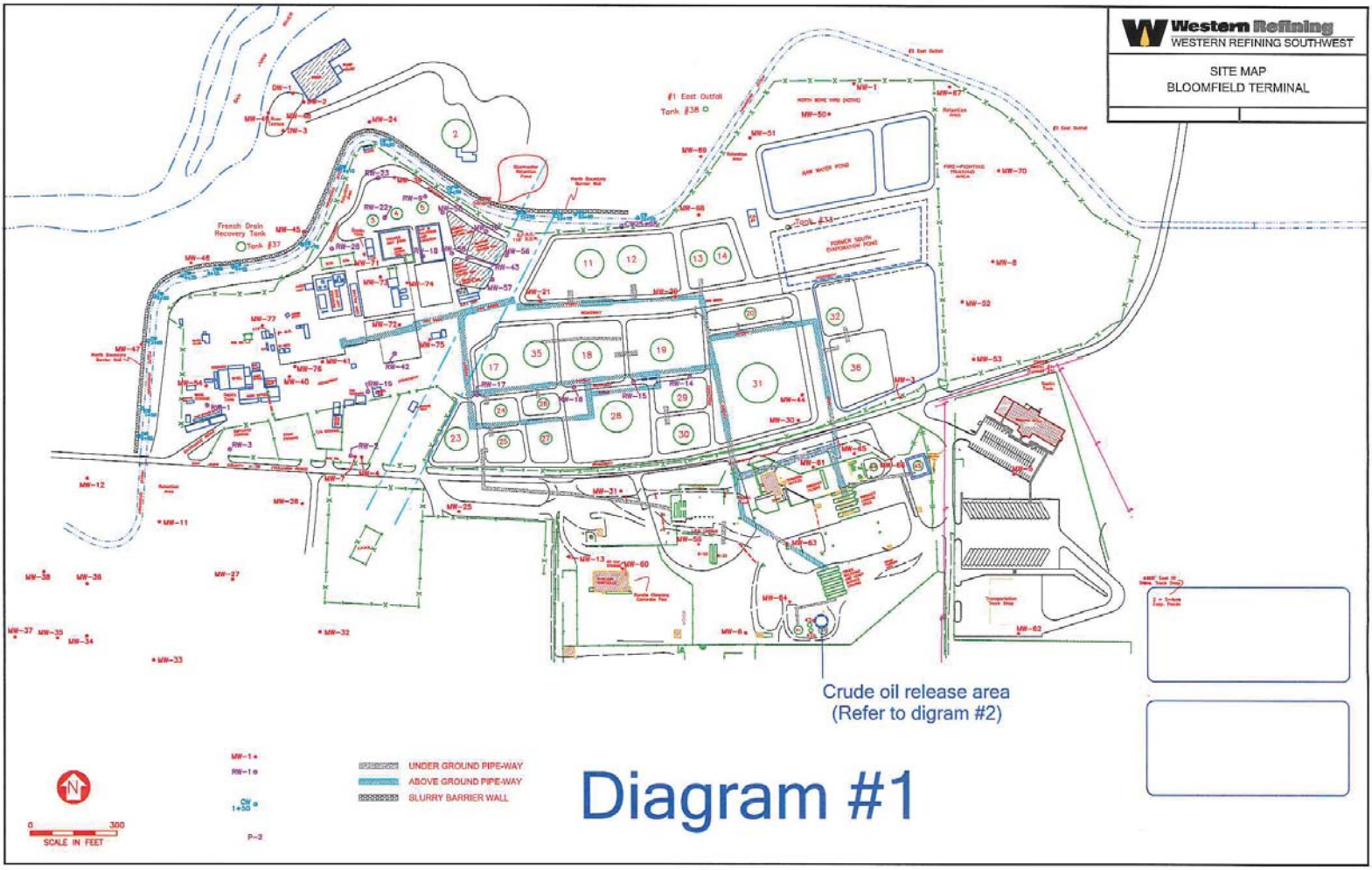
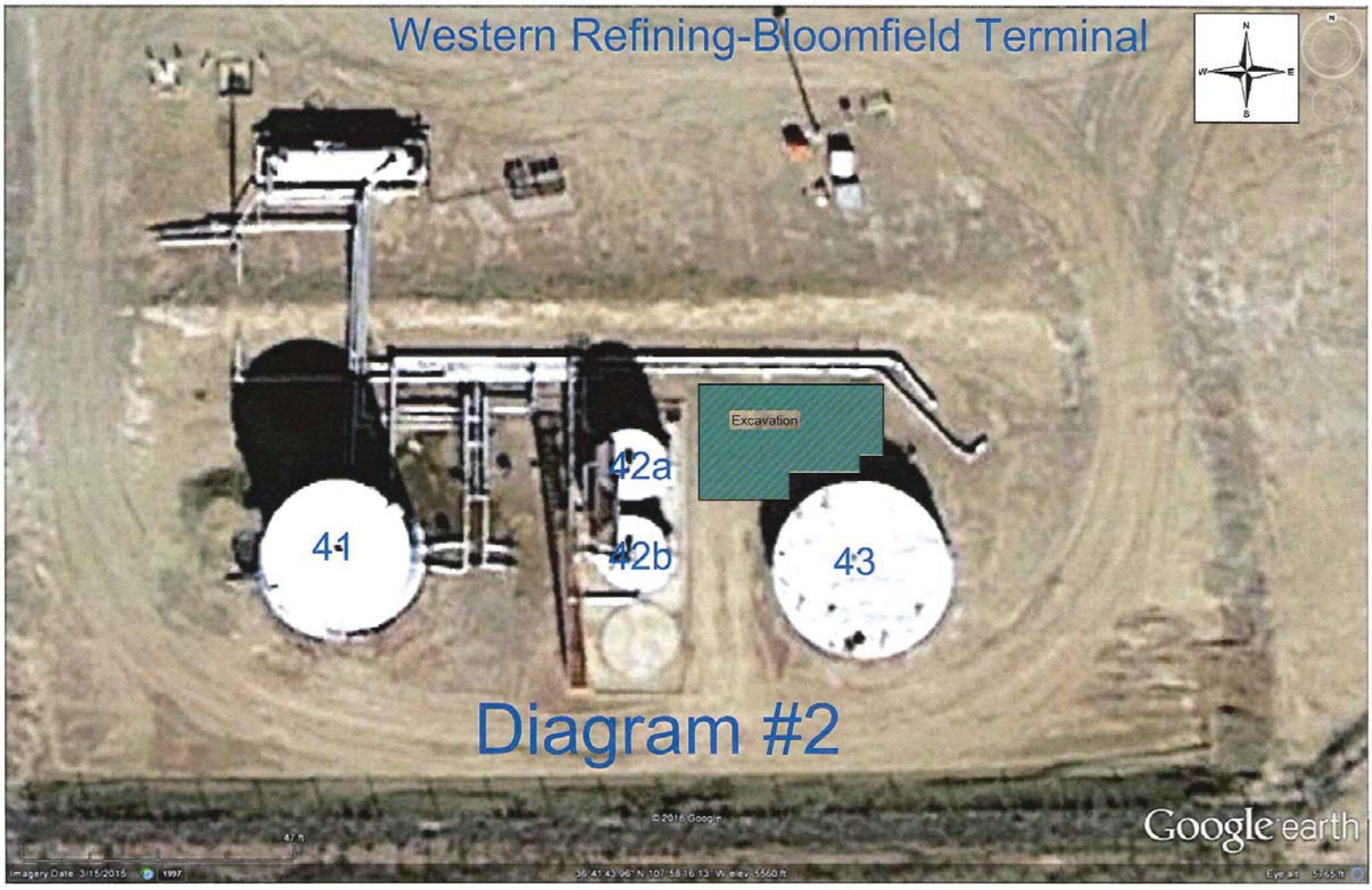


Photo 1: View of excavation as of March 14, 2016 looking west.

Photos 2: View of excavation as of March 14, 2016 looking east.

DIAGRAMS


Western Refining
WESTERN REFINING SOUTHWEST
SITE MAP
BLOOMFIELD TERMINAL
Crude oil release area
(Refer to digram #2)
UNDER GROUND PIPE-WAY
ABOVE GROUND PIPE-WAY
SLURRY BARRIER WALL
Diagram #1
SCALE IN FEET


Western Refining-Bloomfield Terminal
N
W
E
S
Excavation
42a
41
42b
43
Diagram #2
© 2016 Google
Google earth

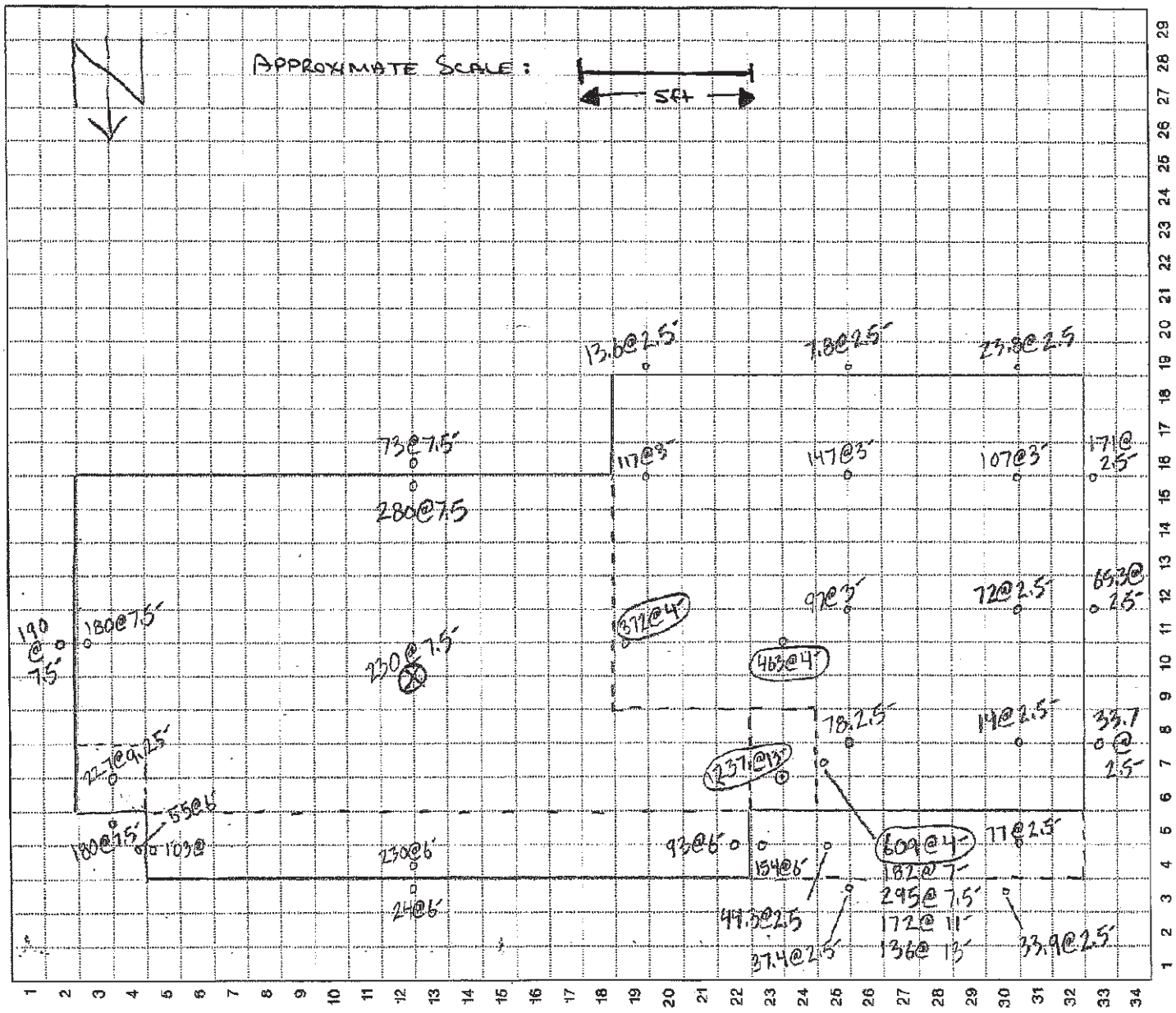


Diagram 3: Extent of excavation as of March 14, 2016. The diagram shows the PID reading in parts per million (ppm) with the corresponding depth below original grade surface in feet.

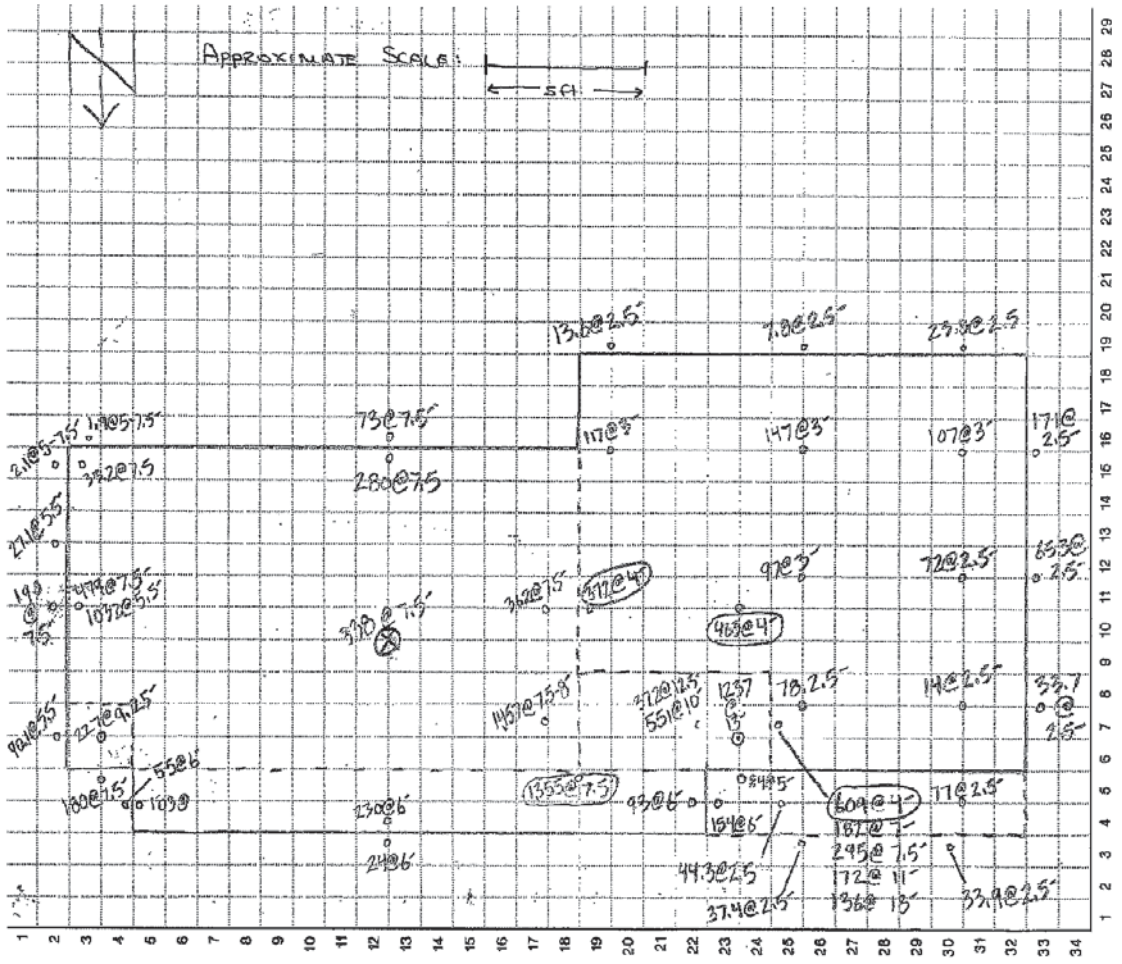


Diagram 4: Extent of excavation as of March 16, 2016. The diagram shows the PID reading in parts per million (ppm) with the corresponding depth below original grade surface in feet.

TABLES

TABLE 1
Analytical Summary of Confirmation Sample Results

			Sample IDs					
	Analytical Method	OCD Clean-up Levels [2]	E Wall	Floor	N Wall	NW Pothole @ 14'	S Wall	W Wall
Diesel Range Organics (DRO)	SW8015		760	3500	< 11	17	27	4600
Gasoline Range Organics (GRO)	SW8015	100	2300	5600	< 5.2	12	< 4.9	4000
Motor Oil Range Organics (MRO)	SW8015		280	1300	< 54	< 54	68	1800
Total TPH		100	3340	10400	ND	29	95	10400
Benzene	SW8021	10	6.2	14	< 0.026	< 0.018	< 0.025	15
Ethylbenzene	SW8021		11	26	< 0.052	0.065	< 0.049	18
Toluene	SW8021		64	150	< 0.052	0.11	< 0.049	100
Xylenes, Total	SW8021		100	240	< 0.10	0.71	< 0.099	160
BTEX	Total	50	181.2	430	ND	ND	ND	293
Arsenic	SW6010B		< 2.6	< 2.7	**3.1**	< 2.6	< 2.7	< 2.7
Barium	SW6010B		**82**	**150**	**230**	**30**	**130**	**160**
Cadmium	SW6010B		< 0.11	< 0.11	< 0.11	< 0.10	< 0.11	< 0.11
Chromium	SW6010B		**4.3**	**4.5**	**6.3**	**2.5**	**4.8**	**5.3**
Lead	SW6010B		**3.8**	**4.2**	**5.0**	**2.4**	**4.0**	**3.8**
Selenium	SW6010B		< 2.6	< 2.7	< 2.9	< 2.6	< 2.7	< 2.7
Silver	SW6010B		< 0.26	< 0.27	< 0.29	< 0.26	< 0.27	< 0.27
Mercury	SW7471		< 0.035	< 0.035	< 0.037	< 0.034	< 0.035	< 0.036
1,1,1,2-Tetrachloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,1-Trichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,2,2-Tetrachloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1,2-Trichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloroethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloroethene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,1-Dichloropropene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,3-Trichlorobenzene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,3-Trichloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2,4-Trichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2,4-Trimethylbenzene	SW8260B		**14**	**56**	< 0.056	< 0.050	< 0.052	**28**
1,2-Dibromo-3-chloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
1,2-Dibromoethane (EDB)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichloroethane (EDC)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,2-Dichloropropane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,3,5-Trimethylbenzene	SW8260B		**6.7**	**27**	< 0.056	< 0.050	< 0.052	**13**
1,3-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,3-Dichloropropane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1,4-Dichlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
1-Methylnaphthalene	SW8260B		**2.4**	**8.9**	< 0.23	< 0.20	< 0.21	**6.3**
2,2-Dichloropropane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
2-Butanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
2-Chlorotoluene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
2-Hexanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
2-Methylnaphthalene	SW8260B		**3.7**	**14**	< 0.23	< 0.20	< 0.21	**9.5**
4-Chlorotoluene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
4-Isopropyltoluene	SW8260B		**0.80**	**3.3**	< 0.056	< 0.050	< 0.052	**1.7**
4-Methyl-2-pentanone	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
Acetone	SW8260B		< 7.7	< 15	< 0.84	< 0.75	< 0.79	< 16
Benzene	SW8260B		**1.6**	**13**	< 0.028	< 0.025	< 0.026	**7.2**
Bromobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromodichloromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromoform	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Bromomethane	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
Carbon disulfide	SW8260B		< 5.1	< 10	< 0.56	< 0.50	< 0.52	< 10
Carbon tetrachloride	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chlorobenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chloroethane	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
Chloroform	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Chloromethane	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
cis-1,2-DCE	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
cis-1,3-Dichloropropene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dibromochloromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dibromomethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Dichlorodifluoromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Ethylbenzene	SW8260B		**5.8**	**27**	< 0.056	< 0.050	< 0.052	**9.3**
Hexachlorobutadiene	SW8260B		< 1.0	< 2.0	< 0.11	< 0.10	< 0.10	< 2.1
Isopropylbenzene	SW8260B		**1.4**	**6.2**	< 0.056	< 0.050	< 0.052	**2.6**
Methyl tert-butyl ether (MTBE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Methylene chloride	SW8260B		< 1.5	< 3.0	< 0.17	< 0.15	< 0.16	< 3.1
Naphthalene	SW8260B		**1.9**	**7.2**	< 0.11	< 0.10	< 0.10	**4.4**
n-Butylbenzene	SW8260B		< 1.5	**3.5**	< 0.17	< 0.15	< 0.16	< 3.1
n-Propylbenzene	SW8260B		**2.2**	**9.6**	< 0.056	< 0.050	< 0.052	**4.3**
sec-Butylbenzene	SW8260B		**0.72**	**3.0**	< 0.056	< 0.050	< 0.052	**1.5**
Styrene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
tert-Butylbenzene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Tetrachloroethene (PCE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Toluene	SW8260B		29	180	< 0.056	< 0.050	< 0.052	**52**
trans-1,2-DCE	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
trans-1,3-Dichloropropene	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Trichloroethene (TCE)	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Trichlorofluoromethane	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0

TABLE 1
Analytical Summary of Confirmation Sample Results

	Analytical Method	OCD Clean-up Levels [2]	Sample IDs					
			E Wall	Floor	N Wall	NW Pothole @ 14'	S Wall	W Wall
Vinyl chloride	SW8260B		< 0.51	< 1.0	< 0.056	< 0.050	< 0.052	< 1.0
Xylenes, Total	SW8260B		**57**	**270**	< 0.11	< 0.10	< 0.10	**88**
1,2,4-Trichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,2-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,3-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1,4-Dichlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
1-Methylnaphthalene	SW8270C		< 2.2	**5.4**	< 2.3	< 0.21	< 2.2	**3.0**
2,4,5-Trichlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2,4,6-Trichlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2,4-Dichlorophenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
2,4-Dimethylphenol	SW8270C		< 3.2	< 3.3	< 3.4	< 0.32	< 3.3	< 3.3
2,4-Dinitrophenol	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2,4-Dinitrotoluene	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2,6-Dinitrotoluene	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
2-Chloronaphthalene	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
2-Chlorophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2-Methylnaphthalene	SW8270C		**2.9**	**9.5**	< 2.3	< 0.21	< 2.2	4.6
2-Methylphenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
2-Nitroaniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
2-Nitrophenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
3,3'-Dichlorobenzidine	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
3+4-Methylphenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
3-Nitroaniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4,6-Dinitro-2-methylphenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
4-Bromophenyl phenyl ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4-Chloro-3-methylphenol	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
4-Chloroaniline	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
4-Chlorophenyl phenyl ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
4-Nitroaniline	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
4-Nitrophenol	SW8270C		< 2.7	< 2.7	< 2.8	< 0.26	< 2.7	< 2.7
Acenaphthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Acenaphthylene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Aniline	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Azobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benz(a)anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(a)pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(b)fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(g,h,i)perylene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzo(k)fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Benzoic acid	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
Benzyl alcohol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroethoxy)methane	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroethyl)ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-chloroisopropyl)ether	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Bis(2-ethylhexyl)phthalate	SW8270C		< 5.4	< 5.4	< 5.7	< 0.53	< 5.5	< 5.5
Butyl benzyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Carbazole	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Chrysene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dibenz(a,h)anthracene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dibenzofuran	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Diethyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Dimethyl phthalate	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Di-n-butyl phthalate	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Di-n-octyl phthalate	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Fluoranthene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Fluorene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorobenzene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorobutadiene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachlorocyclopentadiene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Hexachloroethane	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Indeno(1,2,3-cd)pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Isophorone	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Naphthalene	SW8270C		< 2.2	**3.5**	< 2.3	< 0.21	< 2.2	< 2.2
Nitrobenzene	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
N-Nitrosodi-n-propylamine	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
N-Nitrosodiphenylamine	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pentachlorophenol	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4
Phenanthrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Phenol	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pyrene	SW8270C		< 2.2	< 2.2	< 2.3	< 0.21	< 2.2	< 2.2
Pyridine	SW8270C		< 4.3	< 4.3	< 4.5	< 0.42	< 4.4	< 4.4

Notes:

1. All analytical results are reporting in units of milligrams per kilograms (mg/kg)
2. Clean-up standards are pursuant to the NMOCD Guidelines for Remediation of Leaks, Spills, and Releases dated August 13, 1993.

APPENDIX A

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 25, 2016

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Bloomfield Terminal OrderNo.: 1603878

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/17/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-001 **Matrix:** SOIL

Client Sample ID: NW Pothole @ 14'
Collection Date: 3/14/2016 1:20:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dibenz(a,h)anthracene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dibenzofuran	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,2-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,3-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1,4-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3,3'-Dichlorobenzidine	ND	0.26		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Diethyl phthalate	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Dimethyl phthalate	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dichlorophenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dimethylphenol	ND	0.32		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4,6-Dinitro-2-methylphenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dinitrophenol	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,4-Dinitrotoluene	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2,6-Dinitrotoluene	ND	0.53		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Fluoranthene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Fluorene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorobenzene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorobutadiene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachlorocyclopentadiene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Hexachloroethane	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Indeno(1,2,3-cd)pyrene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Isophorone	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
1-Methylnaphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Methylnaphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Methylphenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3+4-Methylphenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
N-Nitrosodi-n-propylamine	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
N-Nitrosodiphenylamine	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Naphthalene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Nitroaniline	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
3-Nitroaniline	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4-Nitroaniline	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Nitrobenzene	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
2-Nitrophenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
4-Nitrophenol	ND	0.26		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Pentachlorophenol	ND	0.42		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Phenanthrene	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350
Phenol	ND	0.21		mg/Kg-dry	1	3/23/2016 7:30:21 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-001 **Matrix:** SOIL

Client Sample ID: NW Pothole @ 14'
Collection Date: 3/14/2016 1:20:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dibromochloromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dibromomethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,3-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,4-Dichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Dichlorodifluoromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloroethene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2-Dichloropropane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,3-Dichloropropane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
2,2-Dichloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1-Dichloropropene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Hexachlorobutadiene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
2-Hexanone	ND	0.50		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Isopropylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
4-Isopropyltoluene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
4-Methyl-2-pentanone	ND	0.50		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Methylene chloride	ND	0.15		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
n-Butylbenzene	ND	0.15		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
n-Propylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
sec-Butylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Styrene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
tert-Butylbenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Tetrachloroethene (PCE)	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
trans-1,2-DCE	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
trans-1,3-Dichloropropene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,1-Trichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,1,2-Trichloroethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Trichloroethene (TCE)	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Trichlorofluoromethane	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
1,2,3-Trichloropropane	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Vinyl chloride	ND	0.050		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/18/2016 5:30:34 PM	24321
Surr: Dibromofluoromethane	103	70-130		%Rec	1	3/18/2016 5:30:34 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** N Wall
Project: Bloomfield Terminal **Collection Date:** 3/14/2016 1:40:00 PM
Lab ID: 1603878-002 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	12	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.037		mg/Kg-dry	1	3/22/2016 5:44:27 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	3.1	2.9		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Barium	230	0.11		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Chromium	6.3	0.34		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Lead	5.0	0.29		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
Selenium	ND	2.9		mg/Kg-dry	1	3/24/2016 6:07:45 AM	24353
Silver	ND	0.29		mg/Kg-dry	1	3/22/2016 9:00:50 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Acenaphthylene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Aniline	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Anthracene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Azobenzene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benz(a)anthracene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(a)pyrene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(b)fluoranthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(g,h,i)perylene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzo(k)fluoranthene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzoic acid	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Benzyl alcohol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroethoxy)methane	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroethyl)ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Bromophenyl phenyl ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Butyl benzyl phthalate	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Carbazole	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chloro-3-methylphenol	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chloroaniline	ND	5.7	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2-Chloronaphthalene	ND	2.8	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2-Chlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
4-Chlorophenyl phenyl ether	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Chrysene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Di-n-butyl phthalate	ND	4.5	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-002 **Matrix:** SOIL

Client Sample ID: N Wall
Collection Date: 3/14/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Pyridine	ND	4.5	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
1,2,4-Trichlorobenzene	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2,4,5-Trichlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
2,4,6-Trichlorophenol	ND	2.3	D	mg/Kg-dry	10	3/23/2016 8:58:51 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 8:58:51 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	0.028		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Toluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Ethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Methyl tert-butyl ether (MTBE)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2,4-Trimethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,3,5-Trimethylbenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2-Dichloroethane (EDC)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1,2-Dibromoethane (EDB)	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Naphthalene	ND	0.11		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
1-Methylnaphthalene	ND	0.23		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Methylnaphthalene	ND	0.23		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Acetone	ND	0.84		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromobenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromodichloromethane	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromoform	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Bromomethane	ND	0.17		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Butanone	ND	0.56		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Carbon disulfide	ND	0.56		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Carbon tetrachloride	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chlorobenzene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloroethane	ND	0.11		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloroform	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
Chloromethane	ND	0.17		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
2-Chlorotoluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
4-Chlorotoluene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
cis-1,2-DCE	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321
cis-1,3-Dichloropropene	ND	0.056		mg/Kg-dry	1	3/21/2016 1:43:35 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-002 **Matrix:** SOIL

Client Sample ID: N Wall
Collection Date: 3/14/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321
Surr: Toluene-d8	101	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	3/21/2016 1:43:35 PM	24321

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** E Wall
Project: Bloomfield Terminal **Collection Date:** 3/15/2016 2:20:00 PM
Lab ID: 1603878-003 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dibenz(a,h)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dibenzofuran	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,2-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,3-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1,4-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3,3'-Dichlorobenzidine	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Diethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Dimethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dichlorophenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dimethylphenol	ND	3.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4,6-Dinitro-2-methylphenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dinitrophenol	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,4-Dinitrotoluene	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2,6-Dinitrotoluene	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Fluorene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorobutadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachlorocyclopentadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Hexachloroethane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Indeno(1,2,3-cd)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Isophorone	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
1-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Methylnaphthalene	2.9	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Methylphenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3+4-Methylphenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
N-Nitrosodi-n-propylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
N-Nitrosodiphenylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Naphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
3-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4-Nitroaniline	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Nitrobenzene	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
2-Nitrophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
4-Nitrophenol	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Pentachlorophenol	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Phenanthrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350
Phenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:28:14 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** E Wall
Project: Bloomfield Terminal **Collection Date:** 3/15/2016 2:20:00 PM
Lab ID: 1603878-003 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dibromochloromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dibromomethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,3-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,4-Dichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Dichlorodifluoromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloroethene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2-Dichloropropane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,3-Dichloropropane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
2,2-Dichloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1-Dichloropropene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Hexachlorobutadiene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
2-Hexanone	ND	5.1		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Isopropylbenzene	1.4	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
4-Isopropyltoluene	0.80	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
4-Methyl-2-pentanone	ND	5.1		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Methylene chloride	ND	1.5		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
n-Butylbenzene	ND	1.5		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
n-Propylbenzene	2.2	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
sec-Butylbenzene	0.72	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Styrene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
tert-Butylbenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Tetrachloroethene (PCE)	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
trans-1,2-DCE	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
trans-1,3-Dichloropropene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,3-Trichlorobenzene	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,4-Trichlorobenzene	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,1-Trichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,1,2-Trichloroethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Trichloroethene (TCE)	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Trichlorofluoromethane	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
1,2,3-Trichloropropane	ND	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Vinyl chloride	ND	0.51		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Xylenes, Total	57	1.0		mg/Kg-dry	10	3/21/2016 2:11:56 PM	24321
Surr: Dibromofluoromethane	99.3	70-130		%Rec	10	3/21/2016 2:11:56 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603878-004 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	7.7	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.035		mg/Kg-dry	1	3/22/2016 5:48:00 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.7		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Barium	150	0.11		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Chromium	4.5	0.32		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Lead	4.2	0.27		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
Selenium	ND	2.7		mg/Kg-dry	1	3/24/2016 6:12:32 AM	24353
Silver	ND	0.27		mg/Kg-dry	1	3/22/2016 9:10:30 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Acenaphthylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Aniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Azobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benz(a)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(a)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(b)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(g,h,i)perylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzo(k)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzoic acid	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Benzyl alcohol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroethoxy)methane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroethyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Bromophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Butyl benzyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Carbazole	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chloro-3-methylphenol	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chloroaniline	ND	5.4	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2-Chloronaphthalene	ND	2.7	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2-Chlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
4-Chlorophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Chrysene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Di-n-butyl phthalate	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603878-004 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Pyridine	ND	4.3	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
1,2,4-Trichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2,4,5-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
2,4,6-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 9:57:34 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 9:57:34 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	13	0.50		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Toluene	180	5.0		mg/Kg-dry	100	3/22/2016 7:09:36 AM	24321
Ethylbenzene	27	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Methyl tert-butyl ether (MTBE)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2,4-Trimethylbenzene	56	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,3,5-Trimethylbenzene	27	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2-Dichloroethane (EDC)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1,2-Dibromoethane (EDB)	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Naphthalene	7.2	2.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
1-Methylnaphthalene	8.9	4.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Methylnaphthalene	14	4.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Acetone	ND	15		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromodichloromethane	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromoform	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Bromomethane	ND	3.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Butanone	ND	10		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Carbon disulfide	ND	10		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Carbon tetrachloride	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chlorobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloroethane	ND	2.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloroform	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
Chloromethane	ND	3.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
2-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
4-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
cis-1,2-DCE	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321
cis-1,3-Dichloropropene	ND	1.0		mg/Kg-dry	20	3/21/2016 2:40:24 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-004 **Matrix:** SOIL

Client Sample ID: Floor
Collection Date: 3/16/2016 1:40:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	97.9	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321
Surr: Toluene-d8	107	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321
Surr: 4-Bromofluorobenzene	120	70-130		%Rec	20	3/21/2016 2:40:24 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-005 **Matrix:** SOIL

Client Sample ID: S Wall
Collection Date: 3/16/2016 1:50:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Di-n-octyl phthalate	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dibenz(a,h)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dibenzofuran	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,2-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,3-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1,4-Dichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3,3'-Dichlorobenzidine	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Diethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Dimethyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dichlorophenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dimethylphenol	ND	3.3	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4,6-Dinitro-2-methylphenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dinitrophenol	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,4-Dinitrotoluene	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2,6-Dinitrotoluene	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Fluorene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorobutadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachlorocyclopentadiene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Hexachloroethane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Indeno(1,2,3-cd)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Isophorone	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
1-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Methylnaphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Methylphenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3+4-Methylphenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
N-Nitrosodi-n-propylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
N-Nitrosodiphenylamine	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Naphthalene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
3-Nitroaniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4-Nitroaniline	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Nitrobenzene	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
2-Nitrophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
4-Nitrophenol	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Pentachlorophenol	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Phenanthrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350
Phenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:26:49 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** S Wall
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:50:00 PM
Lab ID: 1603878-005 **Matrix:** SOIL **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dibromochloromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dibromomethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,3-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,4-Dichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Dichlorodifluoromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloroethene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2-Dichloropropane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,3-Dichloropropane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
2,2-Dichloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1-Dichloropropene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Hexachlorobutadiene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
2-Hexanone	ND	0.52		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Isopropylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
4-Isopropyltoluene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
4-Methyl-2-pentanone	ND	0.52		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Methylene chloride	ND	0.16		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
n-Butylbenzene	ND	0.16		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
n-Propylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
sec-Butylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Styrene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
tert-Butylbenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,1,2-Tetrachloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,2,2-Tetrachloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Tetrachloroethene (PCE)	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
trans-1,2-DCE	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
trans-1,3-Dichloropropene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,4-Trichlorobenzene	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,1-Trichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,1,2-Trichloroethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Trichloroethene (TCE)	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Trichlorofluoromethane	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
1,2,3-Trichloropropane	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Vinyl chloride	ND	0.052		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/21/2016 12:46:58 PM	24321
Surr: Dibromofluoromethane	105	70-130		%Rec	1	3/21/2016 12:46:58 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	9.1	1.0		wt%	1	3/21/2016 12:00:00 PM	R32972
EPA METHOD 7471: MERCURY						Analyst: **pmf**	
Mercury	ND	0.036		mg/Kg-dry	1	3/22/2016 5:51:36 PM	24354
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.7		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Barium	160	0.11		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Cadmium	ND	0.11		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Chromium	5.3	0.33		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Lead	3.8	0.27		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
Selenium	ND	2.7		mg/Kg-dry	1	3/24/2016 6:14:59 AM	24353
Silver	ND	0.27		mg/Kg-dry	1	3/22/2016 9:15:56 AM	24353
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Acenaphthylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Aniline	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Azobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benz(a)anthracene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(a)pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(b)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(g,h,i)perylene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzo(k)fluoranthene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzoic acid	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Benzyl alcohol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroethoxy)methane	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroethyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-chloroisopropyl)ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Bis(2-ethylhexyl)phthalate	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Bromophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Butyl benzyl phthalate	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Carbazole	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chloro-3-methylphenol	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chloroaniline	ND	5.5	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2-Chloronaphthalene	ND	2.7	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2-Chlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
4-Chlorophenyl phenyl ether	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Chrysene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Di-n-butyl phthalate	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Pyrene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Pyridine	ND	4.4	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
1,2,4-Trichlorobenzene	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2,4,5-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
2,4,6-Trichlorophenol	ND	2.2	D	mg/Kg-dry	10	3/23/2016 10:56:07 PM	24350
Surr: 2-Fluorophenol	0	28.3-102	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: Phenol-d5	0	35.7-103	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 2,4,6-Tribromophenol	0	35.2-108	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: Nitrobenzene-d5	0	24-118	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 2-Fluorobiphenyl	0	35.4-111	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
Surr: 4-Terphenyl-d14	0	15-91.7	SD	%Rec	10	3/23/2016 10:56:07 PM	24350
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	7.2	0.52		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Toluene	52	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Ethylbenzene	9.3	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Methyl tert-butyl ether (MTBE)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2,4-Trimethylbenzene	28	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,3,5-Trimethylbenzene	13	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2-Dichloroethane (EDC)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1,2-Dibromoethane (EDB)	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Naphthalene	4.4	2.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
1-Methylnaphthalene	6.3	4.2		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Methylnaphthalene	9.5	4.2		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Acetone	ND	16		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromodichloromethane	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromoform	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Bromomethane	ND	3.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Butanone	ND	10		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Carbon disulfide	ND	10		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Carbon tetrachloride	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chlorobenzene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloroethane	ND	2.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloroform	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
Chloromethane	ND	3.1		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
2-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
4-Chlorotoluene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
cis-1,2-DCE	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321
cis-1,3-Dichloropropene	ND	1.0		mg/Kg-dry	20	3/21/2016 1:15:14 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bloomfield Terminal
Lab ID: 1603878-006 **Matrix:** SOIL

Client Sample ID: W Wall
Collection Date: 3/16/2016 2:10:00 PM
Received Date: 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321
Surr: Toluene-d8	98.0	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321
Surr: 4-Bromofluorobenzene	116	70-130		%Rec	20	3/21/2016 1:15:14 PM	24321

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **mb-24321** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **24321** RunNo: **32918**
Prep Date: **3/17/2016** Analysis Date: **3/18/2016** SeqNo: **1009413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.50		0.5000		101	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.53		0.5000		106	70	130			

Sample ID **lcs-24321** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **24321** RunNo: **32918**
Prep Date: **3/17/2016** Analysis Date: **3/18/2016** SeqNo: **1009414** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.8	70	130			
Toluene	1.0	0.050	1.000	0	99.6	70	130			
Chlorobenzene	0.99	0.050	1.000	0	98.8	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **mb-24350**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **24350**	RunNo: **32992**
Prep Date: **3/21/2016**	Analysis Date: **3/23/2016**	SeqNo: **1013032** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3'-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID **lcs-24350** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**

Client ID: **LCSS** Batch ID: **24350** RunNo: **32992**

Prep Date: **3/21/2016** Analysis Date: **3/23/2016** SeqNo: **1013033** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.20	1.670	0	75.1	45.8	99.8			
4-Chloro-3-methylphenol	2.4	0.50	3.330	0	73.1	51.5	103			
2-Chlorophenol	2.4	0.20	3.330	0	71.4	46.5	105			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	72.2	45.5	103			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	70.8	36	87.2			
N-Nitrosodi-n-propylamine	1.0	0.20	1.670	0	60.4	47.3	104			
4-Nitrophenol	2.7	0.25	3.330	0	80.8	47.3	95.3			
Pentachlorophenol	2.1	0.40	3.330	0	63.9	38.7	89.3			
Phenol	2.4	0.20	3.330	0	72.6	47.8	106			
Pyrene	1.1	0.20	1.670	0	68.7	33.4	105			
1,2,4-Trichlorobenzene	1.4	0.20	1.670	0	85.9	50.4	115			
Surr: 2-Fluorophenol	2.2		3.330		65.3	28.3	102			
Surr: Phenol-d5	2.5		3.330		74.2	35.7	103			
Surr: 2,4,6-Tribromophenol	2.3		3.330		70.4	35.2	108			
Surr: Nitrobenzene-d5	1.3		1.670		79.3	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		77.5	35.4	111			
Surr: 4-Terphenyl-d14	1.2		1.670		71.6	15	91.7			

Sample ID **1603878-001ams** SampType: **MS** TestCode: **EPA Method 8270C: Semivolatiles**

Client ID: **NW Pothole @ 14'** Batch ID: **24350** RunNo: **32992**

Prep Date: **3/21/2016** Analysis Date: **3/23/2016** SeqNo: **1013040** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.21	1.768	0	72.1	27.5	117			
4-Chloro-3-methylphenol	2.8	0.53	3.526	0	78.2	26.3	116			
2-Chlorophenol	2.2	0.21	3.526	0	61.4	21.4	113			
1,4-Dichlorobenzene	0.92	0.21	1.768	0	52.2	25	105			
2,4-Dinitrotoluene	1.4	0.53	1.768	0	76.9	21.1	119			
N-Nitrosodi-n-propylamine	1.0	0.21	1.768	0	58.7	21.3	126			
4-Nitrophenol	2.9	0.26	3.526	0	82.0	21.3	120			
Pentachlorophenol	2.6	0.42	3.526	0	74.6	11.5	115			
Phenol	2.2	0.21	3.526	0	62.7	23	118			
Pyrene	1.4	0.21	1.768	0	76.4	25.7	110			
1,2,4-Trichlorobenzene	1.2	0.21	1.768	0	67.4	31.1	107			
Surr: 2-Fluorophenol	1.7		3.526		49.0	28.3	102			
Surr: Phenol-d5	2.2		3.526		61.9	35.7	103			
Surr: 2,4,6-Tribromophenol	2.5		3.526		71.8	35.2	108			
Surr: Nitrobenzene-d5	1.1		1.768		60.0	24	118			
Surr: 2-Fluorobiphenyl	1.1		1.768		64.3	35.4	111			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID	**MB-24354**	SampType: **mblk**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011747**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-24354**	SampType: **lcs**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011748**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.18	0.033	0.1667	0	107	80	120			

Sample ID	**1603878-001AMS**	SampType: **ms**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**NW Pothole @ 14'**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011750**		Units: **mg/Kg-dry**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.19	0.035	0.1779	0.003482	105	75	125			

Sample ID	**1603878-001AMSD**	SampType: **msd**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**NW Pothole @ 14'**	Batch ID: **24354**		RunNo: **32987**					
Prep Date:	**3/21/2016**	Analysis Date: **3/22/2016**		SeqNo: **1011751**		Units: **mg/Kg-dry**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.19	0.034	0.1734	0.003482	106	75	125	1.14	20	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603878**

25-Mar-16

Client: Western Refining Southwest, Inc.
Project: Bloomfield Terminal

Sample ID **1603878-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **32957**
Prep Date: **3/21/2016** Analysis Date: **3/22/2016** SeqNo: **1010814** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	24	0.26	26.04	2.427	83.0	75	125	4.66	20	
Silver	4.5	0.26	5.209	0	86.5	75	125	2.46	20	

Sample ID **MB-24353** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012884** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	2.5								

Sample ID **LCS-24353** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012885** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	26	2.5	25.00	0	103	80	120			

Sample ID **1603878-001AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012889** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	23	2.6	26.34	0	87.8	75	125			

Sample ID **1603878-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **NW Pothole @ 14'** Batch ID: **24353** RunNo: **33016**
Prep Date: **3/21/2016** Analysis Date: **3/24/2016** SeqNo: **1012890** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	23	2.6	26.04	0	88.8	75	125	0.0715	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Western Refining	Turn-Around Time: ☒ Standard ☑ Rush ASAP 4/20/16
111	Project Name: Bloomfield Terminal
Mailing Address: 111 CR 4990 Bloomfield, NM 87413	Project #:
Phone #: (505) 632-4166	
Email or Fax#:	Project Manager: Kelly Robinson
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)	Sampler: Michael Wicker
Accreditation: ☒ NELAP ☐ Other	On Ice: ☑ Yes ☐ No
EDD (Type) Excel	Sample Temperature: 2.2

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1603878	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VOCs 8260	S-VOCs 8270	Total Metals 6010/6020	Mercury 7470	Air Bubbles (Y or N)
3-16	1320	Soil	NW Pothole @14'	2-8oz	Cool	-001												✓	✓	✓	✓	
"	1340		N Wall	↓		-002																
3-16	1420		E Wall	↓		-003																
3-16	1340		Floor	1-8oz 2-4oz		-004																
	1350		S Wall	4-4oz		-005																
"	1410	↓	W Wall	↓	↓	-006												↓	↓	↓	↓	

Date	Time	Relinquished by:	Received by:	Date	Time
3/16/16	17:16			3/16/16	1716
3/16	1965			03/17/16	0733

Remarks: Please CC MWicker@LTEnv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 21, 2016

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Bloomfield Terminal OrderNo.: 1603876

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/17/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** N Wall
Project: Bloomfield Terminal **Collection Date:** 3/14/2016 1:40:00 PM
Lab ID: 1603876-002 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	11	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	11		mg/Kg-dry	1	3/17/2016 2:14:55 PM	24297
Motor Oil Range Organics (MRO)	ND	54		mg/Kg-dry	1	3/17/2016 2:14:55 PM	24297
Surr: DNOP	87.0	70-130		%Rec	1	3/17/2016 2:14:55 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.2		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Surr: BFB	111	66.2-112		%Rec	1	3/17/2016 11:40:31 AM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.026		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Toluene	ND	0.052		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Ethylbenzene	ND	0.052		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Xylenes, Total	ND	0.10		mg/Kg-dry	1	3/17/2016 11:40:31 AM	24284
Surr: 4-Bromofluorobenzene	117	80-120		%Rec	1	3/17/2016 11:40:31 AM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Floor
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 1:40:00 PM
Lab ID: 1603876-004 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	7.6	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	3500	100		mg/Kg-dry	10	3/17/2016 4:04:11 PM	24297
Motor Oil Range Organics (MRO)	1300	510		mg/Kg-dry	10	3/17/2016 4:04:11 PM	24297
Surr: DNOP	0	70-130	S	%Rec	10	3/17/2016 4:04:11 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	5600	280		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Surr: BFB	310	66.2-112	S	%Rec	50	3/17/2016 12:27:44 PM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	14	1.4		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Toluene	150	2.8		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Ethylbenzene	26	2.8		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Xylenes, Total	240	5.5		mg/Kg-dry	50	3/17/2016 12:27:44 PM	24284
Surr: 4-Bromofluorobenzene	135	80-120	S	%Rec	50	3/17/2016 12:27:44 PM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** W Wall
Project: Bloomfield Terminal **Collection Date:** 3/16/2016 2:10:00 PM
Lab ID: 1603876-006 **Matrix:** MEOH (SOIL) **Received Date:** 3/17/2016 7:33:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE						Analyst: **AG**	
Percent Moisture	11	1.0		wt%	1	3/17/2016 4:00:00 PM	R32877
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	4600	110		mg/Kg-dry	10	3/17/2016 5:30:55 PM	24297
Motor Oil Range Organics (MRO)	1800	550		mg/Kg-dry	10	3/17/2016 5:30:55 PM	24297
Surr: DNOP	0	70-130	S	%Rec	10	3/17/2016 5:30:55 PM	24297
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	4000	280		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Surr: BFB	255	66.2-112	S	%Rec	50	3/17/2016 5:56:51 PM	24284
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	15	1.4		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Toluene	100	2.8		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Ethylbenzene	18	2.8		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Xylenes, Total	160	5.6		mg/Kg-dry	50	3/17/2016 5:56:51 PM	24284
Surr: 4-Bromofluorobenzene	134	80-120	S	%Rec	50	3/17/2016 5:56:51 PM	24284

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603876**

21-Mar-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID **MB-24284**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **24284**	RunNo: **32868**
Prep Date: **3/16/2016**	Analysis Date: **3/17/2016**	SeqNo: **1007393** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		109	66.2	112			

Sample ID **LCS-24284**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **24284**	RunNo: **32868**
Prep Date: **3/16/2016**	Analysis Date: **3/17/2016**	SeqNo: **1007394** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.1	80	120			
Surr: BFB	1100		1000		115	66.2	112			S

Sample ID **1603876-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **NW Pothole @ 14'**	Batch ID: **24284**	RunNo: **32868**
Prep Date:	Analysis Date: **3/17/2016**	SeqNo: **1007411** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	3.5	17.66	11.65	95.6	59.3	143			
Surr: BFB	1400		706.4		198	66.2	112			S

Sample ID **1603876-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **NW Pothole @ 14'**	Batch ID: **24284**	RunNo: **32868**
Prep Date:	Analysis Date: **3/17/2016**	SeqNo: **1007412** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	3.5	17.66	11.65	111	59.3	143	9.30	20	
Surr: BFB	1400		706.4		201	66.2	112	0	0	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1603876 RcptNo: 1

Received by/date: 03/17/16

Logged By: Lindsay Mangin 3/17/2016 7:33:00 AM

Completed By: Lindsay Mangin 3/17/2016 8:33:58 AM

Reviewed By: 03/17/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 16, 2016

Matt Krakow
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Crude Unloading Line OrderNo.: 1603350

Dear Matt Krakow:

Hall Environmental Analysis Laboratory received 1 sample(s) on 3/7/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Crude Unloading Line
Lab ID: 1603350-001 **Matrix:** SOIL

Client Sample ID: Waste Characterization
Collection Date: 3/7/2016 1:00:00 PM
Received Date: 3/7/2016 4:52:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst: **DJF**	
Benzene	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
2-Butanone	ND	200		mg/L	1	3/9/2016 5:51:30 PM	24135
Carbon Tetrachloride	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Chlorobenzene	ND	100		mg/L	1	3/9/2016 5:51:30 PM	24135
Chloroform	ND	6.0		mg/L	1	3/9/2016 5:51:30 PM	24135
1,4-Dichlorobenzene	ND	7.5		mg/L	1	3/9/2016 5:51:30 PM	24135
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
1,1-Dichloroethene	ND	0.70		mg/L	1	3/9/2016 5:51:30 PM	24135
Hexachlorobutadiene	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	3/9/2016 5:51:30 PM	24135
Trichloroethene (TCE)	ND	0.50		mg/L	1	3/9/2016 5:51:30 PM	24135
Vinyl chloride	ND	0.20		mg/L	1	3/9/2016 5:51:30 PM	24135
Surr: 1,2-Dichloroethane-d4	94.9	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: Dibromofluoromethane	91.6	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135
Surr: Toluene-d8	100	70-130		%Rec	1	3/9/2016 5:51:30 PM	24135

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.
Project: Crude Unloading Line

Sample ID **MB-24219**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **24219**	RunNo: **32770**
Prep Date: **3/11/2016**	Analysis Date: **3/14/2016**	SeqNo: **1004230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		106	66.2	112			

Sample ID **LCS-24219**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **24219**	RunNo: **32770**
Prep Date: **3/11/2016**	Analysis Date: **3/14/2016**	SeqNo: **1004231** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.3	80	120			
Surr: BFB	1100		1000		114	66.2	112			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID **1603350-001ams** SampType: **MS** TestCode: **Volatiles by 8260B/1311**

Client ID: **Waste Characterizat** Batch ID: **24135** RunNo: **32688**

Prep Date: **3/8/2016** Analysis Date: **3/9/2016** SeqNo: **1000436** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		92.9	70	130			
Surr: 4-Bromofluorobenzene	0.23		0.2000		115	70	130			
Surr: Dibromofluoromethane	0.19		0.2000		95.0	70	130			
Surr: Toluene-d8	0.19		0.2000		96.5	70	130			

Sample ID **1603350-001amsd** SampType: **MSD** TestCode: **Volatiles by 8260B/1311**

Client ID: **Waste Characterizat** Batch ID: **24135** RunNo: **32688**

Prep Date: **3/8/2016** Analysis Date: **3/9/2016** SeqNo: **1000450** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.38	0.30	0.4000	0	94.2	70	130	5.98	20	
Chlorobenzene	0.40	0.30	0.4000	0	99.4	70	130	5.41	20	
1,1-Dichloroethene	0.35	0.30	0.4000	0	88.6	70	130	11.0	20	
Trichloroethene (TCE)	0.35	0.30	0.4000	0	86.7	70	130	9.13	20	
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		94.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.22		0.2000		111	70	130	0	0	
Surr: Dibromofluoromethane	0.18		0.2000		91.2	70	130	0	0	
Surr: Toluene-d8	0.19		0.2000		95.5	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID **lcs-24177** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**

Client ID: **LCSS** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004052** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.18		0.2000		89.8	31.3	139			
Surr: Nitrobenzene-d5	0.075		0.1000		74.7	48.2	128			
Surr: 2-Fluorobiphenyl	0.076		0.1000		75.7	58.4	114			
Surr: 4-Terphenyl-d14	0.078		0.1000		78.1	17.4	141			

Sample ID **1603350-001ams** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **Waste Characterizat** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004054** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.10	0.010	0.1000	0	101	43.1	114			
3+4-Methylphenol	0.21	0.010	0.2000	0	107	37.8	128			
2,4-Dinitrotoluene	0.076	0.010	0.1000	0	76.3	36.5	125			
Hexachlorobenzene	0.11	0.010	0.1000	0	112	41.4	108			S
Hexachlorobutadiene	0.085	0.010	0.1000	0	84.8	30.4	101			
Hexachloroethane	0.087	0.010	0.1000	0	87.3	37.3	115			
Nitrobenzene	0.10	0.010	0.1000	0	102	40.2	132			
Pentachlorophenol	0.043	0.010	0.1000	0	43.0	8.72	103			
Pyridine	0.074	0.010	0.1000	0	73.9	9.36	106			
2,4,5-Trichlorophenol	0.11	0.010	0.1000	0	105	16.5	123			
2,4,6-Trichlorophenol	0.082	0.010	0.1000	0	81.6	11.3	117			
Cresols, Total	0.32	0.010	0.3000	0	105	23.2	151			
Surr: 2-Fluorophenol	0.13		0.2000		63.8	19	121			
Surr: Phenol-d5	0.11		0.2000		53.1	31.8	117			
Surr: 2,4,6-Tribromophenol	0.20		0.2000		102	31.3	139			
Surr: Nitrobenzene-d5	0.10		0.1000		101	48.2	128			
Surr: 2-Fluorobiphenyl	0.096		0.1000		95.5	58.4	114			
Surr: 4-Terphenyl-d14	0.076		0.1000		76.1	17.4	141			

Sample ID **1603350-001amsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **Waste Characterizat** Batch ID: **24177** RunNo: **32755**

Prep Date: **3/10/2016** Analysis Date: **3/12/2016** SeqNo: **1004056** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.069	0.010	0.1000	0	69.2	43.1	114	37.2	28.4	R
3+4-Methylphenol	0.14	0.010	0.2000	0	70.8	37.8	128	40.7	29.4	R
2,4-Dinitrotoluene	0.055	0.010	0.1000	0	55.5	36.5	125	31.6	24.7	R
Hexachlorobenzene	0.079	0.010	0.1000	0	78.8	41.4	108	34.7	20	R
Hexachlorobutadiene	0.063	0.010	0.1000	0	63.2	30.4	101	29.1	29	R
Hexachloroethane	0.060	0.010	0.1000	0	60.3	37.3	115	36.6	25.2	R

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603350**

16-Mar-16

Client: Western Refining Southwest, Inc.

Project: Crude Unloading Line

Sample ID	**MB-24168**	SampType: **MBLK**			TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **24168**			RunNo: **32705**					
Prep Date:	**3/9/2016**	Analysis Date: **3/10/2016**			SeqNo: **1001072**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-24168**	SampType: **LCS**			TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **24168**			RunNo: **32705**					
Prep Date:	**3/9/2016**	Analysis Date: **3/10/2016**			SeqNo: **1001074**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1603350 RcptNo: 1

Received by/date: 03/07/16

Logged By: Ashley Gallegos 3/7/2016 4:52:00 PM

Completed By: Ashley Gallegos 3/8/2016 9:08:31 AM

Reviewed By: 03/08/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.4	Good	Yes			

GW - __001__

Bloomfield Refinery
River Terrace Annual Report

Submitted: March 2015

For Duration
Jan – Dec. 2014

Western Refining

Bloomfield Refinery

River Terrace
Voluntary Corrective Measures
Bioventing System Annual Report

January – December 2014

Submitted March 2015

RIVER TERRACE ANNUAL REPORT
Voluntary Bioventing System

January – December 2014

Bloomfield Refinery
Western Refining Southwest, Inc.
#50 Rd 4990
Bloomfield, New Mexico 87413

Submitted: March 2015

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List of Acronyms

benzene, toluene, ethylbenzene, and total xylene (BTEX)

below grade surface (bgs)

biovent well (BV)

central federal register (CFR)

dewatering well (DW)

diesel range organics (DRO)

dissolved oxygen (D.O.)

feet (ft)

degrees Fahrenheit (°F)

gasoline range organics (GRO)

granulated activated carbon (GAC)

investigation derived waste (IDW)

liters (L)

liquid petroleum gas (LPG)

maximum contaminant level (MCL)

methyl tert-butyl ether (MTBE)

micrograms per liter (ug/L)

micro mhos per centimeter (umhos/cm)

milligrams per liter (mg/L)

millivolts (mV)

monitoring well (MW)

New Mexico Administrative Code (NMAC)

New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB)

Oxidation reduction potential (ORP)

parts per million (ppm)

photoionization detector (PID)

polyvinyl chloride (PVC)

pounds per square inch (psi)

Resource Conservation and Recovery Act (RCRA)

separate phase hydrocarbon (SPH)

Solid Waste Management Units (SWMUs)

Standard cubic feet per minute (scfm)

Temperature (TEMP)

Temporary piezometer (TP)

top of casing (TOC)

total petroleum hydrocarbon (TPH)

United States Environmental Protection Agency (USEPA)

volatile organic constituent (VOC)

Water Quality Control Commission (WQCC)

Executive Summary

This report is a summary of monitoring activities conducted in 2014 at the River Terrace Bioventing System located at the Bloomfield Refinery. The following is a synopsis of activities performed at the River Terrace in 2014.

Dewatering System

The Dewatering System consists of two dewatering wells (DW-1 and DW-3), and a collection gallery, each is equipped with a dedicated submersible pump. The addition of DW-3 allowed for enhanced dewatering capability within the southwest corner of the River Terrace area, the area with the highest dissolved phase concentrations. The well extends approximately six feet below the water table, and is constructed to allow for higher groundwater recovery efficiency.

Groundwater pumped by the dewatering system is pumped through two GAC filters positioned in series before discharging into the facility raw water ponds. A total of 219,715 gallons of impacted groundwater was removed and treated through the GAC filters in 2014. The number of gallons removed was substantially lower in 2014 in comparison to 2013. This is due in part to the continued below average San Juan River flow rates and the absence of a spring run-off in 2014. Also, in response to the lower water table at the river terrace the dewatering system has been adjusted to operate at a slower rate in order to help protect the pumping equipment.

Aeration System

The optimized aeration system ran throughout 2014, except during times when regular maintenance was performed on the mechanical equipment. The aeration system includes an air sparging component, which allows for air to be injected both within the subsurface and below the groundwater surface. The air pressure readings collected at each of the biovent well, air sparging line, and at the main air blower were consistent, affirming an even distribution of air throughout the biovent area.

Soil gas field measurements were collected at selective TP wells. The field readings show that there exists sufficient oxygen levels in the biovent area subsurface to sustain bioremedial activity.

Western has conducted three separate in-situ respiration tests at the River Terrace area in May 2006, September 2007, and October 2009. In a response letter from the New Mexico

Environment Department – Hazardous Waste Bureau (NMED) dated November 23, 2010 (NMED, 2010), NMED granted approval to discontinue conducting the in-situ respiration tests. Therefore to-date, no additional in-situ respiration testing has been conducted.

Groundwater Monitoring

On-going groundwater monitoring activities were conducted in 2014. Groundwater samples were collected from selected TP and monitoring wells during low flow operating conditions of the San Juan River. No high flows samples were collected because of lack of a San Juan River high flow event.

Conclusions

Soil gas field measurements indicate that the aeration system has been successful in maintaining sufficient oxygen within the subsurface to help sustain bioremedial activity. Groundwater samples indicate that the impacted groundwater in the River Terrace area remains within the influence area of the aeration system. GAC filter monitoring results indicate that the GAC filter system is successful at treating the extracted groundwater.

The groundwater sample results show that the slurry wall is continuing to perform as designed, preventing impacted ground water from reaching the river. Elevated groundwater concentrations are localized to the area around DW-3. The analytical for samples collected at monitoring well MW-49, located on the river side of the river terrace slurry wall, show that the San Juan River continues to not be impacted by the groundwater impacts within the biovent area.

Section 1
Introduction

1.1 Site Location and Description

Owner:	San Juan Refining Company, a New Mexico Corporation 1250 Washington Street Tempe, Arizona 85281	
Operator:	Western Refining Southwest, Inc. (Formerly Giant Industries Arizona, Inc.), an Arizona Corporation 1250 Washington Street Tempe, Arizona 85281	
Facility:	Bloomfield Terminal # 50 Road 4990 Bloomfield, New Mexico 87413	(physical address)
	Western Refining Southwest, Inc. P.O. Box 159 Bloomfield, New Mexico 87413	(postal address)
US EPA ID:	NMD089416416	
SIC Code:	5171 (Previously Operated under 2911)	

The former Bloomfield Refinery Facility is currently owned by San Juan Refining Company, a New Mexico corporation, and operated by Western Refining Southwest, Inc. formerly known as Giant Industries Arizona, Inc., an Arizona corporation. The former Bloomfield Refinery had an approximate refining capacity of 18,000 barrels per day. Various process units operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, sulfur recovery, merox treater, catalytic polymerization, and diesel hydrotreating. Products produced at the refinery included gasoline, diesel fuels, jet fuels, kerosene, propane, butane, naphtha, residual fuel, fuel oils, and LPG.

The Facility is located on approximately 263 acres south of Bloomfield, New Mexico in San Juan County (Figure 1). The Facility complex is bisected by County Road 4990 (Sullivan Road), which runs east-west. The process units, tank farm, wastewater treatment system, raw water ponds, and fire training area are located north of the county road. The crude oil and product unloading areas, loading racks, maintenance buildings/90-day storage area, pipeline offices, transportation truck shop, and Class I injection well are located south of the country road (Figure 2).

The former Refinery is located on a bluff 120 feet above the south side of the San Juan River. The top of the bluff is relatively flat and is at an elevation of 5,540 feet above sea level. Based on the available site-specific and regional subsurface information, the site is underlain by the Quaternary Jackson Lake terrace deposits, which unconformably overlie the tertiary Nacimiento Formation. The Jackson Lake deposits consist of fine grained sand, silt, and clay that grades to course sand, gravel and cobble size material closer to the contact with the Nacimiento Formation. The Jackson Lake Formation is over 40 feet thick near the southeast portion of the site and generally thins to the northwest toward the San Juan River. The Nacimiento Formation is primarily composed of fine grained materials (e.g., carbonaceous mudstone/claystone with interbedded sandstones) with a reported local thickness of approximately 570 feet (Groundwater Technology, 1994).

The River Terrace Area is located north of the Hammond Ditch, approximately 120 feet lower in elevation than the Former Refinery process and Tank Farm areas. Since 2006, Western has operated a bioventing system for the purpose of providing oxygen to the subsurface and support aerobic biodegradation of petroleum hydrocarbons that were identified in soil along the western portion of the River Terrace to a depth of approximately 8 feet below existing grade surface (bgs).

In 2013, optimization activities to the biovent system were completed which included removal of impacted soil, installation of an air sparging system, and installation of an additional dewatering well. These enhancements allowed for the system to continue to target the subsurface soils, as well as enhance the groundwater remediation efforts through additional pumping and air sparging.

The River Terrace System currently consists of the following:

- Five biovent wells (BV-1, BV-3, BV-4, BV-5, and BV-6);
- Ten temporary piezometers (TP-3, TP-5, TP-6, TP-7 thru TP-13);
- Three dewatering wells (DW-1, DW-2, and DW-3);
- Two monitoring wells (MW-48, and MW-49);
- Two air sparging lines (Air Sparging Line A, and Air Sparging Line B); and
- One collection gallery.

The active dewatering system consists of two dewatering wells (DW-1 and DW-3) and a collection gallery, each equipped with variable-speed submersible pumps. The collection gallery, consisting of a 4-inch perforated pipe with an 8-inch diameter vertical riser pipe and submersible pump, was installed and placed into operation by early October 2009. Dewatering

well DW-3 was installed as part of the most recent optimization activities, and is constructed with a 4-inch machine slotted PVC well casing that is placed inside a 5.5-inch diameter steel pipe. The steel pipe is packed with larger diameter cobbles, allowing for better groundwater pumping efficiency. The dewater system pumps water through two GAC filters before discharging to the facility raw water ponds. The purpose of the dewatering system is used to enhance the effectiveness of the bioventing system by dewatering the influenced area, and also remove impacted groundwater for treatment.

Installation of the air sparging component of the biovent system was completed in late 2012, and consists of two air sparging lines (Air Sparging Line A and Air Sparging Line B). Each air sparging line consists of air sparging tubes that extend down into the groundwater (Western Refining, 2013). Air from the biovent main air blower is pushed into each sparging tube, causing a bubbling effect in the groundwater while also oxygenating the surrounding subsurface.

The biovent portion of the system continues to remain active, although the majority of the impacted soils within the subsurface were removed as part of the completed optimization activities. The main air blower injects air into the subsurface through the BV wells. The air supply promotes biodegradation within the subsurface.

Section 2
Background

This section presents a summary of the events and activities conducted at the River Terrace Area since 1999.

1999

- Installation of a bentonite slurry and sheet pile barrier wall adjacent to the San Juan River was completed. The barrier extends approximately 35 feet below the ground surface, and extends around the perimeter of the riverbank from the bluff opposite the west end of the process area to the river inlet station. The bentonite slurry and sheet pile barrier wall was installed to prevent hydrocarbons from migrating into the San Juan River.

2004

- Two groundwater monitoring wells were installed (MW-48 and MW-49) to replace two piezometers (P-4 and P-5). In addition, eight temporary piezometers were installed (TP-1 through TP-8). The purpose of installing the monitoring wells and piezometers was to determine the extent of hydrocarbon impacts in soil on the refinery side of the bentinite slurry wall and sheet pile barrier.

2005

- Bloomfield Refinery initiated construction of the River Terrace Bioventing Project to provide oxygen to the subsurface and support aerobic biodegradation of petroleum hydrocarbons existing in the soil at the River Terrace. Construction activities included the following:
    - Installation of five additional piezometers (TP-9 through TP-13) within the eastern portion of the River Terrace area.
    - Construction of an aeration system designed to increase bioremedial activity in the subsurface. The aeration system included installation of 13 bioventing wells (BV-1 through BV-13), all located within the western portion of the River Terrace area. The bioventing wells were installed in August 2005.
    - Construction of a dewatering system designed to expand the bioremedial vadose zone. The dewatering system included installation of two dewatering wells (DW-1 and DW-2). The dewatering wells were installed in August 2005.

2006

- Operation of the Bioventing System commenced in January 2006. System monitoring activities were conducted in compliance with the approved River Terrace Voluntary

Corrective Measures Monitoring Plan (Revised) dated October 28, 2005 (Malcolm Pirnie, 2005).

- An In-Situ Respiration Test was conducted in May 2006. The results of the In-Situ Test were used to evaluate progress of the bioremedial activity.

- Quarterly performance monitoring was conducted in March, June, September, and December of 2006.

2007

- Quarterly performance monitoring of the Bioventing System was conducted in February, June, August, and October.

- An In-Situ Respiration Test was conducted in September. The results of the In-Situ Test were used to evaluate progress of the bioremedial activity.

- The dewatering pumps were replaced in February 2007.

- Breakthrough in the lead GAC (V-612) was detected in April 2007. Upon confirmation of breakthrough, GAC filter V-611 became the lead GAC filter. V-612 was replaced and placed back in service in June as the lag filter.

2008

- Quarterly performance monitoring activities for the Bioventing System were conducted in March, May, July, and November.

- The aeration system blower bearings were replaced in February 2008.

- The dewatering pump equipped in monitoring well MW-48 was replaced in August 2008.

- Blower piping was upgraded in October 2008.

2009

- Quarterly performance monitoring for the Bioventing System was conducted in March, April, September, and October 2009.
- An In-Situ Respiration Test was conducted during the week of October 26, 2009.
- In order to improve and optimize the dewatering system, a collection gallery, pump, and piping system were installed in the southwest portion of the River Terrace and put in service October 13, 2009.

2010

- Quarterly performance monitoring for the Bioventing System was conducted in March, April, July, and October of 2010.

- Following suspension of refining operations on November 23, 2009, operation of the River Pump station decreased, thus impacting the frequency of the River Terrace dewatering system. Although the aeration system continued to operate consistently, operation of the dewatering system has become infrequent due to the decreased demand for fresh water to support current facility operations.

2011

- In March 2011, Western received approval from NMED-HWB to modify the piping of the River Terrace dewatering system. Piping modifications included installation of a 3,000-gallon surge tank and booster pump which allows the treated water from the River Terrace dewatering system to discharge directly into the Refinery's fresh water ponds. Piping modifications were completed in April 2011.

- Approved modifications to on-going monitoring at the River Terrace (NMED, 2011) were implemented as part of the 2011 sampling program for the River Terrace. High and low flow monitoring events were conducted in June 2011 and July 2011, respectively.

- Quarterly performance monitoring of the Biovent System GAC filters inlet and outlet occurred in March, May, July, and October of 2011.

- Monthly samples were collected at the discharge of the lead GAC filter on a monthly basis, with the exception that a sample was not collected in April 2011 due to the dewatering system being off-line.

2012

- In June 2012, the lead GAC filter was exchanged for a new filter. The biovent dewatering system consists of two GAC filters that operate in series. The new filter was placed in the lag position, and the previous lag filter was placed in the lead position.

- In October 2012, Western submitted a Work Plan that summarized proposed activities to optimize the remediation progress at the River Terrace. Approval of the Work Plan was issued by NMED-HWB on October 12, 2012. Field activities commenced on October 20, 2012 and included the following activities:

    - Removal of impacted clay soil at the River Terrace;

    - Installation of a sparging piping to target areas of the river terrace where groundwater is impacted;

    - Decommissioning of TP-1, TP-2, BV-2, and BV-7 through BV-13 were all decommissioned during excavation activities.

- Air Sparging Line A and Air Sparging Line B were added to system.

2013

- Western completed and put into service dewatering well DW-3 located within the southwest corner of the River Terrace. This new dewatering well adds additional value to the current dewatering system at the river terrace as historical analysis have shown this area to contain higher concentrations of impacted groundwater.

- The High Flow Monitoring Event did not take place in 2013. The one week spring peak release (5,000 cfs) did not take place because of the threat of a water shortage in the San Juan River Basin. San Juan County is experiencing a severe drought.

2014

- Quarterly performance monitoring of the GAC filters for the Bioventing System was conducted in March, April, July, and October of 2014.

- The High Flow Monitoring Event did not take place in 2014. The one week spring peak release (5,000 cfs) did not take place because of the threat of a water shortage in the San Juan River Basin. San Juan County is experiencing a severe drought.

Section 3
Performance Monitoring

Performance monitoring at the River Terrace area includes collecting groundwater and soil gas samples for laboratory analysis, collecting field measurement and system readings, and evaluating system treatment performance by the GAC filter system. The location of the river terrace wells and aeration system is shown in Figure 3 and Figure 4. A summary of the field methods used to conduct performance monitoring at the River Terrace is provided in Appendix B. The following is a summary of monitoring activities conducted at the River Terrace area in 2014.

3.1 Groundwater Monitoring

Groundwater samples were collected in 2014 only during low flow operation of the San Juan River (i.e. with a river flow rate of approximately 500 scfm). The San Juan River did not experience a high flow operating period in 2014 due to extreme drought conditions in the area, and thus a High Flow Sampling Event did not occur in 2014. Groundwater sampling activities during low flow conditions of the San Juan River were conducted during the week of April 21, 2014. The following is a summary of activities performed during the groundwater monitoring event conducted in 2014.

3.1.1 Groundwater Measurements

Depth-to-groundwater and depth-to-product measurements were collected from each of the TP-5, TP-6, TP-8, TP-9, DW-3, and MW-49 prior to the collection of groundwater samples during the San Juan River low flow sampling events. A summary of the groundwater measurements is provided in Table 2.

3.1.2 Groundwater Field Parameters

Groundwater field parameters (temperature, pH, conductivity, D.O., and ORP) were collected prior to collecting groundwater samples. Groundwater field parameters were collected from TP-5, TP-6, TP-8, TP-9, DW-3, and MW-49. A summary of the groundwater field parameters collected during the sampling event are included in Table 2.

3.1.3 Groundwater Sampling

In 2014, groundwater samples were collected from TP-5, TP-6, TP-8, TP-9, DW-3, and MW-49. Groundwater samples were submitted to Hall Environmental Analytical Laboratory and analyzed for the following constituents:

- Volatile Organic Compounds – BTEX and MTBE by EPA Method 8021B;
- Total Petroleum Hydrocarbons (TPH) – Gasoline Range Organics (GRO) by EPA Modified Method 8015B;
- Total Petroleum Hydrocarbons (TPH) – Diesel Range Organics (DRO) by EPA Modified Method 8015B; and
- Total Recoverable Metals – Total lead by EPA Method 6010C.

3.2 Soil Vapor Monitoring

3.2.1 Pressure Readings

During the sampling event, field pressure readings were collected from TP-5, TP-6, TP-8, TP-9, and MW-49 using a hand-held magnahelic gauge connected to the sample port at the top of each well. Refer to Table 1 for a summary of the pressure readings collected at the TP wells and MW-49 in 2013.

Injection pressure readings were collected from the bioventing wells, the air sparging lines, and at the discharge of the main air blower as part of the Low Flow Sampling Event activities. Table 3 provides a summary of the field readings collected in 2014.

3.2.2 Soil Gas Field Parameters

Field measurements of soil gas hydrocarbons (using a PID), oxygen, and carbon dioxide concentrations (using a multi-gas meter) were collected from TP-5, TP-6, TP-8, TP-9, MW-49, and DW-3 during the Low Flow Sampling Event. A summary of the soil gas field parameters is provided in Table 1.

3.2.3 Soil Gas Sampling

Soil gas samples were collected from TP-5, TP-6, TP-8, TP-9, DW-3, and MW-49 during low flow operation of the San Juan River. All soil gas samples were collected in tedlar bags, and submitted to Hall Environmental Analytical Laboratory to be analyzed for the following parameters:

- Volatile Organic Compounds – BTEX by EPA Method 8021B

- Total Petroleum Hydrocarbons – GRO by EPA Method 8015B

A summary of the soil gas analytical results is provided in Table 1.

3.3 Bioventing System Performance Monitoring

3.3.1 GAC Sampling

Extracted groundwater from the active dewatering wells is treated prior to discharging to the raw water ponds, located within the east portion of the refinery. Extracted groundwater is pumped through two granular activated carbon (GAC) filters positioned in series for removal of dissolved-phase hydrocarbons.

GAC influent (GAC-Inlet) samples, GAC effluent samples (GAC-Lag), and lead GAC filter effluent samples (GAC-Lead) were collected quarterly. Samples were submitted to Hall Environmental Analytical Laboratory and analyzed for the following parameters: (Reference Table 4).

- Volatile Organic Compounds – BTEX and MTBE by EPA Method 8021B
- Total Petroleum Hydrocarbons – Gasoline Range Organics by EPA Method 8015B
- Total Petroleum Hydrocarbons – Diesel Range Organics by EPA Method 8015B

Additional samples were collected at the outlet of the lead GAC (GAC-LEAD) monthly during 2014. On April 7th, 2014, samples were collected at the GAC-LAG and GAC-LEAD sample locations. The sample results indicated detected concentrations of TPH-GRO at both sample locations, with the highest concentration detected at the GAC-LAG. Without making any adjustments to the system operations, a second set of confirmation sample were collected on May 8th, 2014. The May 8th analytical report and all subsequent samples collected in 2014 show no detectable concentrations of TPH-GRO at both the GAC-LAG and GAC-LEAD. Western believes that the analytical results for the April 7th sample were due to sampling error.

As part of the baseline monitoring of the groundwater recovery system, additional GAC-INLET samples were collected periodically in 2014 to closely monitor the inlet concentration of groundwater as DW-3 continued to operate. The samples were analyzed for BTEX, TPH-DRO, and TPH-GRO. A summary of the analytical results for samples collected at the GAC filters is provided in Table 4.

3.3.2 In-Situ Respiration Test

Western has conducted three separate in-situ respiration tests at the River Terrace area in May 2006, September 2007, and October 2009. The suspension of refining operations causes the dewatering system to operate intermittently which in turn affects exposure of the vadose zone thus affecting the accuracy of the in-situ respiration test. In a response letter from NMED dated November 23, 2010 (NMED, 2010), NMED-HWB granted approval to discontinue conducting the in-situ respiration tests. Therefore an in-situ respiration was not performed in 2014.

Section 4
Conclusions and Recommendations

This section summarizes and provides an evaluation of the results shown in field monitoring data and analytical data. The analytical reports for groundwater and soil gas samples are provided in Appendix D. The regulatory criteria and groundwater clean-up standards used to compare the river terrace sample results are provided in Appendix A.

4.1 Conclusions

4.1.1 Groundwater Monitoring

Groundwater samples were collected at specific wells and analyzed for volatile organic compounds (benzene, toluene, ethylbenzene, xylenes, and MTBE), TPH-DRO, TPH-GRO, and total metals (lead). The analytical results for samples collected in 2014 during San Juan River low flow conditions were below their respective screening levels with the following exceptions:

- Benzene was detected at concentrations above the respective MCL (0.005 mg/L) at one location (DW-3). The concentration of benzene detected was 0.067 mg/L.
- Ethylbenzene was detected at concentrations above the respective MCL (0.7 mg/L) at one location (DW-3). The concentration of ethylbenzene detected was 0.720 mg/L.
- Xylenes were detected at concentrations above the respective WQCC screening level of 0.62 mg/L at one location (DW-3). The concentration of xylene detected was 1.300 mg/L.
- TPH-DRO was detected at concentrations above the respective NMED screening level of 0.2 mg/L at four locations (DW-3, TP-5, TP-6, and TP-8). The highest concentration of TPH-DRO was detected at TP-8 (2.3 mg/L).

Table 2 provides a summary of the analytical groundwater results. A concentration map showing the benzene, toluene, ethylbenzene, and xylenes concentrations for the River Terrace wells during low flow conditions is provided in Figure 5.

4.1.2 Soil Vapor Monitoring

Soil gas field readings were collected to measure organics, oxygen, and carbon dioxide in the subsurface. The PID meter detected low level concentrations of organics, ranging from 0.8 ppm to 25.8 ppm. The highest concentration was detected at DW-3, located within the active area of the bioventing system. The measured oxygen levels ranged from 19.0 % to 20.9 % throughout the River Terrace.

Soil gas samples were collected at specific wells and analyzed for volatile organic compounds (benzene, toluene, ethylbenzene, and xylenes), and TPH-GRO. A summary of the results is provided in Table 1. Figure 6 is a concentration map showing the benzene, toluene, ethylbenzene, and xylenes concentrations for the River Terrace wells during low flow conditions. The analytical results for samples collected in 2014 were not detected above the respective laboratory screening level, with the exception of the following:

- Benzene was detected in a sample collected at DW-3, with a concentration detected of 0.74 ug/L. during low flow stages of the San Juan River.
- Ethylbenzene was detected in samples collected at DW-3, with a concentration detected of 12.0 ug/L during low flow stages of the San Juan River.
- Xylene was detected in samples collected at DW-3, with a concentration detected of 20.0 ug/L during low flow states of the San Juan River.
- TPH-GRO was detected in samples collected at DW-3 with a concentration detected of (150.0 ug/L) during low flow states of the San Juan River.

Soil gas field measurements indicate that the aeration system has been successful in maintaining sufficient oxygen within the subsurface to help sustain bioremedial activity. The elevated PID field readings correlate with the respective soil gas analytical results. Well location DW-3 shows the highest soil gas concentrations, which also correlates to the groundwater results in this location.

4.1.3 Optimized Biovent System Monitoring

A total of 219,715 gallons of impacted groundwater was removed and treated through the GAC filters. The number of gallons removed was substantially lower in 2014 in comparison to 2013. The lower number of gallons removed from the system is due to the fact that the one week spring peak release (5000 cfs) did not take place, and also due in-part to the lower than normal operation of the San Juan River flows for 2014. Also, in response to the lower water table at the river terrace the dewatering system has been adjusted to operate at a slower rate in order to help protect the pumping equipment.

Pressure readings were collected at the biovent wells, air sparging lines, and the main air blower in 2014. The air injection system ran consistently throughout 2014 and required no changes to the air distribution. The pressure readings at each BV well was consistent and at a sufficient level to provide aeration to the vadose zone.

4.2 Recommendations

Groundwater monitoring data collected in 2014 continues to shows that groundwater impacts are localized to within the southwest portion of the River Terrace, with the highest concentrations within the vicinity of DW-3. Western believes that it is no longer necessary to monitor the eastside of the River Terrace because no contamination has been found there as demonstrated by the data.

Western believes that soil gas monitoring in the River Terrace System no longer provides any value. Western believes this because air samples do not show any additional information outside of the groundwater results. Western has removed the impacted soil from the River Terrace System and believes the groundwater is our main focus for remediation.

Section 5
References

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Tables

Table 1
2014 Soil Gas Monitoring Data Summary

Sample Location	Sampling Activities	Date	Purge Volume (L)	Depth to Water (ft below TOC)	Pressure (Inches of Water)	PID (ppm)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TPH-GRO (ug/L)
TP-1	***Decommissioned November 2012	November 2012	***	***	***	***	***	***	***	***	***	***	***
TP-2	***Decommissioned November 2012	November 2012	***	***	***	***	***	***	***	***	***	***	***
TP-3 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07-09-13	20*	7.11	0.00	2.2	19.4	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	NR[2]	5.32	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04-09-12	NR[2]	7.37	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	High Flow 2011	Week of 06-13-11	NR[2]	5.80	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07-26-11	12.9	7.71	0.00	0.1	20.3	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
TP-5	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/21/14	9.5	5.19	0.00	5.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	20*	4.95	0.00	1.1	19.4	0.0	<0.10	<0.10	<0.10	<0.30	6.9
	High Flow 2012	Week of 05-31-12	6.3	3.42	0.00	0.8	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2012	Week of 04-19-12	9.4	5.09	0.50	0.6	20.8	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2011	Week of 07-26-11	10.3	5.69	0.40	2.2	20.3	0.0	<0.10	<0.10	<0.10	<0.30	12.0
	High Flow 2011	Week of 06-13-11	9.0	4.95	0.00	0.9	19.4	0.1	<0.10	<0.10	<0.10	<0.30	<5.0
TP-6	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/21/14	11.2	6.11	0.00	2.8	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/9/13	20*	5.79	0.00	0.1	19.1	0.1	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	7.5	4.06	0.00	0.2	20.9	0.0	<0.10	<0.10	<0.10	<0.30	7.9
	Low Flow 2012	Week of 04-19-12	11.0	6.01	0.00	0.0	20.8	0.0	<0.10	<0.10	<0.10	<0.30	6.8
	Low Flow 2011	Week of 07-26-11	11.9	6.58	0.50	0.5	20.3	0.0	<0.10	<0.10	<0.10	<0.30	10
	High Flow 2011	Week of 06-13-11	9.7	5.36	0.00	0.9	19.8	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**

Table 1
2014 Soil Gas Monitoring Data Summary

Sample Location	Sampling Activities	Date	Purge Volume (L)	Depth to Water (ft below TOC)	Pressure (Inches of Water)	PID (ppm)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TPH-GRO (ug/L)
TP-7 (Bi-Annual)	Low Flow 2013	Week of 07/09/13	20*	5.59	0.00	0.0	17.8	2.7	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	NM	2.73	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 07-01-12	NM	5.79	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07-26-11	10.6	6.15	0.00	0.1	19.8	0.4	<0.10	<0.10	<0.10	<0.30	5.8
	High Flow 2011	Week of 06-13-11	11.0	2.95	0.00	0.1	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
TP-8	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/21/14	11.4	6.22	0.00	1.2	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	20*	6.29	0.00	11.8	18.5	0.7	<0.10	<0.10	0.12	<0.30	17.0
	High Flow 2012	Week of 05-31-12	9.2	5.02	0.00	0.6	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2012	Week of 04-19-12	11.9	6.50	2.00	0.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2011	Week of 07-26-11	12.5	7.46	3.90	0.5	20.3	0.0	<0.10	<0.10	<0.10	<0.30	8.7
	High Flow 2011	Week of 06-13-11	11.3	6.26	0.00	0.1	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
TP-9	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/21/14	12.8	6.98	0.00	2.1	19.0	1.7	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	20*	5.23	0.00	0.6	19.4	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	4.0	2.18	0.00	0.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2012	Week of 04-19-12	10.6	5.75	0.00	0.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2011	Week of 07-26-11	9.7	5.93	0.00	0.5	20.8	0.0	<0.10	<0.10	<0.10	<0.30	8.2
	High Flow 2011	Week of 06-13-11	4.9	2.13	0.00	0.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
TP-10 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	20*	4.99	0.00	0.5	19.4	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	NR[2]	2.82	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04-19-12	NR[2]	5.33	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07-26-11	9.1	5.57	0.00	0.1	20.5	0.0	<0.10	<0.10	<0.10	<0.30	<5.0

Table 1
2014 Soil Gas Monitoring Data Summary

Sample Location	Sampling Activities	Date	Purge Volume (L)	Depth to Water (ft below TOC)	Pressure (Inches of Water)	PID (ppm)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TPH-GRO (ug/L)
	High Flow 2011	Week of 06-13-11	NR[2]	3.08	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
TP-11 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	20*	5.45	0.00	0.3	19.4	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	NR[2]	3.48	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04-19-12	NR[2]	5.75	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	High Flow 2011	Week of 06-13-11	NR[2]	3.81	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07-26-11	9.8	6.03	0.00	0.0	20.4	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
TP-12 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	20*	7.10	0.00	0.1	19.4	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	NR[2]	5.00	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04-19-12	NR[2]	7.45	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	High Flow 2011	Week of 06-13-11	NR[2]	5.24	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07-26-11	12.9	7.67	0.00	0.2	20.5	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
TP-13 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	20*	5.88	0.00	0.1	19.3	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	NR[2]	3.78	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04-19-12	NR[2]	6.29	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	High Flow 2011	Week of 06-13-11	NR[2]	3.82	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07-26-11	10.8	6.46	0.00	0.2	20.4	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
DW-1 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	80*	9.64	0.00	0.0	19.0	0.4	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2012	Week of 05-31-12	NM	3.99	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04-19-12	NM	6.41	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	High Flow 2011	Week of 06-13-11	75.1	4.54	0.00	0.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2011	Week of 07-26-11	101.0	6.68	0.00	0.5	20.3	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**

Table 1
2014 Soil Gas Monitoring Data Summary

Sample Location	Sampling Activities	Date	Purge Volume (L)	Depth to Water (ft below TOC)	Pressure (Inches of Water)	PID (ppm)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TPH-GRO (ug/L)
DW-3	Low Flow 2014	Week of 04/21/14	50.7	6.92	0.00	25.8	20.3	0.6	0.74	<0.10	12.0	20.0	150.0
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	20*	6.64	0.00	9.7	18.7	0.6	0.25	<0.10	1.30	11.0	61.0
MW-49	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/21/14	73.9	10.08	0.00	0.8	19.9	0.8	<0.10	<0.10	<0.10	<0.30	<5.0
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/09/13	50*	9.17	0.00	0.1	17.0	2.9	<0.10	<0.10	<0.10	<0.30	<5.0
	HighFlow 2012	Week of 05-31-12	42.3	5.76	0.00	0.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2012	Week of 04-19-12	70.1	9.56	0.00	0.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
	Low Flow 2011	Week of 07-26-11	67.0	9.76	0.00	0.2	19.7	0.3	<0.10	<0.10	<0.10	<0.30	5.4
	High Flow 2011	Week of 06-13-11	45.3	5.74	0.00	0.0	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0

Notes:

NR^1 = Not Required (NMED, 2009)
NR^2 = Not Required (NMED, 2011)
NM = Not Measured
NA = Inadvertently not Analyzed

* Purge volumes based on calculation of approximately 10 L/min pumping rate. 2-inch diameter wells pumped for approximately 2 minutes; 4-inch wells were pumped for 5 minutes; and 6-inch wells were pumped for 8 minutes.
** Due to drought, river conditions never met high flow requirements.
*** Well Decommissioned November 2012 as part of biovent system enhancements.

TABLE 2
2014 Groundwater Monitoring Data Summary

											MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	USEPA Regional Screening Levels	*TPH Screening Guidelines Table 2a		WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)	
											0.005	0.75	0.700	0.620	0.012	0.2		1.00	0.05	0.0150	0.002
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	D.O. (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Barium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Mercury (mg/L)
TP-1	***Decommissioned November 2012	November 2012	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
TP-2	***Decommissioned November 2012	November 2012	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
TP-3 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	7.11	NPP	12.35	421	2.06	62	7.47	66.4	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.05	NR[2]	NR[2]	0.0051	NR[2]
	High Flow 2012	Week of 05/29/12	5.32	NPP	12.35	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04/09/12	7.37	NPP	12.35	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07/25/11	7.71	NPP	12.35	434	3.76	256	6.30	66.2	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.005	NR[2]
	High Flow 2011	Week of 06/13/11	5.80	NPP	12.35	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
TP-5	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	5.19	NPP	8.84	526	0.34	-251	7.30	53.7	<0.005	<0.005	0.027	0.450	<0.005	2.2	4.0	NR[2]	NR[2]	0.012	NR[2]
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	4.95	NPP	8.84	431	2.55	-210	7.56	68.1	<0.010	<0.010	0.022	0.590	<0.010	0.69	4.6	NR[2]	NR[2]	0.013	NR[2]
	High Flow 2012	Week of 05/29/12	3.42	NPP	8.84	470	1.48	-33	6.30	61.1	<0.005	<0.005	0.017	0.450	<0.005	1.10	4.20	NR[2]	NR[2]	0.0260	NR[2]
	Low Flow 2012	Week of 04/09/12	5.09	NPP	8.84	363	0.93	-266	6.80	50.9	<0.005	<0.005	0.020	0.410	<0.005	0.60	1.80	NR[2]	NR[2]	0.3600	NR[2]
	Low Flow 2011	Week of 07/26/11	5.69	NPP	8.84	932	1.78	192	6.70	68.5	<0.010	<0.01	0.051	1.200	<0.025	0.24	4.9	NR[2]	NR[2]	0.0550	NR[2]
	High Flow 2011	Week of 06/13/11	4.95	NPP	8.84	561	0.72	273	6.95	62.2	<0.010	<0.01	0.350	4.200	<0.025	3.20	20	NR[2]	NR[2]	0.0580	NR[2]
TP-6	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	6.11	NPP	9.94	552	4.25	-83	7.11	53.5	<0.001	<0.001	0.028	0.093	<0.001	1.7	3.5	NR[2]	NR[2]	0.0084	NR[2]
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.79	NPP	9.94	457	6.84	-7	7.71	70.2	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	0.0100	NR[2]
	High Flow 2012	Week of 05/29/12	4.06	NPP	9.94	450	1.67	-6	7.10	61.9	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	0.360	NR[2]	NR[2]	0.0240	NR[2]
	Low Flow 2012	Week of 04/09/12	6.01	NPP	9.94	612	6.00	-64	7.53	51.0	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	0.0230	NR[2]
	Low Flow 2011	Week of 07/26/11	6.58	NPP	9.94	706	3.90	182	6.70	68.1	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.0050	NR[2]
	High Flow 2011	Week of 06/13/11	5.36	NPP	9.94	699	1.08	153	6.89	62.0	<0.001	<0.001	0.002	0.002	<0.0025	<0.20	0.2	NR[2]	NR[2]	0.0520	NR[2]

TABLE 2
2014 Groundwater Monitoring Data Summary

												MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	USEPA Regional Screening Levels	*TPH Screening Guidelines Table 2a		WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)	
												0.005	0.75	0.700	0.620	0.012	0.2		1.00	0.05	0.0150	0.002
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	D.O. (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Barium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Mercury (mg/L)
TP-7 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.59	NPP	9.72	704	5.67	-56	7.40	64.9	<0.010	<0.010	<0.010	<0.020	<0.010	<0.20	<0.50	NR[2]	NR[2]	0.0014	NR[2]
	High Flow 2012	Week of 05/29/12	2.73	NPP	9.72	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04/09/12	5.79	NPP	9.72	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07/26/11	6.15	NPP	9.72	1081	1.82	219	6.80	69.2	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	0.0061	NR[2]
	High Flow 2011	Week of 06/13/11	2.95	NPP	9.72	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
TP-8	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	6.22	NPP	9.72	957	2.33	-226	7.56	53.6	<0.005	<0.005	0.019	0.083	<0.005	2.3	4.0	NR[2]	NR[2]	0.0080	NR[2]
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	6.29	NPP	9.72	995	1.71	-179	7.40	68.0	<0.005	<0.005	0.014	0.091	<0.005	1.60	4.00	NR[2]	NR[2]	0.0110	NR[2]
	High Flow 2012	Week of 05/29/12	5.02	NPP	9.72	789	1.92	79	7.00	60.9	<0.005	<0.005	0.019	0.110	<0.005	1.30	3.00	NR[2]	NR[2]	0.0550	NR[2]
	Low Flow 2012	Week of 04/09/12	6.50	NPP	9.72	883	1.65	-209	7.55	50.2	<0.005	<0.005	0.022	0.069	<0.005	0.83	0.41	NR[2]	NR[2]	0.0190	NR[2]
	Low Flow 2011	Week of 07/26/11	7.46	NPP	9.72	825	2.09	119	6.70	67.2	<0.005	<0.005	0.029	0.130	<0.013	0.62	2.1	NR[2]	NR[2]	0.0054	NR[2]
	High Flow 2011	Week of 06/13/11	6.26	NPP	9.72	886	0.88	204	6.68	59.9	<0.005	<0.005	0.026	0.140	<0.013	1.0	1.9	NR[2]	NR[2]	0.0600	NR[2]
TP-9	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	6.98	NPP	10.97	1410	5.09	-54	7.05	50.8	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	<0.0050	NR[2]
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.23	NPP	10.97	1330	4.80	65	7.00	65.5	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	0.0091	NR[2]
	High Flow 2012	Week of 05/29/12	2.18	NPP	10.97	1113	1.82	148	6.90	58.3	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	<0.0025	NR[2]
	Low Flow 2012	Week of 04/09/12	5.75	NPP	10.97	1290	2.08	-125	7.18	47.8	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.05	NR	NR	<0.0050	NR
	Low Flow 2011	Week of 07/26/11	5.93	NPP	10.97	1690	2.38	237	6.70	66.5	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	<0.0050	NR[2]
	High Flow 2011	Week of 06/13/11	2.13	NPP	10.97	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
TP-10 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	4.99	NPP	9.95	340	2.01	60	7.50	63.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	0.0013	NR[2]
	High Flow 2012	Week of 05/29/12	2.82	NPP	9.95	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04/09/12	5.33	NPP	9.95	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07/26/11	5.57	NPP	9.95	406	2.24	257	6.60	66.1	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.0050	NR[2]
	High Flow 2011	Week of 06/13/11	3.08	NPP	9.95	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]

TABLE 2
2014 Groundwater Monitoring Data Summary

											MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	USEPA Regional Screening Levels	*TPH Screening Guidelines Table 2a		WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)	
											0.005	0.75	0.700	0.620	0.012	0.2		1.00	0.05	0.0150	0.002
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	D.O. (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Barium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Mercury (mg/L)
TP-11 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.45	NPP	9.98	500	1.92	-28	7.40	62.4	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	**0.0130**	NR[1]
	High Flow 2012	Week of 05/29/12	3.48	NPP	9.98	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04/09/12	5.75	NPP	9.98	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07/26/11	6.03	NPP	9.98	476	2.24	264	6.70	65.0	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.0050	NR[2]
	High Flow 2011	Week of 06/13/11	3.81	NPP	9.98	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
TP-12 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	7.10	NPP	11.79	561	2.61	-32	7.60	56.6	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	**0.0058**	NR[2]
	High Flow 2012	Week of 05/29/12	5.00	NPP	11.79	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04/09/12	7.45	NPP	11.79	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07/26/11	7.67	NPP	11.79	903	2.13	268	6.70	58.6	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.0050	NR[2]
	High Flow 2011	Week of 06/13/11	5.24	NPP	11.79	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
TP-13 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.88	NPP	16.09	365	3.23	-54	7.50	60.7	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	**0.0068**	NR[2]
	High Flow 2012	Week of 05/29/12	3.78	NPP	16.09	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04/09/12	6.29	NPP	16.09	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 04/19/10	6.46	NPP	16.09	406	1.86	262	6.60	63.7	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.0050	NR[2]
	High Flow 2011	Week of 04/19/10	3.82	NPP	16.09	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Baseline	Week of 08/15/05	6.27	NPP	16.09	1226	NR	NR	6.97	58.4	<0.0005	<0.0005	<0.0005	**0.004**	<0.0025	*<1.00	<0.05	NR	NR	NR	NR
DW-1 (Bi-Annual)	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	9.64	NPP	15.62	1936	2.43	-93	7.00	68.8	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR[2]	NR[2]	**0.0014**	<0.0002
	High Flow 2012	Week of 05/29/12	3.99	NPP	15.62	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2012	Week of 04/09/12	6.41	NPP	15.62	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]
	Low Flow 2011	Week of 07/26/11	6.68	NPP	15.62	3116	2.67	156	6.70	68.1	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.0050	<0.0002
	High Flow 2011	Week of 06/13/11	4.54	NPP	15.62	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]	NR[2]

TABLE 2
2014 Groundwater Monitoring Data Summary

											MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	USEPA Regional Screening Levels	*TPH Screening Guidelines Table 2a		WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)	
											0.005	0.75	0.700	0.620	0.012	0.2		1.00	0.05	0.0150	0.002
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	D.O. (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Barium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Mercury (mg/L)
DW-3	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	6.92	NPP	14.64	1048	0.68	-266	7.36	54.6	0.067	<0.010	0.720	1.300	<0.010	1.7	8.8	NR[2]	NR[2]	<0.0050	NR[2]
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	10.86	NPP	14.64	945	1.15	-265	7.55	67.1	0.098	<0.010	1.700	4.100	<0.010	3.30	23	NR[2]	NR[2]	0.0055	NR[2]
	Baseline	Week of 05/14/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4.80	31.00	NS	NS	NS	NS
	Baseline	Week of 02/14/13	NS	NS	NS	NS	NS	NS	NS	NS	0.082	<0.010	0.055	0.140	NS	NS	2.2	NS	NS	NS	NS
	Baseline	Week of 11/19/12	NS	NS	NS	NS	NS	NS	NS	NS	1.400	0.0029	1.800	8.500	NS	5.20	27.0	NS	NS	NS	NS
MW-49	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	10.08	NPP	16.48	1255	4.84	-111.2	7.45	51.08	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR	NR	0.0064	NR
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	9.17	NPP	16.48	749	1.67	-105	7.35	63.4	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	NR	NR	0.0013	NR
	High Flow 2012	Week of 05/29/12	5.76	NPP	16.48	653	2.07	77	7.1	61.2	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.05	NR	NR	<0.0025	NR
	Low Flow 2012	Week of 04/09/12	9.56	NPP	16.48	570	1.61	-113.5	7.71	49.2	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.05	NR	NR	<0.0050	NR
	Low Flow 2011	Week of 07/26/11	9.76	NPP	16.48	641	2.15	169	7.00	61.5	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.0050	NR
	High Flow 2011	Week of 06/13/11	5.74	NPP	16.48	738	0.96	232	6.88	63.4	<0.001	<0.001	<0.001	<0.002	<0.0025	<0.20	<0.05	NR[2]	NR[2]	<0.005	NR

Notes:
NR = Not Required (Voluntary Corrective Measures - Revised Monitoring Plan - October 2005)
NR[1]= Not Required (Approval With Direction - June 2009)
NR[2]= Not Required (Approval With Direction - May 2011)
NS = Not Sampled
***** Per NMED letter Approval with Direction 2008 Groundwater Remediation and Monitoring Annual Report (Comment 9) dated Sept. 1, 2009 all future DRO analysis will be analyzed at a lower detection level of 0.2mg/L by EPA Method 8015B.
** Due to drought, river conditions never met high flow requirements.
*** Well Decommissioned November 2012 as part of biovent system enhancements.
(Bi-Annual) = Samples taken every other year starting in 2011.

Table 3
2014 Biovent Wells Field Reading Summary

Sample Location	Sampling Event	Sample Date	Pressure (psi)
BV - 1	Low Flow	04/21/14	2.0
BV - 3	Low Flow	04/21/14	2.0
BV - 4	Low Flow	04/21/14	2.0
BV - 5	Low Flow	04/21/14	2.0
BV - 6	Low Flow	04/21/14	2.0
Air Sparging Line A	Low Flow	04/21/14	2.0
Air Sparging Line B	Low Flow	04/21/14	2.0
Main Blower	Low Flow	04/21/14	2.5

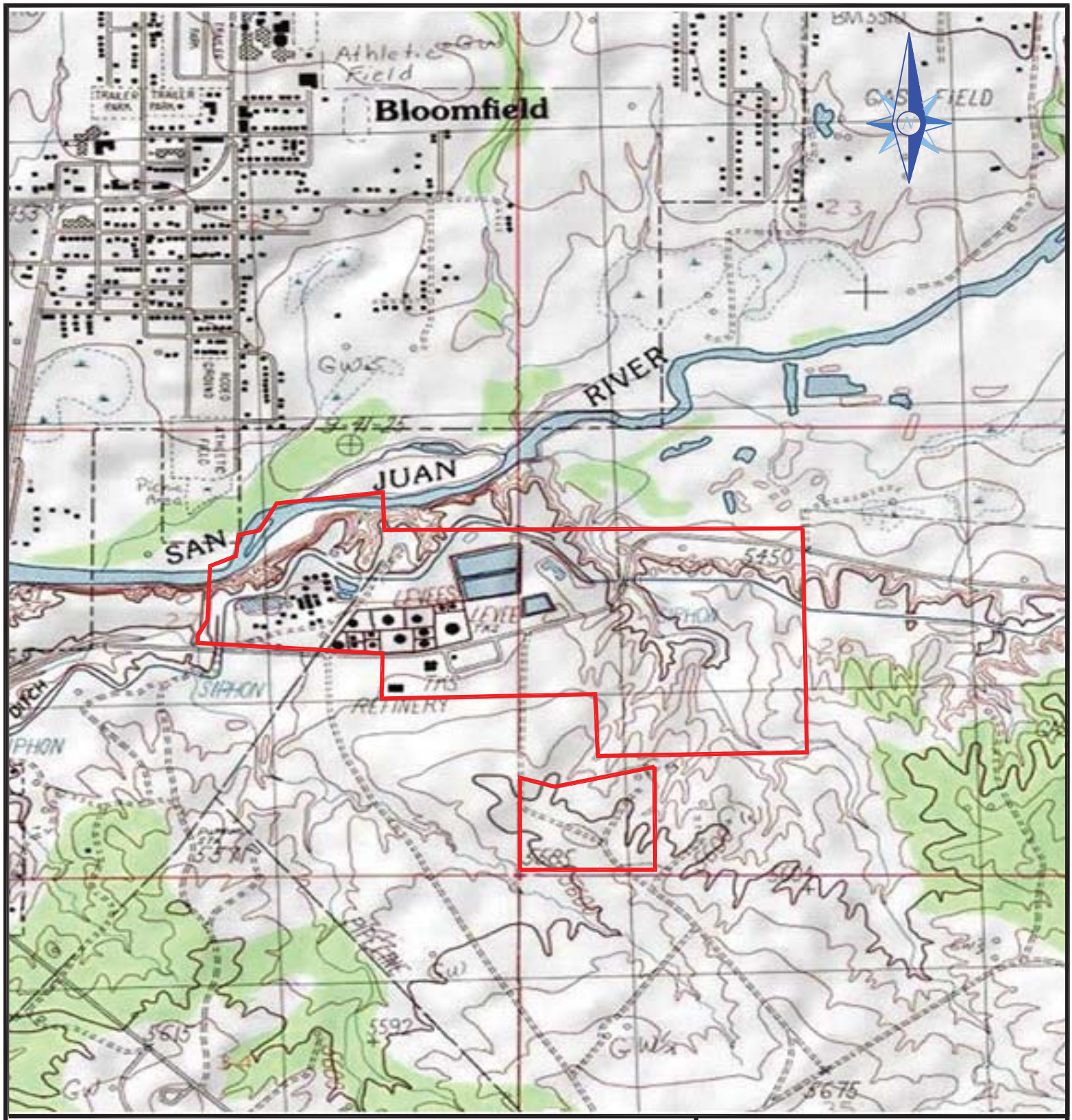
Table 4
2014 GAC Filter Analytical Summary

Sample Location	Sampling Event	DATE	MCL Benzene (mg/L)	WQCC 20NMAC 6.2.3103 Toluene (mg/L)	MCL Ethylbenzene (mg/L)	WQCC 20NMAC 6.2.3103 Xylene (mg/L)	TPH Screening Guidelines Table 2a TPH-DRO (mg/L)	TPH Screening Guidelines Table 2a TPH-GRO (mg/L)
			0.005	0.750	0.700	0.620	0.2	
GAC-INLET	4th Quarter	12/01/14	0.078	<0.010	0.610	0.590	2.9	5.5
		11/04/14	0.087	<0.010	0.670	0.620	1.8	6.6
		10/01/14	0.054	<0.010	0.560	0.760	3.0	6.0
	3rd Quarter	09/03/14	0.071	<0.010	0.550	0.580	2.4	5.0
		08/04/14	0.120	<0.010	0.750	1.200	2.4	14
		07/01/14	0.099	<0.010	0.710	0.890	2.0	7.0
	2nd Quarter	06/05/14	0.170	<0.020	0.760	1.500	3.1	9.5
		05/08/14	0.023	<0.020	0.700	1.000	1.7	7.1
		04/07/14	0.110	<0.010	1.000	2.700	2.9	17.0
	1st Quarter	03/03/14	0.150	<0.010	0.750	0.830	2.7	7.9
		02/03/14	0.140	<0.010	0.870	0.980	3.7	8.3
		01/07/14	0.110	<0.001	0.760	0.750	0.35	8.8
GAC-LEAD	4th Quarter	12/01/14	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050
		11/04/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
		10/01/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
	3rd Quarter	09/03/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
		08/04/14	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050
		07/01/14	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050
	2nd Quarter	60/05/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
		05/08/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
		04/07/14	<0.001	<0.001	<0.001	<0.002	<0.20	0.088
	1st Quarter	03/03/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
		02/03/14	<0.001	<0.001	<0.001	<0.002	0.21	<0.050
		01/07/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
GAC-LAG	4th Quarter	10/01/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
	3rd Quarter	07/01/14	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050
	2nd Quarter	06/05/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
		05/08/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
		04/07/14	<0.001	<0.001	<0.001	<0.002	<0.20	0.140
	1st Quarter	03/03/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050
		01/07/14	<0.001	<0.001	<0.001	<0.002	<0.20	<0.050

Notes:

1. Lead GAC changed-out June 2012.

Figures



Approximate Property Boundary

0 500 1000 1500 2000

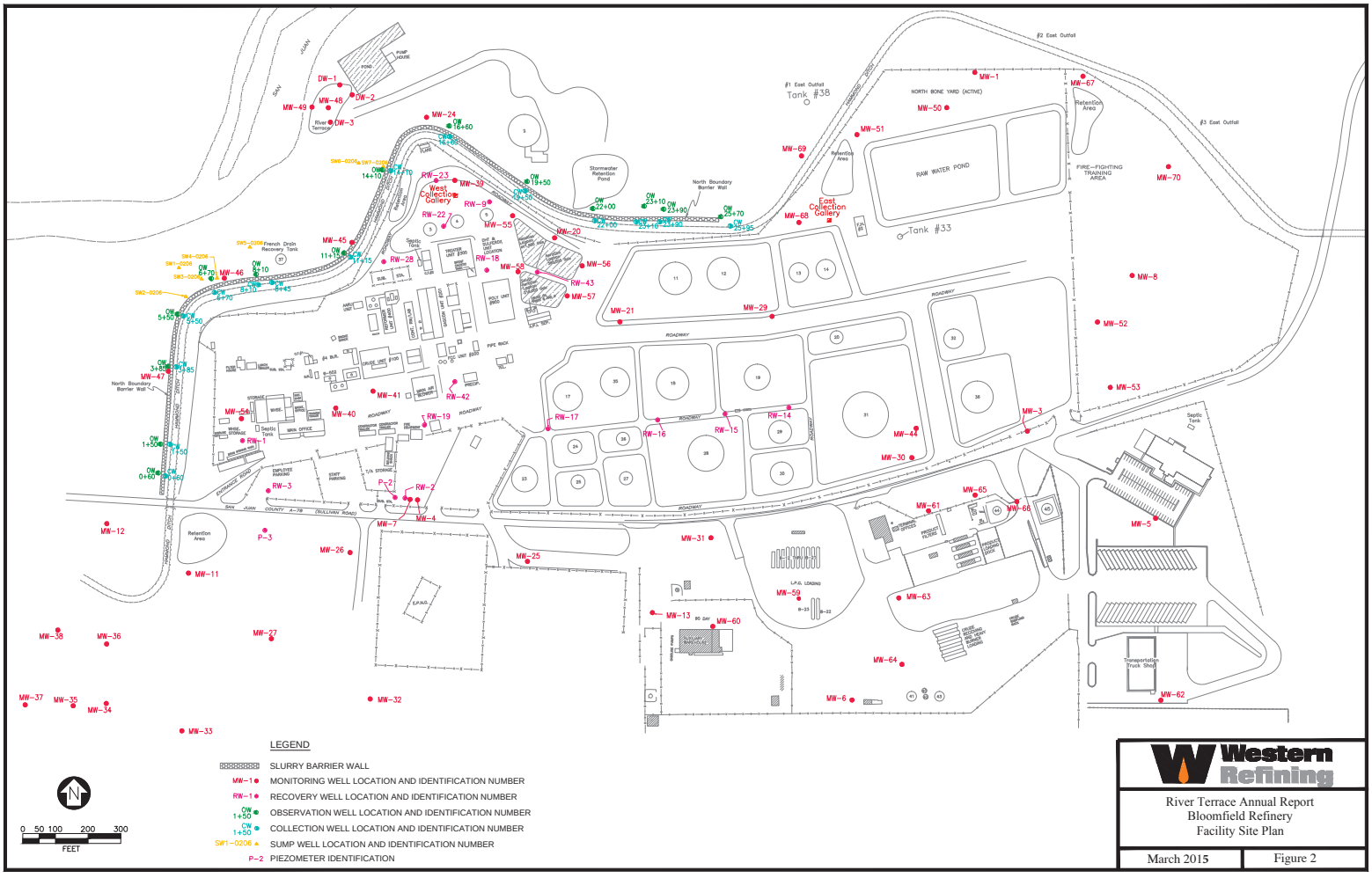
Feet

Western Refining

River Terrace Annual Report
Bloomfield Refinery
Facility Site Map

March 2015 | Figure 1

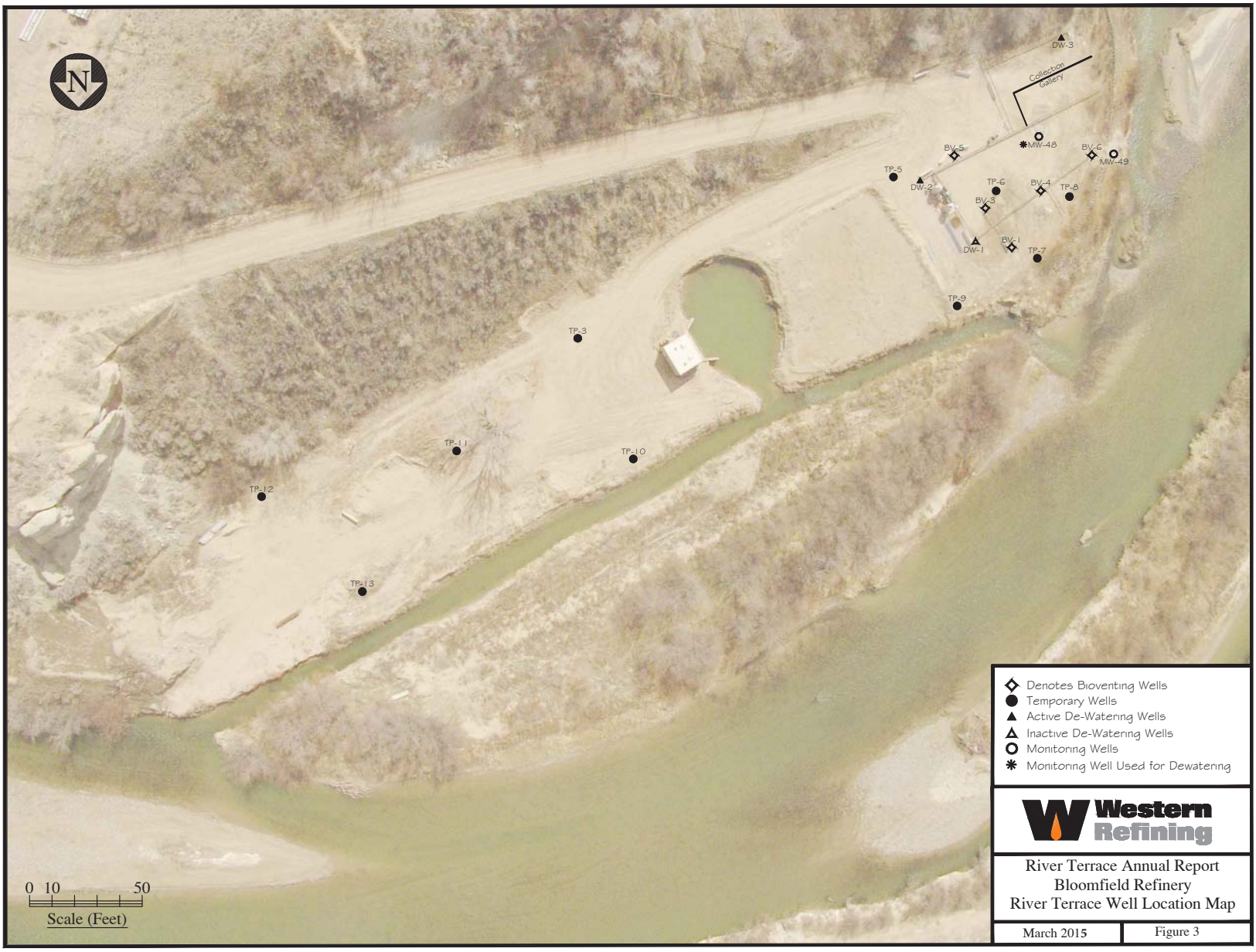
Drawn By: TAG



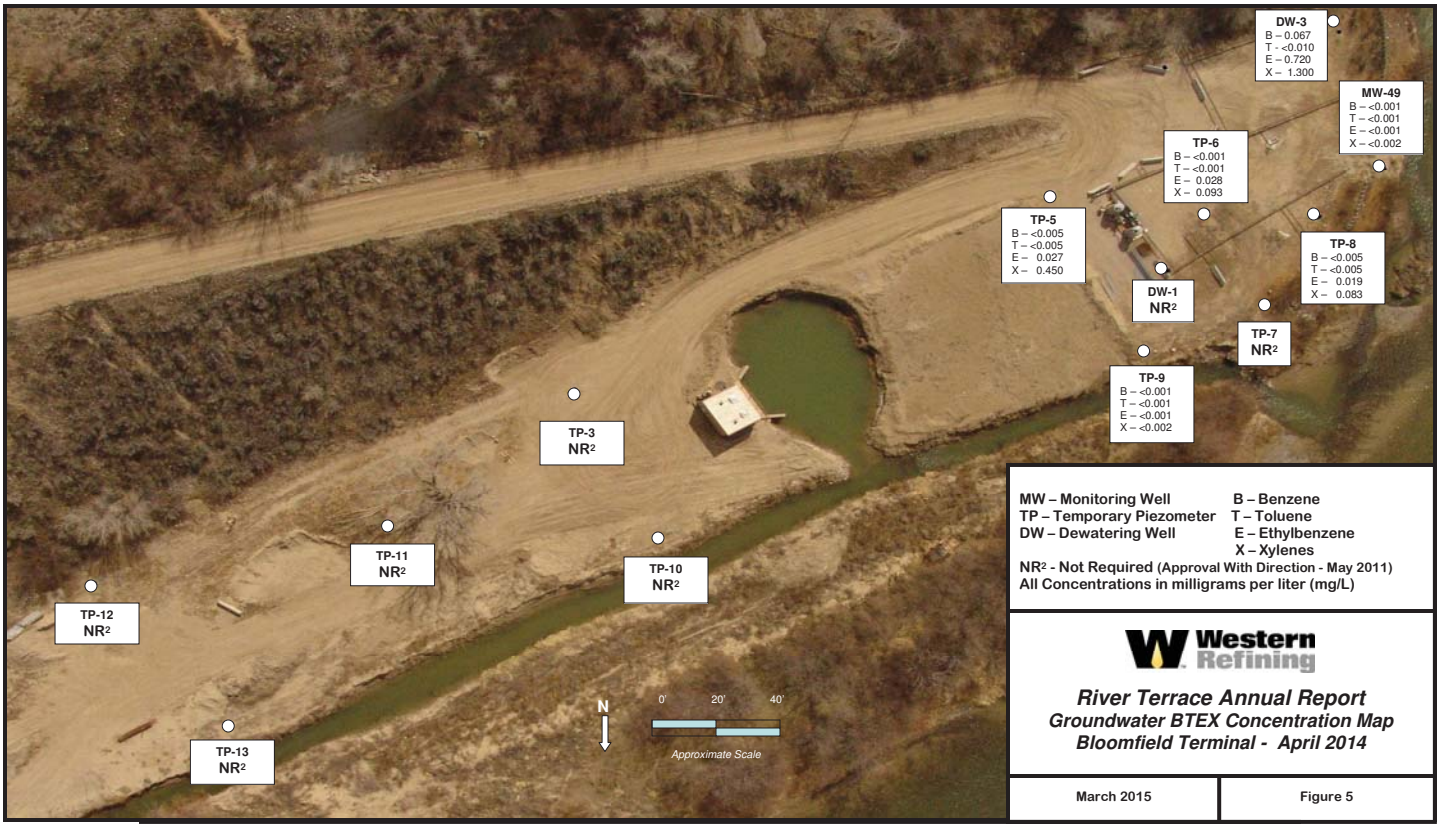
Western Refining

River Terrace Annual Report
Bloomfield Refinery
Facility Site Plan

March 2015 | Figure 2


N
DW-3
Collection Gallery
MW-48
MW-49
BV-5
BV-6
TP-5
DW-2
TP-6
BV-4
TP-8
BV-3
BV-1
DW-1
TP-7
TP-9
TP-3
TP-11
TP-10
TP-12
TP-13
0 10 50
Scale (Feet)
Denotes Bioventing Wells
Temporary Wells
Active De-Watering Wells
Inactive De-Watering Wells
Monitoring Wells
Monitoring Well Used for Dewatering
Western Refining
River Terrace Annual Report
Bloomfield Refinery
River Terrace Well Location Map
March 2015
Figure 3


TP-7
TP-9
BV-1
TP-8
DW-1
MW-49
BV-4
BV-3
BV-6
TP-6
MW-48
Sparging Tubes
Bio-Venting Line
Air Sparging Line B
DW-2
TP-5
BV-5
Valley
Air Sparging Line A
DW-3
N
45 ft
Imagery Date: 6/10/2011
© 2012 Google
Western Refining
River Terrace Annual Report
Bloomfield Refinery
Biovent System Layout
March 2015
Figure 4



MW – Monitoring Well
TP – Temporary Piezometer
DW – Dewatering Well

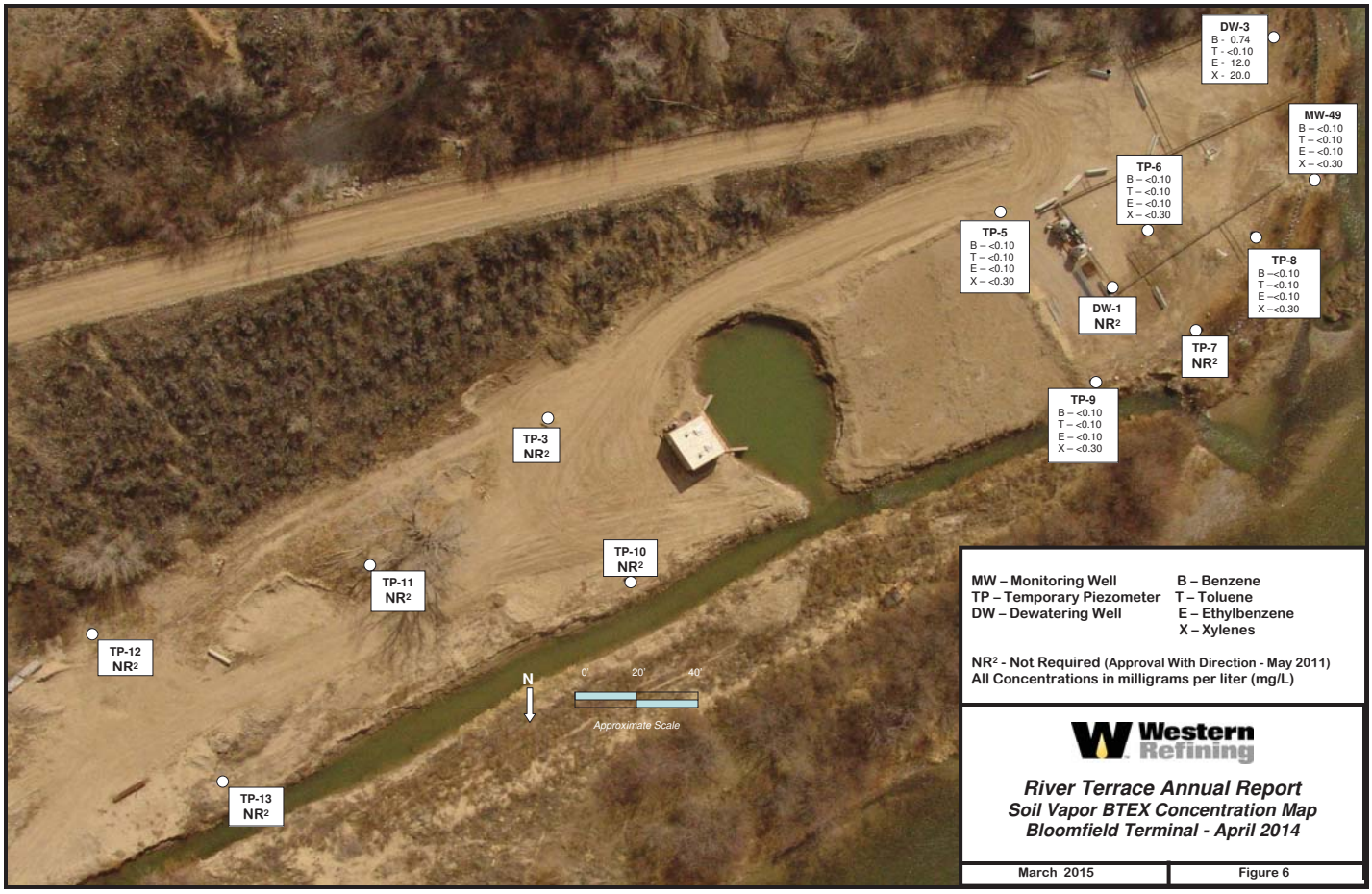
B – Benzene
T – Toluene
E – Ethylbenzene
X – Xylenes

NR2 - Not Required (Approval With Direction - May 2011)
All Concentrations in milligrams per liter (mg/L)

Western Refining

River Terrace Annual Report
Groundwater BTEX Concentration Map
Bloomfield Terminal - April 2014

March 2015	Figure 5



MW – Monitoring Well
TP – Temporary Piezometer
DW – Dewatering Well

B – Benzene
T – Toluene
E – Ethylbenzene
X – Xylenes

NR2 - Not Required (Approval With Direction - May 2011)
All Concentrations in milligrams per liter (mg/L)

Western Refining

River Terrace Annual Report
Soil Vapor BTEX Concentration Map
Bloomfield Terminal - April 2014

March 2015	Figure 6

Appendix A

20.6.2.3103 STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS: The following standards are the allowable pH range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection D of Section 20.6.2.3109 NMAC. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C of this section, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section. These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "*methods for chemical analysis of water and waste of the U.S. environmental protection agency*," with the exception that standards for mercury, organic compounds and non-aqueous phase liquids shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Subsection A and B of this section unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section 20.6.2.1101 NMAC for the combination of contaminants, or the Human Health Standard of Subsection A of Section 20.6.2.3103 NMAC for each contaminant shall apply, whichever is more stringent. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

(1) Arsenic (As).....0.1 mg/l
(2) Barium (Ba).....1.0 mg/l
(3) Cadmium (Cd).....0.01 mg/l
(4) Chromium (Cr).....0.05 mg/l
(5) Cyanide (CN).....0.2 mg/l
(6) Fluoride (F).....1.6 mg/l
(7) Lead (Pb).....0.05 mg/l
(8) Total Mercury (Hg).....0.002 mg/l
(9) Nitrate (NO_3 as N).....10.0 mg/l
(10) Selenium (Se).....0.05 mg/l
(11) Silver (Ag).....0.05 mg/l
(12) Uranium (U).....0.03 mg/l
(13) Radioactivity: Combined Radium-226 & Radium-228.....30 pCi/l
(14) Benzene.....0.01 mg/l
(15) Polychlorinated biphenyls (PCB's).....0.001 mg/l
(16) Toluene.....0.75 mg/l
(17) Carbon Tetrachloride.....0.01 mg/l
(18) 1,2-dichloroethane (EDC).....0.01 mg/l
(19) 1,1-dichloroethylene (1,1-DCE).....0.005 mg/l
(20) 1,1,2,2-tetrachloroethylene (PCE).....0.02 mg/l
(21) 1,1,2-trichloroethylene (TCE).....0.1 mg/l
(22) ethylbenzene.....0.75 mg/l
(23) total xylenes.....0.62 mg/l
(24) methylene chloride.....0.1 mg/l
(25) chloroform.....0.1 mg/l
(26) 1,1-dichloroethane.....0.025 mg/l
(27) ethylene dibromide (EDB).....0.0001 mg/l
(28) 1,1,1-trichloroethane.....0.06 mg/l
(29) 1,1,2-trichloroethane.....0.01 mg/l
(30) 1,1,2,2-tetrachloroethane.....0.01 mg/l
(31) vinyl chloride.....0.001 mg/l
(32) PAHs: total naphthalene plus monomethylnaphthalenes.....0.03 mg/l
(33) benzo-a-pyrene.....0.0007 mg/l

B. Other Standards for Domestic Water Supply

(1) Chloride (Cl).....250.0 mg/l
(2) Copper (Cu).....1.0 mg/l
(3) Iron (Fe).....1.0 mg/l
(4) Manganese (Mn).....0.2 mg/l
(6) Phenols.....0.005 mg/l
(7) Sulfate (SO_4).....600.0 mg/l
(8) Total Dissolved Solids (TDS).....1000.0 mg/l
(9) Zinc (Zn).....10.0 mg/l
(10) pH.....between 6 and 9

C. Standards for Irrigation Use - Ground water shall meet the standards of Subsection A, B, and C of

this section unless otherwise provided.

(1) Aluminum (Al)..... .....5.0 mg/l
(2) Boron (B) .....0.75 mg/l
(3) Cobalt (Co) .....0.05 mg/l
(4) Molybdenum (Mo) .....1.0 mg/l
(5) Nickel (Ni) .....0.2 mg/l

[2-18-77, 1-29-82, 11-17-83, 3-3-86, 12-1-95; 20.6.2.3103 NMAC - Rn, 20 NMAC 6.2.III.3103, 1-15-01; A, 9-26-04]
[Note: For purposes of application of the amended numeric uranium standard to past and current water discharges (as of 9-26-04), the new standard will not become effective until June 1, 2007. For any new water discharges, the uranium standard is effective 9-26-04

Table of New Mexico and USEPA Groundwater Standards

Metals	(mg/l)
Antimony	0.006 [2]
Arsenic	0.01 [2]
Barium	1.0
Beryllium	0.004 [2]
Cadmium	0.005 [2]
Chromium	0.05
Cobalt	0.05
Copper	1.0
Cyanide	0.2
Lead	0.015[2]
Mercury	0.002
Nickel	0.200
Selenium	0.05
Silver	0.05
Uranium	0.03
Vanadium	0.26[3]
Zinc	10.0

Groundwater Standards are WQCC 20NMAC 6.2.3103 unless otherwise indicated

2 - Federal Maximum Contaminant Level

3 - USEPA Regional Screening Levels (April 2009)

Ne - not established

Table of New Mexico and USEPA Groundwater Standards

Semivolatiles	(ug/l)
1,2,4-Trichlorobenzene	70 [2]
1,2-Dichlorobenzene	600[2]
1,3-Dichlorobenzene	Ne
1,4-Dichlorobenzene	75[2]
2,4,5-Trichlorophenol	3,700 [3]
2,4,6-Trichlorophenol	6.1 [3]
2,4-Dichlorophenol	110 [3]
2,4-Dimethylphenol	730 [3]
2,4-Dinitrophenol	73 [3]
2,4-Dinitrotoluene	0.22[3]
2,6-Dinitrotoluene	37 [3]
2-Chloronaphthalene	2900[3]
2-Chlorophenol	180[3]
2-Methylnaphthalene	150[3]
2-Methylphenol	1,800 [3]
2-Nitroaniline	110 [3]
2-Nitrophenol	Ne
3,3'-Dichlorobenzidine	0.15[3]
3+4-Methylphenol	180 [3]
3-Nitroaniline	Ne
4,6-Dinitro-2-methylphenol	Ne
4-Bromophenyl phenyl ether	Ne
4-Chloro-3-methylphenol	Ne
4-Chloroaniline	0.34[3]
4-Chlorophenyl phenyl ether	Ne
4-Nitroaniline	3.4[3]
4-Nitrophenol	Ne
Acenaphthene	2200[3]
Acenaphthylene	Ne

Groundwater Standards are WQCC 20NMAC 6.2.3103 unless otherwise indicated

2 - Federal Maximum Contaminant Level

3 - USEPA Regional Screening Levels (April 2009)

Ne - not established

Table of New Mexico and USEPA Groundwater Standards

Semivolatiles	(ug/l)
Aniline	12 [3]
Anthracene	1100[3]
Azobenzene	0.12[3]
Benz(a)anthracene	0.029 [3]
Benzo(a)pyrene	0.2 [2]
Benzo(b)fluoranthene	0.029 [3]
Benzo(g,h,i)perylene	Ne
Benzo(k)fluoranthene	0.29 [3]
Benzoic acid	150,000 [3]
Benzyl alcohol	1800[3]
Bis(2-chloroethoxy)methane	110[3]
Bis(2-chloroethyl)ether	0.012[3]
Bis(2-chloroisopropyl)ether	Ne
Bis(2-ethylhexyl)phthalate	6[2]
Butyl benzyl phthalate	35[3]
Carbazole	Ne
Chrysene	2.9 [3]
Dibenz(a,h)anthracene	0.0029 [3]
Dibenzofuran	Ne
Diethyl phthalate	29,000 [3]
Dimethyl phthalate	Ne
Di-n-butyl phthalate	Ne
Di-n-octyl phthalate	Ne
Fluoranthene	1,500 [3]
Fluorene	1500[3]
Hexachlorobenzene	1.0 [2]
Hexachlorobutadiene	0.86 [3]
Hexachlorocyclopentadiene	50 [2]
Hexachloroethane	4.8 [3]

Groundwater Standards are WQCC 20NMAC 6.2.3103 unless otherwise indicated

2 - Federal Maximum Contaminant Level

3 - USEPA Regional Screening Levels (April 2009)

Ne - not established

Table of New Mexico and USEPA Groundwater Standards

Semivolatiles	(ug/l)
Indeno(1,2,3-cd)pyrene	0.029 [3]
Isophorone	71[3]
Naphthalene	0.14[3]
Nitrobenzene	0.12[3]
N-Nitrosodimethylamine	0.00042 [3]
N-Nitrosodi-n-propylamine	0.0096 [3]
N-Nitrosodiphenylamine	14 [3]
Pentachlorophenol	1 [2]
Phenanthrene	Ne
Phenol	5[3]
Pyrene	1100[3]
Pyridine	37 [3]

Groundwater Standards are WQCC 20NMAC 6.2.3103 unless otherwise indicated

2 - Federal Maximum Contaminant Level

3 - USEPA Regional Screening Levels (April 2009)

Ne - not established

Table of New Mexico and USEPA Groundwater Standards

Volatiles	(ug/l)
1,1,1,2-Tetrachloroethane	0.52[3]
1,1,1-Trichloroethane	60
1,1,2,2-Tetrachloroethane	10
1,1,2-Trichloroethane	5[2]
1,1-Dichloroethane	25
1,1-Dichloroethene	5
1,1-Dichloropropene	Ne
1,2,3-Trichlorobenzene	Ne
1,2,3-Trichloropropane	0.0096[3]
1,2,4-Trichlorobenzene	70.0[2]
1,2,4-Trimethylbenzene	15.0 [3]
1,2-Dibromo-3-chloropropane	0.2 [2]
1,2-Dibromoethane (EDB)	0.05[2]
1,2-Dichlorobenzene	600.0 [2]
1,2-Dichloroethane (EDC)	5[2]
1,2-Dichloropropane	5.0 [2]
1,3,5-Trimethylbenzene	12[3]
1,3-Dichlorobenzene	Ne
1,3-Dichloropropane	730 [3]
1,4-Dichlorobenzene	75.0 [2]
1-Methylnaphthalene	2.3[3]
2,2-Dichloropropane	Ne
2-Butanone	710.0 [3]
2-Chlorotoluene	730.0 [3]
2-Hexanone	Ne
2-Methylnaphthalene	150[3]
4-Chlorotoluene	2600[3]
4-Isopropyltoluene	Ne
4-Methyl-2-pentanone	Ne

Groundwater Standards are WQCC 20NMAC 6.2.3103 unless otherwise indicated

2 - Federal Maximum Contaminant Level

3 - USEPA Regional Screening Levels (April 2009)

Ne - not established

Table of New Mexico and USEPA Groundwater Standards

Volatiles	(ug/l)
Acetone	22000[3]
Benzene	5 [2]
Bromobenzene	20[3]
Bromodichloromethane	0.12[3]
Bromoform	8.5 [3]
Bromomethane	8.7 [3]
Carbon disulfide	1,000 [3]
Carbon Tetrachloride	5[2]
Chlorobenzene	100.0 [2]
Chloroethane	Ne
Chloroform	100
Chloromethane	190 [3]
cis-1,2-DCE	70 [2]
cis-1,3-Dichloropropene	0.4 [3]
Dibromochloromethane	0.15[3]
Dibromomethane	370[3]
Dichlorodifluoromethane	390 [3]
Ethylbenzene	700 [2]
Hexachlorobutadiene	0.86 [3]
Isopropylbenzene	680[3]
Methyl tert-butyl ether (MTBE)	12[3]
Methylene Chloride	5[2]
Naphthalene	0.14[3]
n-Butylbenzene	Ne
n-Propylbenzene	Ne
sec-Butylbenzene	Ne
Styrene	100[2]
tert-Butylbenzene	Ne
Tetrachloroethene (PCE)	5 [2]

Groundwater Standards are WQCC 20NMAC 6.2.3103 unless otherwise indicated

2 - Federal Maximum Contaminant Level

3 - USEPA Regional Screening Levels (April 2009)

Ne - not established

Table of New Mexico and USEPA Groundwater Standards

Volatiles	(ug/l)
Toluene	750
trans-1,2-DCE	100 [2]
trans-1,3-Dichloropropene	0.4 [3]
Trichloroethene (TCE)	5 [2]
Trichlorofluoromethane	1,300 [3]
Vinyl chloride	1
Xylenes, Total	620

Groundwater Standards are WQCC 20NMAC 6.2.3103 unless otherwise indicated

2 - Federal Maximum Contaminant Level

3 - USEPA Regional Screening Levels (April 2009)

Ne - not established

Table of New Mexico and USEPA Groundwater Standards

General Chemistry	(mg/l)
Alkalinity, Total (As CaCO3)	Ne
Bicarbonate	Ne
Calcium	Ne
Carbonate	Ne
Chloride	250
Fluoride	1.6
Iron	1
Magnesium	Ne
Manganese	0.2
Nitrogen, Nitrate (As N)	10
Nitrogen, Nitrite (As N)	1[2]
Nitrate (As N)+Nitrite (As N)	10
Potassium	Ne
Sodium	Ne
Sulfate	600

Groundwater Standards are WQCC 20NMAC 6.2.3103 unless otherwise indicated

2 - Federal Maximum Contaminant Level

3 - USEPA Regional Screening Levels (April 2009)

Ne - not established

NEW MEXICO ENVIRONMENT DEPARTMENT

Risk Assessment Guidance for Site Investigations and Remediation

February 2012

INTRODUCTION

This guidance document is being developed in coordination with the New Mexico Environment Department's (NMED) Hazardous Waste Bureau (HWB) and the Ground Water Quality Bureau's Voluntary Remediation Program.

This guidance document sets forth recommended approaches based on current State and Federal practices and intended for used as guidance for employees of NMED and for facilities within the State of New Mexico.

In the past, the material contained within this document existed in three separate guidance and/or position papers. In order to streamline the risk assessment process and ensure consistency between guidance/position papers, these documents have been combined into one document: *Risk Assessment Guidance for Site Investigations and Remediation*.

The *Risk Assessment Guidance for Site Investigations and Remediation* replaces and supersedes the following documents:

- *Technical Background Document for Development of Soil Screening Levels*, Revision 5.0, 2009,
- *New Mexico Environment Department TPH Screening Guidelines*, October 2006, and
- *Risk-Based Remediation of Polychlorinated Biphenyls at RCRA Corrective Action Sites*, NMED Position Paper, March 2000.

Risk Assessment Guidance for Site Investigations and Remediation is organized into two volumes. Volume I contains information related to conducting screening level human health risk assessments. Previously, the soil screening levels (SSLs) were available in the *Technical Background Document for Development of Soil Screening Levels* while the screening levels for total petroleum hydrocarbons (TPH) were found in the *New Mexico Environment Department TPH Screening Guidelines*. Now both are contained in Volume I. Volume I also summarizes SSLs for select Aroclors and congeners of polychlorinated biphenyls (PCBs). Additional details for derivation of more site-specific SSLs for PCBs are contained within Appendix D.

Volume II provides guidance for conducting a scoping assessment for ecological risk as previously contained within the *Technical Background Document for Development of Soil Screening Levels.*

VOLUME I

TIER 1: SOIL SCREENING GUIDANCE TECHNICAL BACKGROUND DOCUMENT

Hazardous Waste Bureau
and
Ground Water Quality Bureau
Voluntary Remediation Program

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LIST OF ACRONYMS

ASTDR	Agency for Toxic Substances and Disease Registry
CalEPA	California Environmental Protection Agency
CMTP	Composite Model for Leachate Migration with Transformation Products
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DAF	Dilution Attenuation Factor
DQO	Data Quality Objectives
EPA/ORD	Environmental Protection Agency Office of Research and Development
GWQB	Groundwater Quality Bureau
HEAST	Health Effects Assessment Summary Tables
HWB	Hazardous Waste Bureau
IEUBK	Integrated Exposure Uptake Biokinetic
IRIS	Integrated Risk Information System
IUR	Inhalation Unit Risk
MRL	Minimum Risk Level
NAPL	Non-aqueous Phase Liquid
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NRCS	National Resource Conservation Service
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PEF	Particulate Emission Factor
PPRTV	Provisional Peer-reviewed Toxicity Value
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RfC	Reference Concentration
RfD	Reference Dose
SCEM	Site Conceptual Exposure Model
SSG	Soil Screening Guidance
SSL	Soil Screening Level
TEF	Toxicity Equivalency Factor
UCL	Upper Confidence Limit
US EPA	United States Environmental Protection Agency
VFs-	Volatilization Factor
VOC	Volatile Organic Compound
WQCC	Water Quality Control Commission

1.0 INTRODUCTION

The New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) and the Ground Water Quality Bureau (GWQB) have developed this soil screening guidance (SSG) for internal department use within corrective action programs. The SSG discusses the methodology used to derive chemical-specific soil screening levels (SSLs). In addition, guidance is provided to assist in identifying and evaluating appropriate exposure pathways and receptors. Finally, this document provides generic SSLs for chemicals commonly found at contaminated sites based on default exposure parameters under residential and non-residential land-use scenarios.

The SSG provides site managers with a framework for developing and applying the SSLs, and is likely to be most useful for determining whether areas or entire sites are contaminated to an extent that warrants further investigation. It is intended to assist and streamline the site investigation and corrective action process by focusing resources on those sites or areas that pose the greatest risk to human health and the environment. Implementation of the methodologies outlined within this SSG may significantly reduce the time necessary to complete site investigations and cleanup actions at certain sites, as well as improve the consistency of these investigations.

Between various sites there can exist a wide spectrum of contaminant types and concentrations. The level of concern associated with those concentrations depends on several factors, including the likelihood of exposure to levels of potential concern to human health or to ecological receptors. At one end of the spectrum are levels that clearly warrant a response action; at the other end are levels that are below regulatory concern. Appropriate cleanup goals for a site may fall anywhere within this range depending on site-specific conditions. It is important to note that SSLs do not in themselves represent cleanup standards, and the SSLs alone do not trigger the need for a response action or define "unacceptable" levels of contamination in soil. Screening levels such as SSLs identify the lower end of this spectrum – levels below which there is generally no need for further concern—provided the conditions associated with the development of the SSLs are consistent with the site being evaluated.

1.1 Organization of the Document

The NMED SSG is organized into five major sections with supporting appendices. The remainder of Section 1 addresses the purpose of the NMED SSLs and outlines the scope of the document. Section 2 outlines the receptors, exposure pathways, and exposure assumptions used in calculating the NMED SSLs. It also discusses the risk levels on which the SSLs are predicated and presents the SSL model assumptions. Finally, Section 2 discusses site assessment/characterization activities that should be completed prior to comparing site contaminant concentrations with SSLs. These activities include development of data quality objectives, conducting site sampling, preparation of a preliminary conceptual site model (CSM), and identification of contaminants of potential concern (COPCs). Section 3 provides a detailed description of the process used to develop pathway-specific SSLs. Included in this section is a discussion of the human health basis for the SSLs, additive risk, and acute exposures. Additional topics discussed in Section 3 include chemical specific parameters used to develop the SSLs and

calculating volatilization factors, particulate emission factors and soil saturation limits. Section 4 presents methodologies for assessing the potential for migration of contaminants to groundwater from contaminated soil in concert with generic and site-specific leaching models. Finally, Section 5 addresses special use considerations for addressing contaminant concentrations in soil and notes specific problems that can arise when applying the SSLs to specific sites. Generic SSLs for contaminants are presented in Table A-1 of Appendix A. Table A-2 of Appendix A presents the default exposure factor values used in the generation of the NMED SSLs. Physical-chemical values in the calculation of the SSLs are presented in Tables B-1 and B-2 of Appendix B. Toxicity criteria are presented in Table C-1 of Appendix C. Additional discussion of polychlorinated biphenyls (PCBs) is provided in Appendix D.

1.2 Scope of the Soil Screening Guidance

The SSG incorporates readily obtainable site data and utilizes methods from various United States Environmental Protection Agency (US EPA) risk assessment guidance and derives site-specific screening levels for selected contaminants and exposure pathways. Key attributes of the SSG include default values for generic SSLs where site-specific information is unavailable, and the identification of parameters for which site-specific information is needed for the development of site-specific SSLs. The goal of the SSG is to provide a consistent approach for developing site-specific SSLs for evaluating facilities under the auspices of the corrective action process within NMED.

The NMED SSLs are based on a 1E-05 target risk for carcinogens, or a hazard quotient of 1 for noncarcinogens. In instances where an individual contaminant has the capacity to elicit both types of responses, the SSLs preferentially report the screening value representative of the lowest (most stringent) contaminant concentration in environmental media. SSLs for migration to groundwater are based on NMED-specific tap water SSLs. As such, the NMED SSLs serve as a generic benchmark for screening level comparisons of contaminant concentrations in soil. NMED anticipates that the SSLs will be used as a tool to facilitate prompt identification of those contaminants and areas that represent the greatest risks to human health and the environment. While concentrations above the NMED SSLs presented in this document do not automatically designate a site as "contaminated" or trigger the need for a response action, detected concentrations in site soils exceeding screening levels suggest that further evaluation is appropriate. Further evaluation may include additional sampling to further characterize the nature and extent of contamination, consideration of background levels, reevaluation of COPCs or associated risk and hazard using site-specific parameters, and/or a reassessment of the assumptions associated with the generic SSLs (e.g., appropriateness of route-to-route extrapolations, use of chronic toxicity values to evaluate childhood and construction-worker exposures).

Prior to calculating site-specific SSLs, each relevant chemical specific parameter value and toxicological datum should be checked against the most recent version of its source to determine if updated data are available.

In the event that a NMED SSL is not listed for a given chemical, other sources of screening levels should be consulted, such as the US EPA Regional Screening Levels (RSLs) (US EPA, 2011) or a review of toxicological data should be conducted and if available a screening level

calculated for that given chemical. Care should be used when other sources of screening levels are used to ensure that target risk/levels used in development of the levels are consistent with those applied by NMED. For example, the US EPA carcinogenic RSLs are based on a 1E-06 risk level and must be adjusted to a 1E-05 risk level for use.

1.2.1 Exposure Pathways

A complete exposure pathway consists of (1) a source, (2) a mechanism of contaminant release, (3) a receiving or contact medium, (4) a potential receptor population, and (5) an exposure route. All five elements must be present for the exposure pathway to be considered complete.

SSLs have been developed for use in evaluating three discrete exposure scenarios representing a variety of potential land uses: residential, commercial/industrial, and construction. The SSG presents lists of potential pathways for each scenario, though these lists are not intended to be exhaustive. Instead, each list represents a set of typical exposure pathways likely to account for the majority of exposure to contaminants in soil at a given site. These include:

- Direct (or incidental) ingestion of soil,
- Dermal contact with soil,
- Inhalation of volatiles and fugitive dusts from contaminated soil, and
- Migration of chemicals through soil to an underlying potable aquifer or water-bearing unit.

Under some site-specific situations, additional complete exposure pathways may be identified. In these cases, a site-specific evaluation of risk is warranted under which additional exposure pathways can be considered. If other land uses and exposure scenarios are determined to be more appropriate for a site (e.g., vapor intrusion pathway, home gardening/farming, recreational land use, and/or Native American land use), the exposure pathways addressed in this document should be modified or augmented accordingly or a site-specific risk assessment should be conducted. Early identification of the need for additional information is important because it facilitates development of a defensible sampling and analysis strategy.

The exposure pathways evaluated addressed in this guidance are presented by land-use scenario in Table 1-1.

Table 1-1. Exposure Pathways Evaluated in Soil Screening Guidance

Potential Exposure Pathway	Residential	Commercial /Industrial	Construction
Direct ingestion of soil	✓	✓	✓
Dermal contact with soil	✓	✓	✓
Inhalation of dust and volatiles from soil	✓	✓	✓
Inhalation of VOCs from vapor intrusion[a]	--	--	--
[a] the inhalation of dust and volatiles from contaminated soil does not account for exposure via vapor intrusion. If volatile organic compounds are present, then the vapor intrusion pathway must be evaluated in addition to the comparison of dust and volatile concentrations against the SSLs.			

1.2.2 Exposure Assumptions

SSLs represent risk-based concentrations in soil derived from equations combining exposure assumptions with toxicity criteria following the US EPA's preferred tiered hierarchy of toxicological data (US EPA 2009a, 2006, 2003, and 1997a). The models and assumptions used were developed to be consistent with the Superfund concept of "reasonable maximum exposure" (US EPA 1989 and 2009a). This is intended to provide an upper-bound estimate of chronic exposure by combining both average and conservative (i.e., 90^{th} to 95^{th} percentile) values in the calculations. The default intake and duration assumptions presented here are intended to be protective of all potentially exposed populations for each land use consideration. Exposure point concentrations in soil should reflect either directly measured or estimated values using fate and transport models. When assessing chronic, long-term exposures, the maximum detected site concentration should be used for an initial screen against the SSLs. A more refined assessment may include use of an estimate of the average [95 percent upper confidence level (UCL) of the mean] concentration if sufficient site data to allow for an accurate estimation of the UCL. Where the potential for acute toxicity may be of concern, estimates based on the maximum exposure may be more appropriate.

The resulting estimate of exposure is then compared with chemical-specific toxicity criteria. To calculate the SSLs, the exposure equations and pathway models are rearranged to back calculate an "acceptable level" of a contaminant in soil corresponding to a specific level of target risk or hazard.

1.2.3 Target Risk and Hazard

Target risk and hazard levels for human health are risk management-based criteria for carcinogenic and non-carcinogenic responses, respectively, to determine: (1) whether site-related contamination poses an unacceptable risk to human health and requires corrective action or (2) whether implemented corrective action(s) sufficiently protects human health. If an estimated risk or hazard falls within the target range, the risk manager must decide whether or not the site poses an unacceptable risk. This decision should take into account the degree of inherent conservatism or level of uncertainty associated with the site-specific estimates of risk and hazard. An estimated risk that exceeds these targets, however, does not necessarily indicate that the current conditions are not safe or that they present an unacceptable risk. Rather, a site risk calculation that exceeds a target value may simply indicate the need for further evaluation or refinement of the exposure model.

For cumulative exposure via the ingestion, inhalation, and dermal pathways, toxicity criteria are used to calculate an acceptable level of contamination in soil. SSLs are based on a carcinogenic risk level of one-in-one-hundred thousand (1E-05) and a non-carcinogenic hazard quotient of 1. A carcinogenic risk level is defined as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. The non-carcinogenic hazard quotient assumes that there is a level of exposure below which it is unlikely for even sensitive populations to experience adverse health effects.

1.2.4 SSL Model Assumptions

The models used to calculate inhalation exposure and protection of groundwater based on potential migration of contaminants in soil are intended to be utilized at an early stage in the site investigation process when information regarding the site may be limited. For this reason, the models incorporate a number of simplifying assumptions. For instance, the models assume an infinite contaminant source, i.e. a constant concentration is maintained for the duration of the exposure period. Although this is a highly conservative assumption, finite source models require accurate data regarding source size and volume. Such data are unlikely to be available from limited sampling efforts. The models also assume that contamination is homogeneous throughout the source and that no biological or chemical degradation occurs. Where sufficient site-specific data are available, more detailed finite-source models may be used in place of the default model assumptions presented in this SSG.

2.0 DEVELOPMENT OF PATHWAY SPECIFIC SOIL SCREENING LEVELS

The following sections present the technical basis and limitations used to calculate SSLs for residential, commercial/industrial, and construction land use scenarios. The equations used to evaluate inhalation and migration to groundwater include a number of easily obtainable site-specific input parameters. Where site-specific data are not available, conservative default values are presented. The equations used are presented in Sections 2.2, 2.3, and 2.4. Generic SSLs calculated for 220 chemicals, using these default values, are presented in Table A-1 of Appendix A.

2.1 Human Health Basis

The toxicity criteria used for calculating the SSLs are presented in Table C-1 of Appendix C. The primary sources for the human health benchmarks follow the US EPA Superfund programs tiered hierarchy of human health toxicity values (US EPA 2011, 2003):

1) Integrated Risk Information System (IRIS) (US EPA 2011) (www.epa.gov/iris),
2) Provisional peer reviewed toxicity values (PPRTVs) (now available on-line at http://hhpprtv.ornl.gov/),
3) Agency for Toxic Substances and Disease Registry (ATSDR) (http://www.atsdr.cdc.gov/) and minimal risk levels (MRLs) (http://www.atsdr.cdc.gov/mrls/index.asp),
4) California EPA's Office of Environmental and Health Hazard Assessment values (CalEPA) (http://www.oehha.ca.gov/air/allrels.html and http://www.oehha.ca.gov/risk/pdf/tcdb072109alpha.pdf), and
5) Health Effects Assessment Summary Tables (HEAST) (US EPA 1997a).

Special assumptions were also applied in determining appropriate toxicological data for certain chemicals.

Dioxins/Furans. Toxicity data for the congeners for the dioxin and furan congeners were assessed using the 2005 World Health Organization's (WHO) toxicity equivalency factors (TEF) (Van den berg, et al 2006) and are summarized in Table 2-1. The TEFs were applied to available toxicity data for 2,3,7,8-TCDD.

Table 2-1. Dioxin and Furan Toxicity Equivalency Factors

Dioxin and Furan Congeners	TEF
Chlorinated dibenzo-p-dioxins	
2,3,7,8-TCDD	1
1,2,3,7,8-PeCDD	1
1,2,3,4,7,8-HxCDD	0.1
1,2,3,6,7,8-HxCDD	0.1
1,2,3,7,8,9-HxCDD	0.1
1,2,3,4,6,7,8-HpCDD	0.01
OCDD	0.0003
Chlorinated dibenzofurans	
2,3,7,8-TCDF	0.1
1,2,3,7,8-PeCDF	0.03
2,3,4,7,8-PeCDF	0.3
1,2,3,4,7,8-HxCDF	0.1
1,2,3,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDF	0.1
2,3,4,6,7,8-HxCDF	0.1
1,2,3,4,6,7,8-HpCDF	0.01
1,2,3,4,7,8,9-HpCDF	0.01
OCDF	0.0003

PCBs. Toxicity for the non-ortho [International Union of Pure and Applied Chemistry (IUPAC) numbers 77, 81, 126, and 169)] and mono-ortho congeners (IUPAC numbers 105, 114, 118, 123, 156, 157, 167, and 189) for the PCB congeners were assessed using the 2005 WHO TEFs (Van den berg, et al 2006) while TEFs for di-ortho congeners (IUPAC numbers 170 and 180) are taken from Ahlborg, et al, 1993 (see Table 2-2).

Table 2-2. PCB TEFs

IUPAC No.	Structure	TEF
77	3,3',4,4'-TetraCB	0.0001
81	3,4,4',5-TetraCB	0.0003
105	2,3,3',4,4'-PeCB	0.00003
114	2,3,4,4',5-PeCB	0.00003
118	2,3',4,4',5-PeCB	0.00003
123	2',3,4,4',5-PeCB	0.00003
126	3,3',4,4',5-PeCB	0.1
156	2,3,3',4,4',5-HxCB	0.00003
157	2,3,3',4,4',5'-HxCB	0.00003
167	2,3',4,4',5,5'-HxCB	0.00003
169	3,3',4,4',5,5'-HxCB	0.03
189	2,3,3',4,4',5,5'-HpCB	0.00003
170	2,2',3,3',4,4',5-HpCB	0.0001
180	2,2',3,4,4',5,5'-HpCB	0.00001

Cadmium. IRIS provides an oral reference dose (RfD) for both water and food. For deriving the tap water SSL, the RfD for water was applied and for the soil-based SSL, the RfD for food was applied.

Vanadium. The oral RfD from IRIS was modified to be based on the molecular weight of vanadium versus vanadium sulfate.

Lead. The US EPA recommended levels for lead, based on blood-lead modeling (Integrated Exposure Uptake Biokinetic Model, IEUBK) were applied.

Total Chromium. The IUR for total chromium is based on a ratio of 1:6 (Cr VI:CrIII) as noted in IRIS. If there is reason to believe that this ratio for total chromium is not representative of site conditions, then valence-specific site concentrations and SSLs for chromium III and chromium VI should be applied.

Chromium VI. The IUR for chromium VI was derived by multiplying the total chromium IUR by 7. This is because the total chromium IUR from IRIS is based on a ratio of 1:6 (Cr VI:CrIII).

2.1.1 Additive Risk

It is important to note that no consideration is provided in the calculation of individual NMED SSLs for additive risk when exposures to multiple chemicals occur. The SSG addresses this issue in Section 5. Because the NMED SSLs for carcinogenic effects correspond to a 1E-05 risk level individually, exposure to multiple contaminants may result in a cumulative site risk that is above the anticipated risk management range. While carcinogenic risks of multiple chemicals are simply added together, the issue of additive hazard is more complex for noncarcinogens because of the theory that a threshold exists for noncarcinogenic effects. This threshold is defined as the level below which adverse effects are not expected to occur, and represents the basis for the RfD and reference concentration (RfC). Since adverse effects are not expected to occur at the RfD or RfC and the SSLs are derived by setting the potential exposure dose to the RfD or RfC, the SSLs do not address the risk of exposure to multiple chemicals at levels where the individual chemicals alone would not be expected to cause any adverse effects. In such cases, the SSLs may not provide an accurate indicator for the likelihood of harmful effects. As a first-tier screening approach, noncarcinogenic effects should be considered additive. In the event that the hazard index results in a value above the target level of 1, noncarcinogenic effects may be evaluated for those chemicals with the same toxic endpoint and/or mechanism of action. The sources provided in Section 2.1 should be consulted to determine the endpoint and/or target organ system prior to attempting to evaluate the additive health effects resulting from simultaneous exposure to multiple contaminants.

2.1.2 Acute Exposures

The exposure assumptions used to develop the SSLs are based on a chronic exposure scenario and do not account for situations where high-level exposures may result in acute toxic effects. Such situations may arise when contaminant concentrations are very high, or may result from

specific site-related conditions and/or behavioral patterns (i.e., pica behavior in children). Such exposures may be of concern for those contaminants that primarily exhibit acute health effects. Toxicological information regarding cyanide and phenol indicate that acute effects may be of concern for children exhibiting pica behavior. Pica is typically described as a compulsive craving to ingest non-food items (such as clay or paint). Although it can be exhibited by adults as well, it is typically of greatest concern in children because they often exhibit behavior (e.g., outdoor play activities and greater hand-to-mouth contact) that results in greater exposure to soil than for a typical adult. In addition, children also have a lower overall body weight relative to the predicted intake.

2.1.3 Early-Life Exposures to Carcinogens

US EPA's (2005) Supplemental Guidance states that early life exposures (i.e., neonatal and early life) to carcinogens can result in an increase in cancer risk later in life from exposures to certain carcinogens. US EPA's (2005) suggestion is to apply age-specific factors to the estimated cancer risks. The life stages that were considered were: 1) children under 2 years of age; and 2) children aged 2 to 6 years; 3) children 6 years to 16 years of age; and 4) after 16 years of age. Effects of mutagenicity have been incorporated into the SSLs for those contaminants which are considered carcinogenic by a mutagenic mode of action.

2.1.4 Direct Ingestion

Exposure to contaminants through incidental ingestion of soil can result from the inadvertent consumption of soils adhering to the hands, food items, or objects that are placed into the mouth. It can also result from swallowing dust particles that have been inhaled and deposited in the mouth and subsequently swallowed. Commercial/industrial, construction workers, and residential receptors may inadvertently ingest soil that adheres to their hands while involved in work- or recreation-related activities. Calculation of SSLs for direct ingestion are based on the methodology presented in US EPA's *Risk Assessment Guidance for Superfund (RAGS): Volume I - Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals), Interim* (US EPA 1991 2001), *Soil Screening Guidance: Technical Background Document* (US EPA 1996a), and *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (US EPA 2002a).

2.1.5 Dermal Absorption

Exposure to soil contaminants may result from dermal contact with contaminated soil and the subsequent absorption of contaminants through the skin. Contact with soil is most likely to occur as a result of digging, gardening, landscaping, or outdoor recreation activities. Excavation activities may also be a potential source of exposure to contaminants, particularly for construction workers. Calculation of the screening levels for ingestion of soil under the residential exposure scenario is based on the methodology presented in US EPA's *Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals), Interim* (1991), and *Soil Screening Guidance: Technical Background Document* (US EPA 1996a). The suggested default input values used to develop the NMED SSLs are consistent with US EPA's interim *RAGS, Part E,*

Supplemental Guidance for Dermal Risk Assessment (US EPA 2004).

2.1.6 Inhalation

US EPA toxicity data indicate that risks from exposure to some chemicals via the inhalation pathway far outweigh the risk via ingestion or dermal contact; therefore, the NMED SSLs have been designed to address inhalation of volatiles and fugitive dusts. To address the soil/sediment-to-air pathways, the SSL calculations incorporate a volatilization factor (VF) for volatile contaminants (See Section 3.1) and a particulate emission factor (PEF) (See Section 3.3) for nonvolatile and volatile contaminants. The SSLs follow the procedures for evaluating inhalation soil, volatile organic compounds (VOCs), and fugitive dust particles presented in US EPA's *Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment), Final (US EPA 2009a), Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals), Interim* (US EPA 1991), *Soil Screening Guidance: Technical Background Document* (US EPA 1996a), *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (US EPA 1998a), and *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (US EPA 2002a).

VOCs may adhere to soil particles or be present in interstitial air spaces in soil, and may volatilize into ambient air. This pathway may be particularly significant if the VOC emissions are concentrated in indoor spaces of onsite buildings, or buildings that may be built in the future. The NMED SSLs do not account for vapor intrusion and inhalation of volatile organics volatilized into indoor air. If vapor intrusion into indoor air is a concern, additional analysis of this pathway may be necessary and the latest guidance on evaluating the vapor intrusion pathway should be consulted: for example, the US EPA's 2002 *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Soil Vapor Intrusion Guidance.* For the purpose of calculating the NMED SSLs, VOCs are considered those chemicals having a Henry's Law constant greater than 1E-05 atm-m^3/mole and a molecular weight less than 200 g/mole.

Inhalation of contaminants via inhalation of fugitive dusts is assessed using a PEF that relates the contaminant concentration in soil/sediment with the concentration of respirable particles in the air due to fugitive dust emissions. It is important to note that the PEF used to address residential and commercial/industrial exposures evaluates only windborne dust emissions and does not consider emissions from traffic or other forms of mechanical disturbance which could lead to a greater level of exposure. The PEF used to address construction worker exposures evaluates windborne dust emissions and emissions from vehicle traffic associated with construction activities. Therefore, the fugitive dust pathway should be considered carefully when developing the CSM at sites where receptors may be exposed to fugitive dusts by other mechanisms. The development of the PEF for both residential and non-residential land uses is discussed further in Section 3.3.

2.2 Residential land uses

Residential exposures are assessed based on child and adult receptors. As discussed below, the child forms the basis for evaluation of noncarcinogenic effects incurred under residential exposures, while carcinogenic responses are modeled based upon age-adjusted values to account for exposures averaged over a lifetime. Under most circumstances, onsite residential receptors are expected to be the most conservative receptor basis for risk assessment purposes due to the assumption that exposure occurs 24 hours a day, 350 days per year, extending over a 30-year exposure duration. Table 2-3 provides a summary of the exposure characteristics and parameters associated with a residential land use receptor.

Table 2-3. Summary of the Residential Land Use Receptors

Exposure Characteristics	• Substantial soil exposure (esp. children) • High soil ingestion rate (esp. children) • Significant time spent indoors • Long-term exposure • Surface and subsurface soil exposure (0-10 feet below ground surface, bgs)
Default Exposure Parameters	
Exposure frequency (days/yr)	350
Exposure duration (yr)	6 (child) 24 (adult)
Soil ingestion rate (mg/day)	200 (child) 100 (adult)
Body Weight (kg)	15 (child) 70 (adult)
Skin surface area exposed (cm^2)	2,800 (child) 5,700 (adult)
Skin-soil adherence factor (mg/cm^2)	0.2 (child) 0.07 (adult)

2.2.1 Residential Receptors

A residential receptor is assumed to be a long-term receptor occupying a dwelling within the site boundaries and thus is exposed to contaminants 24 hours per day, and is assumed to live at the site for 30 years (representing the 90^{th} percentile of the length of time someone lives in a single location), remaining onsite for 350 days per year. Exposure to soil (to depths of zero to 10 feet below ground surface) is expected to occur during home maintenance activities, yard work and landscaping, and outdoor play activities. The SSLs do not take into consideration ingestion of homegrown produce/meat/dairy or inhalation of volatiles migrating indoors via vapor intrusion.

If these pathways are complete, analysis of risks resulting from these additional exposure pathways must be determined and added to the risks determined using the SSL screen.

Contaminant intake is assumed to occur via three exposure pathways – direct ingestion, dermal absorption, and inhalation of volatiles and fugitive dusts. For the residential scenario, both adult and child receptors were evaluated because children often exhibit behavior (e.g., greater hand-to-mouth contact) that can result in greater exposure to soils than those associated with a typical adult. In addition, children also have a lower overall body weight relative to the predicted intake.

Equations 1 and 2 are used to calculate cumulative SSLs for a residential receptor exposed to non-carcinogenic and carcinogenic contaminants via all three exposure pathways (ingestion of soil, inhalation of soil, and dermal contact with soil). Default exposure parameters are provided for use when site-specific data are not available.

Equation 1
Combined Exposures to Noncarcinogenic Contaminants in Soil, Residential Scenario

$$C_{oral} = \frac{THQ \times AT_r \times BW_c}{EF_r \times ED_c \times (1/RfD_o) \times IRS_c \times (10^{-6})}$$

$$C_{inh} = \frac{THQ \times AT_r}{EF_r \times ED_c \times ET_{rs} \times (1/RfC) \times [(1/VF_s) + (1/PEF_w)]}$$

$$C_{dermal} = \frac{THQ \times AT_r \times BW_c}{EF_r \times ED_c \times [1/(RfD_o \times GIABS)] \times SA_c \times AF_c \times ABS_d \times 10^{-6}}$$

Combined Exposures:

$$SSL_{res} = \frac{1}{\frac{1}{C_{oral}} + \frac{1}{C_{inh}} + \frac{1}{C_{dermal}}}$$

Parameter	Definition (units)	Default
C_{oral}	Contaminant concentration via oral ingestion (mg/kg)	Chemical-specific
C_{dermal}	Contaminant concentration via dermal adsorption (mg/kg)	Chemical-specific
C_{inh}	Contaminant concentration via inhalation (mg/kg)	Chemical-specific
SSL_{res}	Soil screening level, all pathways (mg/kg)	Chemical-specific
THQ	Target hazard quotient	1
BW_c	Body weight, child (kg)	15

AT_r	Averaging time, noncarcinogens (days)	ED_c x 365
EF_r	Exposure frequency, resident (day/yr)	350
ED_c	Exposure duration, child (years)	6
ET_{rs}	Exposure time, resident (hour/day x day/hour)	1
IRS_c	Soil ingestion rate, child (mg/day)	200
RfD_o	Oral reference dose (mg/kg-day)	Chemical-specific
SA_c	Dermal surface area, child (cm^2/day)	2,800
AF_c	Soil adherence factor, child (mg/cm^2)	0.2
GIABS	Fraction absorbed in gastrointestinal tract (unitless)	Chemical-specific
ABS_d	Skin absorption factor (unitless)	Chemical-specific
RfC	Inhalation reference concentration (mg/m^3)	Chemical-specific
10^{-6}	Unit conversion factor (kg)/mg	10^{-6}
VF_s	Volatilization factor for soil (m^3/kg)	See Equation 22
PEF_w	Particulate emission factor (m^3/kg)	See Equation 24

Equation 2
Combined Exposures to Carcinogenic Contaminants in Soil, Residential Scenario

$$C_{oral} = \frac{TR \times AT_r}{CFS_o \times EF_r \times IFS_{adj} \times 10^{-6}}$$

$$C_{inh} = \frac{TR \times AT_r}{IUR \times 1000 \times EF_r \times \left(\frac{1}{VF_s} + \frac{1}{PEF_w} \right) \times ED_r \times ET_{rs}}$$

$$C_{dermal} = \frac{TR \times AT_r}{EF_r \times SFS_{adj} \times \frac{CFS_o}{GIABS} \times ABS_d \times 10^{-6}}$$

Combined Exposures:

$$SSL_{res} = \frac{1}{\frac{1}{C_{oral}} + \frac{1}{C_{inh}} + \frac{1}{C_{dermal}}}$$

Parameter	Definition (units)	Default
C_{oral}	Contaminant concentration via oral ingestion (mg/kg)	Chemical-specific
C_{dermal}	Contaminant concentration via dermal adsorption (mg/kg)	Chemical-specific
C_{inh}	Contaminant concentration via inhalation (mg/kg)	Chemical-specific
SSL_{res}	Soil screening level, all pathways (mg/kg)	Chemical-specific
TR	Target cancer risk	1E-05
AT_r	Averaging time, carcinogens (days)	25,550
EF_r	Exposure frequency, resident (day/yr)	350

IFS_{adj}	Age-adjusted soil ingestion factor ([mg-yr]/[kg-day]) (See Equation 3)	114
CSF_o	Oral cancer slope factor $(mg/kg\text{-}day)^{-1}$	Chemical-specific
SFS_{adj}	Age-adjusted dermal factor ([mg-yr]/[kg-day]) (See Equation 4)	361
ABS_d	Skin absorption factor (unitless)	Chemical-specific
1000	Unit conversion factor (µg/mg)	1000
IUR	Inhalation unit risk $(\mu g/m^3)^{-1}$	Chemical-specific
ED_r	Exposure duration, resident (years)	30
ET_{rs}	Exposure time, resident (hour/day x day/hour)	1
10^{-6}	Unit conversion factor (kg/mg)	10^{-6}
GIABS	Fraction absorbed in gastrointestinal tract (unitless)	Chemical-specific
VF_s	Volatilization factor for soil (m^3/kg)	See Equation 22
PEF_w	Particulate emission factor (m^3/kg)	See Equation 24

Noncarcinogenic contaminants are evaluated based solely on childhood exposures using Equation 1. By combining the higher contaminant intake rates with the lower relative body weight, "childhood only" exposures lead to a lower, or more conservative, risk-based concentration compared to an adult-only exposure. In addition, this approach is considered conservative because it combines the higher 6-year exposure for children with chronic toxicity criteria.

Unlike non-carcinogens, the duration of exposure to carcinogens is averaged over the lifetime of the receptor because of the assumption that cancer may develop even after actual exposure has ceased. As a result, the total dose received is averaged over a lifetime of 70 years. In addition, to be protective of exposures in a residential setting, the carcinogenic exposure parameter values are age-adjusted to account for exposures incurred in children (1-6 years of age) and adults (7-31 years of age). Carcinogenic exposures are age-adjusted to account for the physiological differences between children and adults as well as behavioral differences that result in markedly different relative rates of exposure. Equations 3 and 4 are used to calculate age-adjusted ingestion, dermal and inhalation factors which account for the differences in soil ingestion rate, skin surface area, soil adherence factors, inhalation rate, and body weight for children versus adults. The age-adjusted factors calculated using these equations are applied in Equation 2 to develop generic NMED SSLs for carcinogenic effects.

Equation 3
Calculation of Age-Adjusted Soil Ingestion Factor

$$IFS_{adj} = \frac{ED_c \times IRS_c}{BW_c} + \frac{\left(ED_r - ED_c\right) \times IRS_a}{BW_a}$$

Parameter	Definition (units)	Default
IFS_{adj}	Age-adjusted soil ingestion factor for carcinogens [(mg-yr)/(kg-day)]	114
ED_c	Exposure duration, child (years)	6
IRS_c	Soil ingestion rate, child (mg/day)	200

BW_c	Body weight, child (kg)	15
ED_r	Exposure duration, resident (years)	30
IRS_a	Soil ingestion rate, adult (mg/day)	100
BW_a	Body weight, adult (kg)	70

Equation 4
Calculation of Age-Adjusted Soil Dermal Factor

$$SFS_{adj} = \frac{ED_c \times AF_c \times SA_c}{BW_c} + \frac{(ED_r - ED_c) \times AF_a \times SA_a}{BW_a}$$

Parameter	Definition (units)	Default
SFS_{adj}	Age-adjusted dermal factor for carcinogens [(mg-yr)/(kg-day)]	361
ED_c	Exposure duration, child (years)	6
AF_c	Soil adherence factor, child (mg/cm^2)	0.2
SA_c	Dermal surface area, child (cm^2/day)	2,800
BW_c	Body weight, child (kg)	15
ED_r	Exposure duration, resident (years)	30
AF_a	Soil adherence factor, adult (mg/cm^2)	0.07
SA_a	Dermal surface area, adult (cm^2/day)	5,700
BW_a	Body weight, adult (kg)	70

Equations 1 and 2 are appropriate for all chemcials with the exception of vinyl chloride and those carcinogens exhibiting mutegenic toxicity. For vinyl chloride, the US EPA IRIS database provides cancer slope factors for both a child and an adult. The child-based cancer slope factor takes into consideration potential risks during the developmental stages of childhood and thus is more protective than the adult cancer slope factor. The equations used to derive the SSLs for vinyl chloride incorporate age adjustments for exposure and are presented in Equation 5. As vinyl chloride does not have an adsorption factor, dermal risks are not assessed.

Equation 5
Combined SSL for Vinyl Chloride
Residential Scenario

$$C_{vc-oral} = \frac{TR}{\left(\frac{CFS_o \times EF_r \times IFS_{adj} \times 10^{-6}}{AT}\right) + \left(\frac{CFS_o \times IRS_c \times 10^{-6}}{BW_c}\right)} \quad \text{Equation 5}$$

$$C_{vc-inh} = \frac{TR}{\left(\frac{IUR \times EF_r \times ED \times ET_{rs} \times 1000}{AT \times VF} + \left(\frac{IUR}{VF} \times 1000\right)\right)} \quad \text{Equation 6}$$

Combined Exposures:

$$SSL_{res-vc} = \frac{1}{\frac{1}{C_{vc-oral}} + \frac{1}{C_{vc-inh}}}$$

Parameter	Definition (units)	Default
$C_{vc\text{-}oral}$	Contaminant concentration (mg/kg)	Chemical-specific
$C_{vc\text{-}inh}$	Contaminant concentration (mg/kg)	Chemical-specific
$C_{res\text{-}vc}$	Combined SSL for vinyl chloride (mg/kg)	Chemical-specific
TR	Target cancer risk	1E-05
BW_c	Body weight, child (kg)	15
AT	Averaging time, carcinogens (days)	25,550
EF_r	Exposure frequency, resident (day/yr)	350
IFS_{adj}	Age-adjusted soil ingestion factor ([mg-yr]/[kg-day]) (See Equation 3)	114
CSF_o	Oral cancer slope factor $(mg/kg\text{-}day)^{-1}$	Chemical-specific
IRS_c	Child soil ingestion factor (mg/day)	200
10^{-6}	Unit conversion factor (kg/mg)	10^{-6}
IUR	Inhalation unit risk $(\mu g/m^3)^{-1}$	Chemical-specific
EF_r	Exposure frequency, resident (day/yr)	350
ED	Exposure duration (yr)	30
ET_{rs}	Exposure time (hour/day x day/hour)	1
1000	Conversion factor (µg/mg)	1000
VF	Volatilization factor for soil (m^3/kg)	See Equation 22

Equations 6 through 11 show the derivation of the SSLs for carcinogenic chemicals exhibiting mutagenic properties. Mutagenicity is only assessed for the residential scenario.

Equation 6
SSL for Ingestion of Soil- Mutagens

$$C_{mu-oral} = \frac{TR \times AT_r}{CFS_o \times EF_r \times IFSM_{adj} \times 10^{-6}}$$

Parameter	Definition (units)	Default
$C_{mu-oral}$	Contaminant concentration (mg/kg)	Chemical-specific
TR	Target cancer risk	1E-05
AT_r	Averaging time, carcinogens (days)	25,550
CSF_o	Oral cancer slope factor (mg/kg-day)$^{-1}$	Chemical-specific
EF_r	Exposure frequency, resident (day/yr)	350
$IFSM_{adj}$	Age-adjusted soil ingestion rate (mg-yr/kg-day) (See Equation 7)	489.5
10^{-6}	Conversion factor (kg/mg)	10^{-6}

Equation 7
Calculation of Age-Adjusted Soil Ingestion Factor, Mutagens

$$IFSM_{adj} = \frac{ED_{0-2} \times IRS_c \times 10}{BW_c} + \frac{ED_{2-6} \times IRS_c \times 3}{BW_c} + \frac{ED_{6-16} \times IRS_a \times 3}{BW_a} + \frac{ED_{16-30} \times IRS_a \times 1}{BW_a}$$

Parameter	Definition (units)	Default
$IFSM_{adj}$	Age-adjusted soil ingestion factor for mutagens [(mg-yr)/(kg-day)]	489.5
ED_{0-2}	Exposure duration, child (years)	2
ED_{2-6}	Exposure duration, child (years)	4
ED_{6-16}	Exposure duration, adult (years)	10
ED_{16-30}	Exposure duration, adult (years)	24
IRS_c	Soil ingestion rate, child (mg/day)	200
IRS_a	Soil ingestion rate, adult (mg/day)	100
BW_c	Body weight, child (kg)	15
BW_a	Body weight, adult (kg)	70
BW_a	Body weight, adult (kg)	70

Equation 8
SSL for Inhalation of Soil- Mutagens

$$C_{mu-inh} = \frac{TR \times AT_r}{\left(EF_r \times ET_{rs} \times 1000\right) \times \left[\left(ED_{0-2} \times IUR \times 10\right) + \left(ED_{2-6} \times IUR \times 3\right) + \left(ED_{6-16} \times IUR \times 3\right) + \left(ED_{16-30} \times IUR \times 1\right)\right] \times \left(\frac{1}{VF_s} + \frac{1}{PEF_w}\right)}$$

Parameter	Definition (units)	Default
C_{mu-inh}	Contaminant concentration (mg/kg)	Chemical-specific
TR	Target cancer risk	1E-05
AT_r	Averaging time, carcinogens (days)	25,550
IUR	Inhalation Unit Risk $(\mu g/m^3)^{-1}$	Chemical-specific
EF_r	Exposure frequency, resident (day/yr)	350
ED	Exposure duration (yr)	
	ED_{0-2}	2
	ED_{2-6}	4
	ED_{6-16}	10
	ED_{16-30}	14
ET_{rs}	Exposure time (hour/day x day/hour)	1
1000	Conversion factor (µg/mg)	1000
VF_s	Volatilization factor for soil (m^3/kg)	See Equation 22
PEF_w	Particulate emission factor (m^3/kg)	See Equation 24

Equation 9
SSL for Dermal Contract with Soil- Mutagens

$$C_{mu-dermal} = \frac{TR \times AT_r}{\frac{CFS_o}{GIABS} \times EF_r \times DFSM_{adj} \times ABS_d \times 10^{-6}}$$

Parameter	Definition (units)	Default
$C_{mu-dermal}$	Contaminant concentration (mg/kg)	Chemical-specific
TR	Target cancer risk	1E-05
AT_r	Averaging time, carcinogens (days)	25,550
CFS_o	Oral cancer slope factor $(mg/kg\text{-}day)^{-1}$	Chemical-specific
GIABS	Fraction absorbed in gastrointestinal tract (unitless)	Chemical-specific
EF_r	Exposure frequency, resident (day/yr)	350
$DFSM_{adj}$	Age-adjusted soil contact factor (mg-yr/kg-day) (See Equation 10)	1445
ABS_d	Skin absorption factor (unitless)	Chemical-specific
10^{-6}	Conversion factor (kg/mg)	10^{-6}

Equation 10
Calculation of Age-Adjusted Soil Contact Factor, Mutagens

$$DFSM_{adj} = \frac{ED_{0-2} \times AF_c \times SA_c \times 10}{BW_c} + \frac{ED_{2-6} \times AF_c \times SA_c \times 3}{BW_c} + \frac{ED_{6-16} \times AF_a \times SA_a \times 3}{BW_a} + \frac{ED_{16-30} \times AF_a \times SA_a \times 1}{BW_a}$$

Parameter	Definition (units)	Default
$DFSM_{adj}$	Age-adjusted soil contact factor for mutagens [(mg-yr)/(kg-day)]	1445
ED_{0-2}	Exposure duration, child (years)	2
ED_{2-6}	Exposure duration, child (years)	4
ED_{6-16}	Exposure duration, adult (years)	10
ED_{16-30}	Exposure duration, adult (years)	14
AF_c	Soil adherence factor, child (mg/cm^2)	0.02
AF_a	Soil adherence factor, adult (mg/ cm^2)	0.07
SA_c	Exposed skin area, child, (cm^2/day)	2800
SA_a	Exposed skin area, adult, (cm^2/day)	5700
BW_c	Body weight, child (kg)	15
BW_a	Body weight, adult (kg)	70

The overall SSL for the residential scenario for mutagens is determined following Equation 11.

Equation 11
Determination of the Combined SSL
Mutagens

$$SSL_{res-mu} = \frac{1}{\frac{1}{C_{mu-oral}} + \frac{1}{C_{mu-inh}} + \frac{1}{C_{mu-dermal}}}$$

Parameter	Definition (units)	Default
SSL_{res-mu}	Cumulative SSL for mutagens (mg/kg)	Chemical-specific
$C_{mu-oral}$	Concentration from soil ingestion (mg/kg) (See Equation 6)	Receptor-specific
C_{mu-inh}	Concentration from inhalation (mg/kg) (See Equation 8)	Receptor-specific
$C_{mu-dermal}$	Concentration from dermal exposure (mg/kg) (See Equation 9)	Receptor-specific

2.3 Non-residential land uses

Non-residential land uses encompass all commercial and industrial land uses and focus on two very different receptors – a commercial/industrial worker and a construction worker. Unlike those calculated for residential land-uses, NMED SSLs for non-residential land uses are based solely on exposures to adults. Consequently, exposures to carcinogens are not age-adjusted. Due to the wide range of activities and exposure levels a non-residential receptor may be

exposed to during various work-related activities, it is important to ensure that the default exposure parameters are representative of site-specific conditions. Table 2-4 provides a summary of the exposure characteristics and parameters for non-residential land use receptors.

Table 2-4. Summary of Non-Residential Land Use Receptors

Receptor	Commercial/Industrial Worker	Construction Worker
Exposure Characteristics	• Substantial soil exposures • High soil ingestion rate • Long-term exposure • Exposure to surface and shallow subsurface soils (0-1 foot bgs) • Adult-only exposure	• Exposed during construction activities only • Short-term exposure • Very high soil ingestion and dust inhalation rates • Exposure to surface and subsurface soils (0-10 feet bgs)
Default Exposure Parameters		
Exposure frequency (days/yr)	225	250
Exposure duration (yr)	25	1
Soil ingestion rate (mg/day)	100	330
Body Weight (kg)	70	70
Skin surface area exposed (cm^2)	3,300	3,300
Skin-soil adherence factor (mg/ cm^2)	0.2	0.3

2.3.1 Commercial/Industrial Worker

The commercial/industrial scenario is considered representative of on-site workers who spend all or most of their workday outdoors. A commercial/industrial worker is assumed to be a long-term receptor exposed during the course of a work day as either (1) a full time employee of a company operating on-site who spends most of the work day conducting maintenance or manual labor activities outdoors or (2) a worker who is assumed to regularly perform grounds-keeping activities as part of his/her daily responsibilities. Exposure to surface and shallow subsurface soils (i.e., at depths of zero to 1 ft below ground surface) is expected to occur during moderate digging associated with routine maintenance and grounds-keeping activities. A commercial/industrial receptor is expected to be the most highly exposed receptor in the outdoor environment under generic or day-to-day commercial/industrial conditions. Thus, the screening levels for this receptor are expected to be protective of other reasonably anticipated indoor and outdoor workers at a commercial/industrial facility. However, screening levels developed for the commercial/industrial worker may not be protective of a construction worker due to the latter's increased soil contact rate during construction activities. In addition, the SSLs for the commercial/industrial worker do not account for inhalation of volatiles indoors via vapor intrusion.

Equations 12 and 13 were used to develop generic SSLs for cumulative exposure to carcinogenic and non-carcinogenic contaminants by all exposure pathways. Default exposure parameters (US EPA 2002a) are provided and were used in calculating the NMED SSLs.

Equation 12
Combined Exposures to Carcinogenic Contaminants in Soil
Commercial/Industrial Scenario

$$C_{CI-oral} = \frac{TR \times AT_{CI} \times BW_{CI}}{CFS_o \times EF_{CI} \times ED_{CI} \times IR_{CI} \times 10^{-6}}$$

$$C_{CI-inh} = \frac{TR \times AT_{CI}}{IUR \times 1000 \times EF_{CI} \times \left(\frac{1}{VF_s} + \frac{1}{PEF_w} \right) \times ED_{CI} \times ET_{CI}}$$

$$C_{CI-dermal} = \frac{TR \times AT_{CI} \times BW_{CI}}{EF_{CI} \times ED_{CI} \times \frac{CFS_o}{GIABS} \times SA_{CI} \times AF_{CI} \times ABS_d \times 10^{-6}}$$

Combined Exposures:

$$SSL_{CI} = \frac{1}{\frac{1}{C_{CI-oral}} + \frac{1}{C_{CI-inh}} + \frac{1}{C_{CI-dermal}}}$$

Parameter	Definition (units)	Default
$C_{CI\text{-}oral}$	Contaminant concentration via oral ingestion (mg/kg)	Chemical-specific
$C_{CI\text{-}dermal}$	Contaminant concentration via dermal adsorption (mg/kg)	Chemical-specific
$C_{CI\text{-}inh}$	Contaminant concentration via inhalation (mg/kg)	Chemical-specific
SSL_{CI}	Contaminant concentration, all pathways (mg/kg)	Chemical-specific
TR	Target Risk	1E-05
BW_{CI}	Body weight, adult (kg)	70
AT_{CI}	Averaging time, carcinogens (days)	25,550
EF_{CI}	Exposure frequency, commercial/industrial (day/yr)	225
ED_{CI}	Exposure duration, commercial/industrial (years)	25
IR_{CI}	Soil ingestion rate, commercial/industrial (mg/day)	100
CSF_o	Oral cancer slope factor $(mg/kg\text{-}day)^{-1}$	Chemical-specific
SA_{CI}	Dermal surface area, commercial/industrial (cm^2/day)	3,300
AF_{CI}	Soil adherence factor, commercial/industrial (mg/cm^2)	0.2
ABS_d	Skin absorption factor (unitless)	Chemical-specific

ET_{CI}	Exposure time, commercial/industrial (8 hours/per 24 hours)	0.33
IUR	Inhalation unit risk $(\mu g/m^3)^{-1}$	Chemical-specific
1000	Unit conversion (µg/mg)	1000
VF_s	Volatilization factor for soil (m^3/kg)	See Equation 22
PEF_w	Particulate emission factor (m^3/kg)	See Equation 24

Equation 13
Combined Exposures to Noncarcinogenic Contaminants in Soil
Commercial/Industrial Scenario

$$C_{CI-oral} = \frac{THQ \times AT_{CI} \times BW_a}{EF_{CI} \times ED_{CI} \times (1/RfD_o) \times IR_{CI} \times (10^{-6})}$$

$$C_{CI-inh} = \frac{THQ \times AT_{CI}}{EF_{CI} \times ED_{CI} \times ET_{CI} \times (1/RfC) \times [(1/VF_s) + (1/PEF_w)]}$$

$$C_{CI-dermal} = \frac{THQ \times AT_{CI} \times BW_a}{EF_{CI} \times ED_{CI} \times [1/(RfD_o \times GIABS)] \times SA_{CI} \times AF_{CI} \times ABS_d \times 10^{-6}}$$

Combined Exposures:

$$SSL_{CI} = \frac{1}{\frac{1}{C_{CI-oral}} + \frac{1}{C_{CI-inh}} + \frac{1}{C_{CI-dermal}}}$$

Parameter	Definition (units)	Default
$C_{CI\text{-}oral}$	Contaminant concentration via oral ingestion (mg/kg)	Chemical-specific
$C_{CI\text{-}dermal}$	Contaminant concentration via dermal adsorption (mg/kg)	Chemical-specific
$C_{CI\text{-}inh}$	Contaminant concentration via inhalation (mg/kg)	Chemical-specific
SSL_{CI}	Soil screening level, all pathways (mg/kg)	Chemical-specific
THQ	Target hazard quotient	1
BW_a	Body weight, adult (kg)	70
AT_{CI}	Averaging time, noncarcinogens (days)	ED x 365
EF_{CI}	Exposure frequency, commercial/industrial (day/yr)	225
ED_{CI}	Exposure duration, commercial/industrial (years)	25
IR_{CI}	Soil ingestion rate, commercial/industrial (mg/day)	100
10^{-6}	Unit conversion factor (kg/mg)	10^{-6}

RfD_o	Oral reference dose (mg/kg-day)	Chemical-specific
SA_{CI}	Dermal surface area, commercial/industrial (cm^2/day)	3,300
AF_{CI}	Soil adherence factor, commercial/industrial (mg/cm^2)	0.2
GIABS	Fraction absorbed in gastrointestinal tract (unitless)	Chemical-specific
ABS_d	Skin absorption factor (unitless)	Chemical-specific
ET_{CI}	Exposure time(8 hours/day per 1 day/24 hour)	0.33
RfC	Reference concentration (mg/m^3)	Chemical-specific
VF_s	Volatilization factor for soil (m^3/kg)	See Equation 22
PEF_w	Particulate emission factor (m^3/kg)	See Equation 24

2.3.2 Construction Worker

A construction worker is assumed to be a receptor that is exposed to contaminated soil during the work day for the duration of a single on-site construction project. If multiple construction projects are anticipated, it is assumed that different workers will be employed for each project. The activities for this receptor typically involve substantial exposures to surface and subsurface soils (i.e., at depths of zero to 10 feet below ground surface) during excavation, maintenance and building construction projects (intrusive operations). A construction worker is assumed to be exposed to contaminants via the following pathways: incidental soil ingestion, dermal contact with soil, and inhalation of contaminated outdoor air (volatile and particulate emissions). While a construction worker receptor is assumed to have a higher soil ingestion rate than a commercial/industrial worker due to the type of activities performed during construction projects, the exposure frequency and duration are assumed to be significantly shorter due to the short-term nature of construction projects. However, chronic toxicity information was used when developing screening levels for a construction worker receptor. This approach is significantly more conservative than using sub-chronic toxicity data because it combines the higher soil exposures for construction workers with chronic toxicity criteria. Equations 14 and 15 were used to develop generic SSLs for cumulative exposure to carcinogenic and non-carcinogenic contaminants by all exposure pathways for a construction worker. Default exposure parameters (US EPA 2002a) are provided and were used in calculating the NMED SSLs.